United States General Accounting Office

GAO

Report to Congressional Committees

December 2003

ALASKA NATIVE VILLAGES

Most Are Affected by Flooding and Erosion, but Few Qualify for Federal Assistance

GAO-04-142

December 2003

ALASKA NATIVE VILLAGES

Most Are Affected by Flooding and Erosion, but Few Qualify for Federal Assistance

GAO Accountability • Integrity • Reliability

Highlights

Highlights of GAO-04-142, a report to the Senate and House Committees on Appropriations

Why GAO Did This Study

Approximately 6,600 miles of Alaska's coastline and many of the low-lying areas along the state's rivers are subject to severe flooding and erosion. Most of Alaska's Native villages are located on the coast or on riverbanks. In addition to the many federal and Alaska state agencies that respond to flooding and erosion, Congress established the Denali Commission in 1998 to, among other things, provide economic development services and to meet infrastructure needs in rural Alaska communities.

Congress directed GAO to study Alaska Native villages affected by flooding and erosion and to 1) determine the extent to which these villages are affected, 2) identify federal and state flooding and erosion programs, 3) determine the current status of efforts to respond to flooding and erosion in nine villages, and 4) identify alternatives that Congress may wish to consider when providing assistance for flooding and erosion.

What GAO Recommends

GAO presents to Congress a matter for consideration that directs federal agencies and the Denali Commission to assess the feasibility of alternatives for responding to flooding and erosion. In addition, GAO recommends that the Denali Commission adopt a policy to guide future infrastructure investments in Alaska Native villages affected by flooding and erosion.

www.gao.gov/cgi-bin/getrpt?GAO-04-142.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Anu Mittal at (202) 512-3841 or mittala@gao.gov.

What GAO Found

Flooding and erosion affects 184 out of 213, or 86 percent, of Alaska Native villages to some extent. While many of the problems are long-standing, various studies indicate that coastal villages are becoming more susceptible to flooding and erosion due in part to rising temperatures.

The Corps of Engineers and the Natural Resources Conservation Service administer key programs for constructing flooding and erosion control projects. However, small and remote Alaska Native villages often fail to qualify for assistance under these programs—largely because of agency requirements that the expected costs of the project not exceed its benefits. Even villages that do meet the cost/benefit criteria may still not receive assistance if they cannot meet the cost-share requirement for the project.

Of the nine villages we were directed to review, four—Kivalina, Koyukuk, Newtok, and Shishmaref—are in imminent danger from flooding and erosion and are planning to relocate, while the remaining five are in various stages of responding to these problems. Costs for relocating are expected to be high. For example, the cost estimates for relocating Kivalina range from $100 million to over $400 million. Relocation is a daunting process that may take several years to accomplish. During that process, federal agencies must make wise investment decisions, yet GAO found instances where federal agencies invested in infrastructure at the villages' existing sites without knowledge of their plans to relocate.

GAO, federal and state officials, and village representatives identified some alternatives that could increase service delivery for Alaska Native villages, although many important factors must first be considered:

- Expand the role of the Denali Commission.
- Direct federal agencies to consider social and environmental factors in their cost/benefit analyses.
- Waive the federal cost-sharing requirement for these projects.
- Authorize the "bundling" of funds from various federal agencies.

Bluff Erosion at Shishmaref

Source: GAO.

Contents

Tables

Figures

Abbreviations

ANCSA	Alaska Native Claims Settlement Act
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
GAO	General Accounting Office
NAHASDA	Native American Housing Assistance Self-Determination Act of 1996
NRCS	Natural Resources Conservation Service
WRDA	Water Resources Development Act

Contents

GAO
Accountability * Integrity * Reliability

United States General Accounting Office
Washington, D.C. 20548

December 12, 2003

The Honorable Ted Stevens
Chairman
The Honorable Robert C. Byrd
Ranking Minority Member
Committee on Appropriations
United States Senate

The Honorable C.W. Bill Young
Chairman
The Honorable David R. Obey
Ranking Minority Member
Committee on Appropriations
House of Representatives

Alaska's shoreline is subject to periodic, yet severe, erosion. During these episodes, over 100 feet of land can be lost in a single storm. The state also has thousands of miles of riverbanks that are prone to annual flooding during the spring thaw. These shorelines and riverbanks serve as home to over 200 Native villages whose inhabitants hunt and fish for subsistence. Coastal and river flooding and erosion cause millions of dollars of property damage in Alaska Native villages, damaging or destroying homes, public buildings, and airport runways. Because Alaska Native villages are often in remote areas not accessible by roads, village airport runways are lifelines for many villages, and any threat to the runways either from flooding or erosion may be a threat to the villages' survival. Flooding and erosion can also destroy meat drying racks and damage food cellars, threatening the winter food supply and the traditional subsistence lifestyle of Alaska Natives.

Since 1977, the state, and in some cases the federal government, has responded to more than 190 disaster emergencies in Alaska, many in response to these problems. Several federal and state agencies are directly or indirectly involved in providing assistance for flooding and erosion in Alaska. In addition, the Denali Commission, created by Congress in 1998, while not directly responsible for responding to flooding and erosion, is charged with addressing crucial needs of rural Alaska communities,

particularly isolated Alaska Native villages.[1] The commission is composed of a federal and a state cochair and representatives from local agencies, as well as Alaska Native, public, and private entities. For fiscal year 2003, the commission was provided with almost $99 million in federal funds to carry out its mission. The purpose of the commission is to (1) deliver the services of the federal government in the most cost-effective manner practicable; (2) provide job training and other economic development services in rural communities; and (3) promote rural development and provide infrastructure such as water, sewer, and communication systems.

The fiscal year 2003 Conference Report for the military construction appropriation bill directed GAO to study Alaska Native villages affected by flooding and erosion.[2] In response to this direction and subsequent discussions with your staff, we (1) determined the extent to which Alaska Native villages are affected by flooding and erosion; (2) identified federal and Alaska state programs that provide assistance for flooding and erosion and assessed the extent to which federal assistance has been provided to Alaska Native villages; (3) determined the status of efforts, including cost estimates, to respond to flooding and erosion in select villages seriously affected by flooding and erosion; and (4) identified alternatives that Congress may wish to consider when providing assistance for flooding and erosion of Alaska Native villages.

To address the objectives for this report, we reviewed federal and state flooding and erosion studies and project documents and interviewed federal and state agency officials and representatives from each of the nine villages. We also visited four of the nine villages. While the committee directed us to include at least six villages in our study—Barrow, Bethel, Kaktovik, Kivalina, Point Hope, and Unalakleet—we added three more—Koyukuk, Newtok, and Shishmaref—based on discussions with congressional staff and with federal and Alaska state officials familiar with flooding and erosion problems. Appendix I provides further details about the scope and methodology of our review.

Results in Brief

According to federal and state officials in Alaska, 184 out of 213, or 86.4 percent of Alaska Native villages experience some level of flooding and

[1]Pub. L. No. 105-277, tit. III, 112 Stat. 2681 (1998).

[2]H. R. Conf. Rep. No. 107-731, at 15 (2002).

erosion, but it is difficult to assess the severity of the problem because quantifiable data are not available for remote locations. Native villages on the coast or along rivers are subject to both annual and episodic flooding and erosion. Various studies and reports indicate that coastal villages in Alaska are becoming more susceptible to flooding and erosion in part because rising temperatures cause protective shore ice to form later in the year, leaving the villages vulnerable to fall storms. For example, the barrier island village of Shishmaref, which is less than 1,320 feet wide, lost 125 feet of beach to erosion during an October 1997 storm. In addition, villages in low-lying areas along riverbanks or in river deltas are susceptible to flooding and erosion caused by ice jams, snow and glacial melts, rising sea levels, and heavy rainfall. For many villages, ice jams that form in the Kuskokwim and Yukon Rivers during the spring ice breakup cause the most frequent and severe floods by creating a buildup of water behind the jam. The resulting accumulation of water can flood entire villages. While flooding and erosion affect most Alaska Native villages, federal and state officials noted that Alaska has significant data gaps because of a lack of monitoring equipment in remote locations. This lack of baseline data makes it difficult to assess the severity of the problem.

The Continuing Authorities Program, administered by the U.S. Army Corps of Engineers, and the Watershed Protection and Flood Prevention Program, administered by the Department of Agriculture's Natural Resources Conservation Service, are the principal federal programs that provide assistance for the prevention or control of flooding and erosion. However, small and remote Alaska Native villages often fail to qualify for assistance under these programs because they do not meet program criteria. For example, according to the Corps' guidelines for evaluating water resource projects, the Corps generally cannot undertake a project when the economic costs exceed the expected benefits. With few exceptions, Alaska Native villages' requests for assistance under this program are denied because the project costs usually outweigh expected benefits. Even villages that meet the Corps' cost/benefit criteria may still fail to qualify if they cannot meet cost-share requirements for the project. The Department of Agriculture's Natural Resources Conservation Service's Watershed Protection and Flood Prevention Program also requires a cost/benefit analysis similar to that of the Corps. As a result, few Alaska Native villages qualify for assistance under this program. However, the Natural Resources Conservation Service has other programs that have provided limited assistance to these villages—in part because these programs consider additional social and environmental factors in developing their cost/benefit analysis. Besides programs administered by the Corps of Engineers and the

Natural Resources Conservation Service, there are several other federal and state programs that offer limited assistance to Alaska Native villages in responding to flooding and erosion. For example, the Federal Aviation Administration can assist with rebuilding or repairing airstrips that are affected by flooding and erosion, and the Alaska Department of Community and Economic Development provides coordination and technical assistance to communities to help reduce losses and damage from flooding and erosion. However, these programs are generally not prevention programs, but are available to assist communities in preparing for or responding to the consequences of flooding and erosion.

Of the nine villages we were directed to review, four—Kivalina, Koyukuk, Newtok, and Shishmaref—are in imminent danger from flooding and erosion and are making plans to relocate; the remaining villages are taking other actions. Kivalina, Newtok, and Shishmaref are working with relevant federal agencies to determine the suitability of possible relocation sites, while Koyukuk is in the early stages of planning for relocation. Because of the high cost of materials and transportation in remote parts of Alaska, the cost of relocation for these villages is expected to be high. For example, the Corps estimates that the cost to relocate Kivalina, which has a population of about 385, could range from $100 million for design and construction of infrastructure, including a gravel pad, at one site and up to $400 million for just the cost of building a gravel pad at another site. Cost estimates for relocating the other three villages are not yet available. The five villages not planning to relocate—Barrow, Bethel, Kaktovik, Point Hope, and Unalakleet—are in various stages of responding to their flooding and erosion problems. For example, two of these villages, Kaktovik and Point Hope, are studying ways to prevent flooding of specific infrastructure, such as the airport runway. In addition, Bethel, a regional hub in southwest Alaska with a population of about 5,471, has a project under way to stop erosion of its riverbank. The project involves repairing an existing seawall and extending it 1,200 feet to protect the entrance to the village's small boat harbor, at an initial cost estimate of more than $4.7 million and average annual costs of $374,000.

During our review of the nine villages, we found instances where federal agencies invested in infrastructure projects without knowledge of the villages' plans to relocate. For example, the Denali Commission and the Department of Housing and Urban Development were unaware of Newtok's relocation plans when they decided to jointly fund a new health clinic in the village for $1.1 million (using fiscal year 2002 and 2003 funds). While we recognize that development and maintenance of critical

infrastructure, such as health clinics and runways, are necessary as villages find ways to respond to flooding and erosion, we question whether limited federal funds for these projects are being expended in the most effective and efficient manner. Had the agencies known of the village's relocation plans they could have explored other, potentially less costly, options for meeting the village's needs, until it is able to relocate. The Denali Commission has recognized this issue as a concern and is working on a policy to ensure that investments are made in a conscientious and sustainable manner for villages threatened by flooding and erosion. Successful implementation of such a policy will depend in part on its adoption by individual federal agencies that also fund infrastructure development in Alaska Native villages. We are recommending that the Denali Commission adopt a policy that will guide future infrastructure investments and project designs in villages affected by flooding and erosion.

The unique circumstances of Alaska Native villages and their inability to qualify for assistance under a variety of federal flooding and erosion programs may require special measures to ensure that they receive certain needed services. Federal and Alaska state officials and Alaska Native village representatives that we spoke with identified several alternatives that could help mitigate the barriers that villages face in obtaining federal services. The alternatives discussed below may be considered individually or in combination. However, adopting some of these alternatives will require consideration of a number of important factors including the potential to set a precedent for other communities and programs as well as resulting budgetary implications.

- Expand the role of the Denali Commission to include responsibility for managing a flooding and erosion assistance program, which it currently does not have.

- Direct the Corps and the Natural Resources Conservation Service to consider social and environmental factors in their cost benefit analyses for projects requested by Alaska Native villages.

- Waive the federal cost-sharing requirement for flooding and erosion programs for Alaska Native villages.

In addition, as a fourth alternative, GAO identified the bundling of funds from various agencies to address flooding and erosion problems in Alaska Native villages. While we did not determine the cost or the national policy

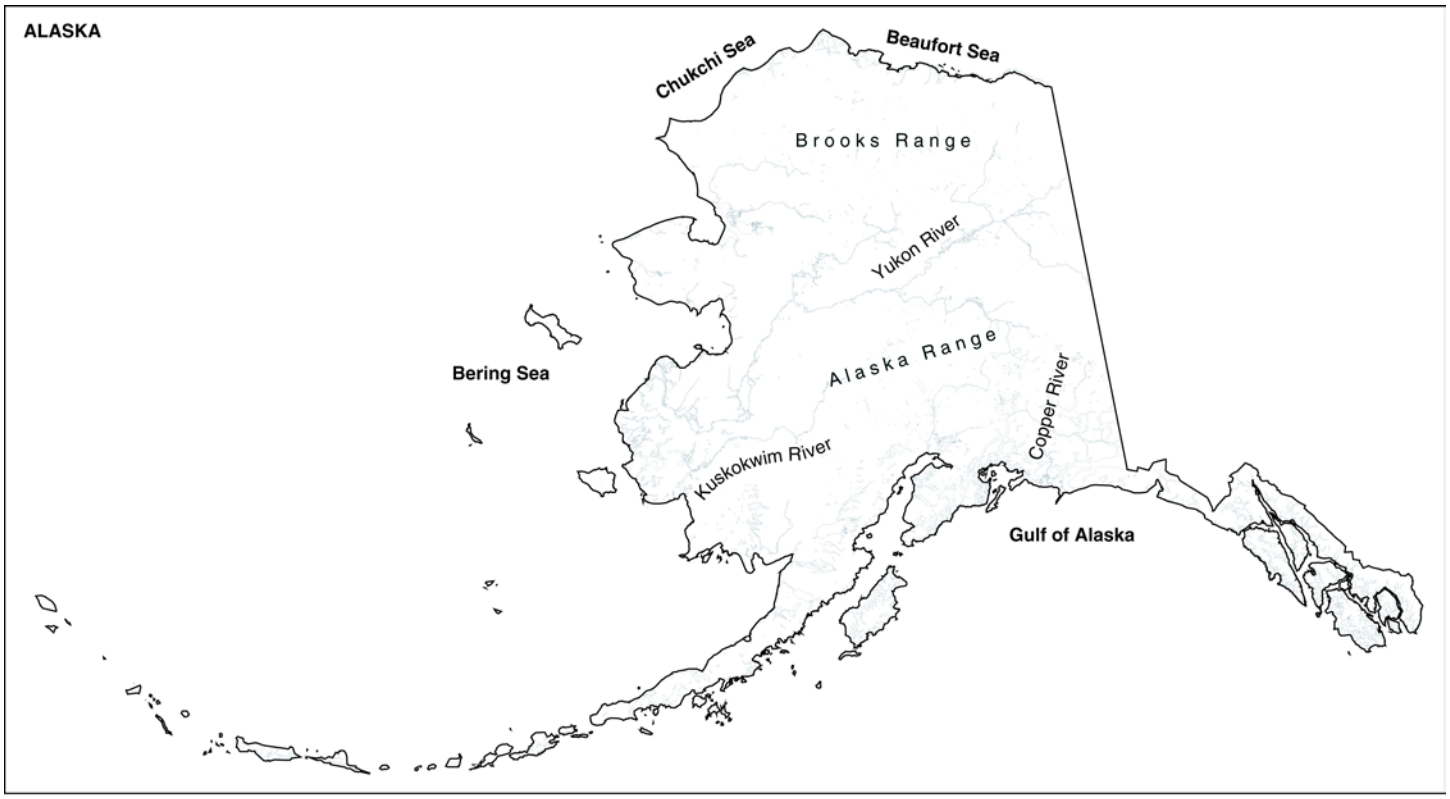
implications associated with any of these alternatives, these costs and implications are important considerations in determining the appropriate level of federal services that should be available to respond to flooding and erosion in Alaska Native villages. Consequently, we are providing Congress with a matter for consideration that it direct relevant executive agencies and the Denali Commission to assess the feasibility of each of the alternatives, as appropriate. In addition, the Denali Commission may want to comment on the implications of expanding its role.

Background

Alaska encompasses an area of about 365 million acres, more than the combined area of the next three largest states—Texas, California, and Montana. The state is bound on three sides by water, and its coastline, which stretches about 6,600 miles (excluding island shorelines, bays and fjords) and accounts for more than half of the entire U.S. coastline, varies from rocky shores, sandy beaches, and high cliffs to river deltas, mud flats, and barrier islands. The coastline constantly changes due to wave action, ocean currents, storms, and river deposits and is subject to periodic, yet severe, erosion. Alaska also has more than 12,000 rivers, including three of the ten largest in the country—the Yukon, Kuskokwim, and Copper Rivers.[3] (See fig. 1.) While these and other rivers provide food, transportation, and recreation for people, as well as habitat for fish and wildlife, their waters also shape the landscape. In particular, ice jams on rivers and flooding of riverbanks during spring breakup change the contour of valleys, wetlands, and human settlements.

[3]The size is determined by the average rate of flow (discharge at the mouth).

Figure 1: Map of Alaska Showing Major Rivers, Oceans, and Mountain Ranges



Source: Mapping information from Meridian GeoSystems, Inc.

Permafrost (permanently frozen subsoil) is found over approximately 80 percent of Alaska. It is deepest and most extensive on the Arctic Coastal Plain and decreases in depth, eventually becoming discontinuous further south. In northern Alaska, where the permafrost is virtually everywhere, most buildings are elevated to minimize the amount of heat transferred to the ground to avoid melting the permafrost. In northern barrier island communities, the permafrost literally helps hold the island together. However, rising temperatures in recent years have led to widespread thawing of the permafrost, causing serious damage. As permafrost melts, buildings and runways sink, bulk fuel tank areas are threatened, and slumping and erosion of land ensue. (See fig. 2.)

Figure 2: Sea Erosion at Shishmaref (June 2003)

Source: GAO.

Rising temperatures have also affected the thickness, extent, and duration of sea ice that forms along the western and northern coasts. The loss of sea ice leaves coasts more vulnerable to waves, storm surges, and erosion. When combined with the thawing of permafrost along the coast, this loss of sea ice poses a serious threat to coastal Alaska Native villages. Furthermore, loss of sea ice alters the habitat and accessibility of many of the marine mammals that Alaska Natives depend upon for subsistence. As the ice melts or moves away early, walruses, seals, and polar bears move with it, taking them too far away to be hunted.

Although Alaska is by far the largest state, it is one of the least populated, with about 630,000 people—of which 19 percent, or about 120,000, are Alaska Natives.[4] Over half of the state's population is concentrated in the Kenai Peninsula, Anchorage, and the Matanuska-Susitna area in south central Alaska. Many Alaska Natives, however, live in places long inhabited by their ancestors in rural areas in western, northern, and interior Alaska. Alaskan Natives are generally divided into six major groupings: Unangan (Aleuts), Alutiiq (Pacific Eskimos), Iñupiat (Northern Eskimos), Yup'ik (Bering Sea Eskimos), Athabascan (Interior Indians), and Tlingit and Haida (Southeast Coastal Indians).[5] For generations, these Alaska Natives have used the surrounding waters and land to hunt, fish, and gather wild plants for food. (See fig. 3.) These subsistence activities are intricately woven into the fabric of their lives. Subsistence activities require a complex network of social relationships within the Native community. For example, there is a division of labor among those who harvest, those who prepare, and those who distribute the food. These activities establish and promote the basic values of Alaska Native culture—generosity, respect for the knowledge and guidance of elders, self-esteem for the successful hunter(s), and community cooperation—and they form the foundation for continuity between generations. As their environment changes along with the climate, however, Alaska Natives have few adaptive strategies, and their traditional way of life is becoming increasingly vulnerable.

[4]The U.S. Census Bureau defines this category as American Indian and Alaska Native.

[5]Other Alaska Native groups include Siberian Yupik of St. Lawrence Island and Tsimshian of southeast Alaska.

Figure 3: Subsistence Harvesting of a Seal in Kivalina (June 2003)

Source: GAO.

A typical coastal or river Native village has a population of a couple of hundred people and generally contains only basic infrastructure—homes, a school, a village store, a health clinic, a washateria, a church, city or tribal offices, and a post office. The school is usually the largest building in the community. Since many villages do not have running water, the washateria plays an important role; it not only contains laundry facilities, but also shower and toilet facilities—which residents must pay a fee to use. Many village homes do not have sanitation facilities and rely on honey buckets—5-gallon buckets that serve as a toilet—or a flush and haul system.[6] Most of the villages that are not accessible by roads contain an airport runway that provides the only year-round access to the community. The runways are generally adjacent to the village or a short distance away. Other infrastructure in a village may consist of a bulk fuel tank farm, a power plant, a water treatment facility, a water tank, meat drying racks, a village

[6]A flush and haul system generally consists of individual storage tanks that provide water to flush toilets, and the sewage is then stored in a separate tank whose contents are transported to a sewage lagoon.

sewage lagoon or dump site, and, for some villages, commercial structures such as tanneries. Most river villages also have a barge landing area where goods are delivered to the community during the ice-free period.

Multiple Entities Make Up the Alaska Native Village Governing Structure

The government structure of Native villages may contain several distinct entities that perform administrative tasks, including making decisions about how to address flooding and erosion. Alaska's constitution and state laws allow for several types of regional and local government units, such as boroughs—units of government that are similar to the counties found in many other states. About a third of Alaska is made up of 16 organized boroughs. The remaining two-thirds of the state is sparsely populated land that is considered a single "unorganized borough." At the village level, a federally recognized tribal government may coexist with a city government, which may also be under a borough government. Alaska has more than 200 federally recognized tribal governments.

In addition to these various government entities, federal agencies that provide assistance for flooding and erosion also work with local and regional Native corporations. Federal law directed the establishment of these corporations under the laws of the state of Alaska, and the corporations are organized as for-profit entities that also have nonprofit arms. In December 1971, Congress enacted the Alaska Native Claims Settlement Act (ANCSA), which directed the establishment of 12 for-profit regional corporations—one for each geographic region comprised of Natives having a common heritage and sharing common interests—and over 200 village corporations.[7] These corporations would become the vehicle for distributing land and monetary benefits to Alaska Natives to provide a fair and just settlement of aboriginal land claims in Alaska. The act permitted the conveyance of about 44 million acres of land to Alaska Native corporations, along with cash payments of almost $1 billion.[8] (See appendix II for a list of the regional corporations and the corresponding nonprofit arms that provide social services to the villages and also help them address problems, including flooding and erosion.)

[7]Pub. L. No. 92-203, 85 Stat. 688 (1971). In addition, a thirteenth corporation was established later for nonresident Alaska Natives.

[8]A thirteenth regional corporation was later established for nonresident Alaska Natives. This corporation participated only in ANCSA's cash settlement and did not receive any ANCSA lands or other ANCSA benefits.

Several Federal and State Agencies Are Responsible for Responding to Flooding and Erosion

Federal, state, and local government agencies share responsibility for controlling and responding to flooding and erosion. The U.S. Army Corps of Engineers has responsibility for planning and constructing streambank and shoreline erosion protection and flood control structures under a specific set of requirements.[9] The Department of Agriculture's Natural Resources Conservation Service (NRCS) is responsible for protecting small watersheds. A number of other federal agencies, such as the Departments of Transportation and Housing and Urban Development, also have responsibility for protecting certain infrastructure from flooding and erosion. On the state side, the Division of Emergency Services responds to state disaster declarations dealing with flooding and erosion when local communities request assistance. The Alaska Department of Community and Economic Development helps communities reduce losses and damage from flooding and erosion. The Alaska Department of Transportation and Public Facilities funds work to protect runways from erosion. Local governments such as the North Slope Borough have also funded erosion control and flood protection projects.

In addition to government agencies, the Denali Commission, created by Congress in 1998, while not directly responsible for responding to flooding and erosion, is charged with addressing crucial needs of rural Alaska communities, particularly isolated Alaska Native villages. The membership of the commission consists of federal and state cochairs and a five-member panel from statewide organization presidents. The mission of the commission is to partner with tribal, federal, state, and local governments to improve the effectiveness and efficiency of government services; to build and ensure the operation and maintenance of Alaska's basic infrastructure; and to develop a well-trained labor force. The commission funds infrastructure projects throughout the state, ranging from health clinics to bulk fuel tanks. The commission has also funded the construction of new infrastructure when flooding and erosion threatened the existing structures.

[9]The Corps may study and construct erosion protection and flood control structures, provided it receives authority and appropriations from Congress to do so. In addition to building structures, the Corps may also consider and implement non-structural and relocation alternatives.

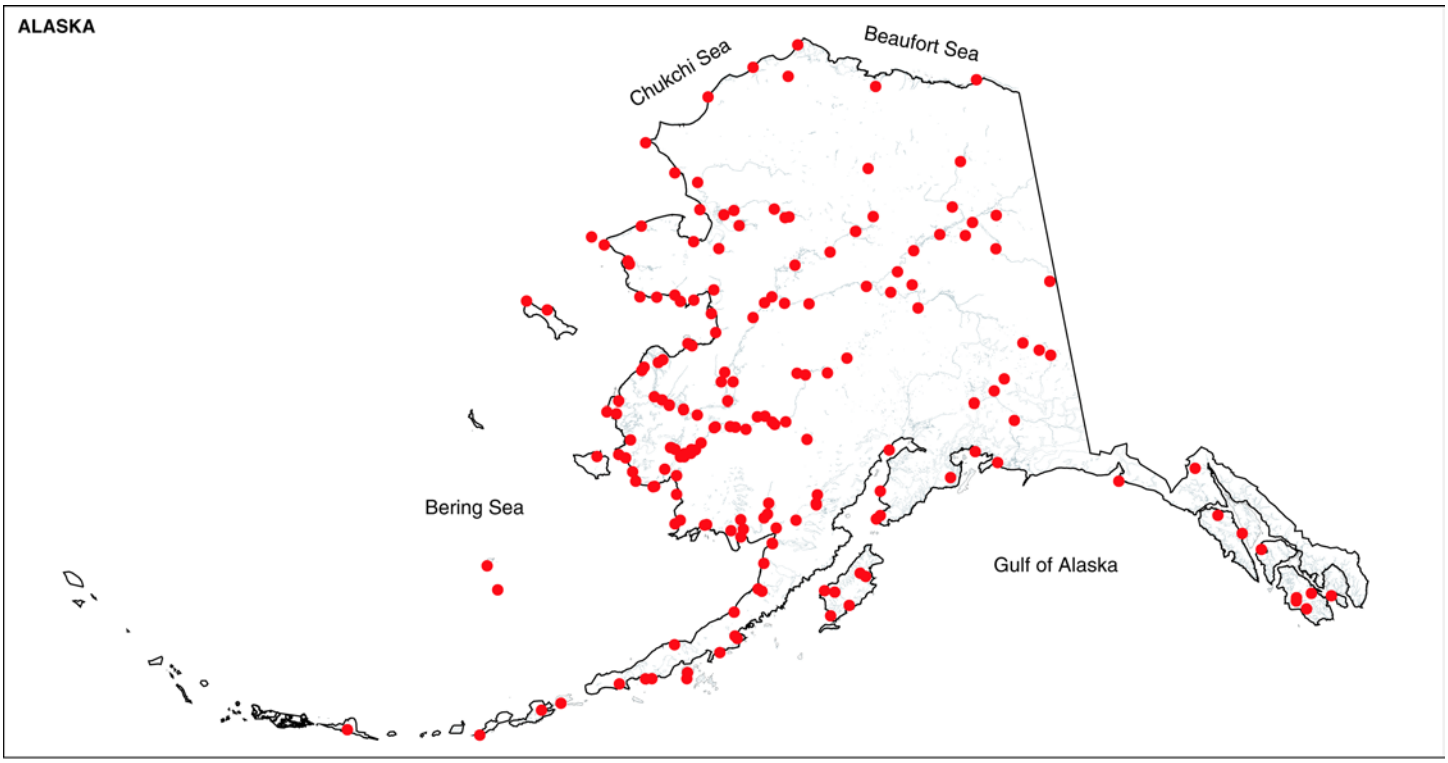
Most Alaska Native Villages Are Affected to Some Extent by Flooding and Erosion

According to federal and Alaska state officials that we consulted, most of the 213 Alaska Native villages are subject to flooding and erosion. However, it is difficult to assess the severity of the problem because quantifiable data on flooding and erosion are not available for remote locations. Villages located on the coast or along rivers are subject to both annual and episodic flooding and erosion. In addition, river villages are also susceptible to flooding and erosion caused by ice jams, snow and glacial melts, rising sea levels, and heavy rainfall.

Coastal or River Flooding and Erosion Affects 86 Percent of Alaska Native Villages

Flooding and erosion affects 184 out of 213, or 86.4 percent, of Alaska Native villages to some extent, according to studies and information provided to us by federal and Alaska state officials. The 184 affected villages consist of coastal and river villages throughout the state. Figure 4 shows the location of these villages, and table 1 shows the number of affected villages by ANCSA region. All 184 Native villages affected by flooding and erosion are listed in appendix III.

Figure 4: Locations of 184 Native Villages Affected by Flooding and Erosion



Sources: GAO (analysis); Meridian GeoSystems, Inc., (map).

Table 1: Number of ANCSA-Eligible Villages Affected by Flooding and Erosion, by Region

Region	Alaska Native villages	Alaska Native villages affected by flooding and erosion
Ahtna	8	4
Aleut	13	13
Arctic Slope	8	6
Bering Straits	20	18
Bristol Bay	29	27
Calista	56	49
Chugach	5	4
Cook Inlet Region	7	3
Doyon	37	33
Koniag	9[a]	6
NANA	11	11
Sealaska	10	10
Total	**213**	**184**

Source: GAO.

[a]There are seven additional ANCSA-eligible villages in the Koniag region, but they do not have corresponding Alaska Native entities recognized by the Department of the Interior's Bureau of Indian Affairs.

Villages on the coast are affected by flooding and erosion from the sea. For example, when these villages are not protected by sea ice, they are at risk of flooding and erosion from storm surges. Lack of sea ice also increases the distance over water, which can generate increased waves and storm surges. In the case of Kivalina, the community has experienced erosion from sea storms, particularly in late summer or fall. These storms can result in a sea level rise of 10 feet or more, and when combined with high tide, the storm surge becomes even greater and can be accompanied by waves that contain ice. In addition to coastal villages, communities in low-lying areas along riverbanks or in river deltas are susceptible to flooding and erosion caused by ice jams, snow and glacial melts, rising sea levels and heavy rainfall. For example, the village of Aniak, on the Kuskokwim River in southwestern Alaska, experiences flooding every 3 or 4 years. Ice jams that form on the river during the spring breakup cause the most frequent and severe floods in Aniak, sometimes accompanied by streambank erosion from the ice flow. (See fig. 5.)

Figure 5: Aerial View of Flooding in Aniak (c. 2002)

Source: Alaska Division of Emergency Services.

Flooding and erosion are long-standing problems in Alaska. For example, these problems have been well documented in Bethel, Unalakleet, and Shishmaref dating back to the 1930s, 1940s, and 1950s, respectively. The state has made several efforts to identify communities affected by flooding and erosion over the past 30 years. In 1982, a state contractor developed a list of Alaska communities affected by flooding and erosion.[10] This list identified 169 of the 213 Alaska Native villages, virtually the same villages identified by federal and state officials that we consulted in 2003. In addition, the state appointed an Erosion Control Task Force in 1983 to

[10]This report was prepared for the Alaska Department of Community and Regional Affairs, the predecessor of the Alaska Department of Community and Economic Development.

investigate and inventory potential erosion problems and to prioritize erosion sites by severity and need. In its January 1984 final report, the task force identified a total of 30 priority communities with erosion problems. Of these 30 communities, 28 are Alaska Native villages. Federal and state officials that we spoke with in 2003 also identified almost all of the Native communities in the 1984 report as villages needing assistance.

While flooding and erosion is a long-standing problem that has been documented in Alaska for decades, various studies and reports indicate that coastal villages in Alaska are becoming more susceptible. This increasing susceptibility is due in part to rising temperatures that cause protective shore ice to form later in the year, leaving the villages vulnerable to storms. According to the Alaska Climate Research Center, mean annual temperatures have risen for the period from 1971 to 2000, although changes varied from one climate zone to another and were dependent on the temperature station selected. For example, Barrow experienced an average temperature increase of 4.16 degrees Fahrenheit for the 30-year period from 1971 to 2000, while Bethel experienced an increase of 3.08 degrees Fahrenheit for the same time period.

Other studies have reported extensive melting of glaciers, thawing of permafrost, and reduction of sea ice that may also be contributing to the flooding and erosion problems of coastal villages in recent years. According to a 1999 report for the U.S. Global Change Research Program, glaciers in the arctic and subarctic regions have generally receded, with decreases in ice thickness of approximately 33 feet over the last 40 years. In addition, according to a 1997 report of the Intergovernmental Panel on Climate Change, much of the arctic permafrost is close to thawing, making it an area that is sensitive to small changes in temperature. The 1999 report for the U.S. Global Change Research Program also states that both the extent and thickness of sea ice in the arctic have decreased substantially in recent decades, with thickness decreasing by more than 4 feet (from 10-feet to 6-feet thick). The report also notes that loss of sea ice along Alaska's coast has increased both coastal erosion and vulnerability to storm surges. With less ice, storm surges have become more severe because larger open water areas can generate bigger waves.

Quantifiable Data Are Not Available to Fully Assess the Severity of the Problem

While most Alaska Native villages are affected to some extent by flooding and erosion, quantifiable data are not available to fully assess the severity of the problem. Federal and Alaska state agency officials could agree on which three or four villages experience the most flooding and erosion, but

they could not rank flooding and erosion in the remaining villages by high, medium, or low severity. These agency officials said that determining the extent to which villages have been affected by flooding and erosion is difficult because Alaska has significant data gaps. These gaps occur because remote locations lack monitoring equipment. The officials noted that about 400 to 500 gauging stations would have to be added in Alaska to attain the same level of gauging as in the Pacific Northwest.

In addition, the amount and accuracy of floodplain information in Alaska varies widely from place to place.[11] Detailed floodplain studies have been completed for many of the larger communities and for the more populated areas along some rivers. For example, the Federal Emergency Management Agency (FEMA) has published Flood Insurance Rate Maps that show floodplain boundaries and flood elevations for communities that participate in the National Flood Insurance Program. However, because only a handful of Alaska Native villages participate in the program, many of the villages have not had their 100-year floodplain identified by FEMA. In addition, little or no documented floodplain information exists for most of the smaller communities. Moreover, no consolidated record has been maintained of significant floods in Alaska Native villages. The Corps' Flood Plain Management Services has an ongoing program to identify the 100-year flood elevation, or the flood of record of flood-prone communities through data research and field investigations.

State of Alaska officials also noted that there is a lack of standards and terms for measuring erosion. Erosion zone guidance and federal (or state) standards by which to judge erosion risks are needed. They noted that while national standards for designing, developing and siting for the "100-year flood" event exists and are quantifiable and measurable, a similar standard for erosion, such as a distance measurement needs to be established.

[11]Floodplain refers to the lowlands adjoining the channel of a river, stream, or watercourse, or ocean, lake, or other body of standing water, which have been or may be inundated by floodwater. The channel of a stream or watercourse is part of the floodplain.

Federal Flooding and Erosion Programs Provide Limited Assistance to Alaska Native Villages; Some State Programs Are Also Available

The key programs that construct projects to prevent and control flooding and erosion are administered by the Corps and NRCS. However, Alaska Native villages have difficulty qualifying for assistance under some of these programs—largely because of program requirements that the economic costs of the project not exceed its economic benefits. In addition to the Corps and NRCS, several other federal and state agencies have programs to provide assistance for specific consequences of flooding and erosion, such as programs to replace homes or to rebuild or repair roads and airstrips.

Federal Programs Are Available to Respond to Problems Associated with Flooding and Erosion

The Continuing Authorities Program, administered by the Corps, and the Watershed Protection and Flood Prevention Program, administered by NRCS, are the principal programs available to prevent flooding and control erosion. Table 2 below lists and describes the five authorities under the Corps' Continuing Authorities Program that address flooding and erosion, while table 3 identifies the main NRCS programs that provide assistance for flooding and erosion.

Table 2: Authorities that Address Flooding and Erosion under the Corps' Continuing Authorities Program

Program authority	Description
Section 14 of the Flood Control Act of 1946	For emergency streambank and shoreline erosion protection for public facilities
Section 205 of the Flood Control Act of 1948	Authorizes flood control projects
Section 208 of the Flood Control Act of 1954	Authorizes flood control activities
Section 103 of the River and Harbor Act of 1962	Protect shores of publicly owned property from hurricane and storm damage
Section 111 of the River and Harbor Act of 1968	Mitigate shoreline erosion damage cause by federal navigation projects

Source: GAO analysis of Corps program information.

In addition to the Corps' Continuing Authorities Program, other Corps authorities that may address problems related to flooding and erosion include the following:

- Section 22 of the Water Resources Development Act of 1974, which provides authority for the Corps to assist states in the preparation of comprehensive plans for the development, utilization, and conservation of water and related resources of drainage basins.

- Section 206 of the Flood Control Act of 1960, which allows the Corps' Flood Plain Management Services' Program to provide states and local governments technical services and planning guidance that is needed to support effective flood plain management.

Table 3: NRCS Programs That Respond to Flooding and Erosion

Program	Description
Watershed Protection and Flood Prevention Program	Provides funding for projects that control erosion and prevent flooding. Limited to watersheds that are less than 250,000 acres.
Emergency Watershed Protection Program	Provides assistance where there is some imminent threat—usually from some sort of erosion caused by river flooding.
Conservation Technical Assistance Program	Provides technical assistance to communities and individuals to solve natural resource problems including reducing erosion, improving air and water quality, and maintaining or restoring wetlands and habitat.

Source: GAO analysis of NRCS program information.

In addition to these programs, several other federal programs can assist Alaska Native villages in responding to the consequences of flooding by funding tasks such as moving homes, repairing roads, or rebuilding airport runways. Table 4 lists these programs.

Table 4: Other Key Federal Programs That Can Address Problems Caused by Flooding and Erosion

Agency/program	Description
Federal Emergency Management Agency/National Flood Insurance Program	Makes flood insurance available to residents of communities that adopt and enforce minimum floodplain management requirements.
Federal Emergency Management Agency/Public Assistance Program	Provides supplemental federal disaster grant assistance for the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain nonprofit organizations.
Department of Transportation/Federal Highway Administration (FHWA)	Provides funding through the state of Alaska for roads, pedestrian facilities, and snowmobile trails. FHWA monies may be available to assist villages with improving or repairing roads/boardwalks.
Department of Transportation/Federal Aviation Administration (FAA)/Alaska Region Airports Division	Provides funding to improve airport infrastructure—including those threatened by flooding and erosion. Could fund relocation of an airport if necessitated by community relocation providing the airport meets criteria for funding—airport is in the National Plan of Integrated Airport System and meets FAA design standards. However, the villages first need to be relocated first before the new airport is built.
Housing and Urban Development/Community Development Block Grants Program	Provides grants to Indian tribes and Alaska Native villages to develop economic opportunities and build decent housing for low and moderate-income residents.
Housing and Urban Development/Native American Housing Assistance Self-Determination Act of 1996 (NAHASDA)	Provides grants and technical assistance to Indian tribes and Alaska Native villages to develop affordable housing for low-income families. NAHASDA funds could also be used to move homes that are threatened by flooding and erosion.
Housing and Urban Development/Imminent Threats Grants Program	Provides funding to alleviate or remove imminent threats to health or safety—including threats posed by flooding and erosion.
Bureau of Indian Affairs/Road Maintenance Program	Provides funding for maintaining and repairing roads, culverts, and airstrips in order to provide a foundation for economic development.
Bureau of Indian Affairs/Housing Improvement Program	Provides grants and technical assistance to replace substandard housing, including housing that is threatened, damaged, or lost due to erosion or flooding.
Department of Commerce's Economic Development Administration/Economic Adjustment Program	Provides assistance to protect and develop the economies of communities. This assistance could involve building erosion or flood control structures in order to protect village commercial structures, such as canneries.

Source: GAO analysis of agencies' data.

Villages Have Difficulty Qualifying for the Corps' Program

Small and remote Alaska villages often fail to qualify for assistance under the Corps' Continuing Authorities Program because they do not meet the program's criteria. In particular, according to the Corps' guidelines for evaluating water resource projects, the Corps generally cannot undertake a project whose costs exceed its expected benefits.[12] With few exceptions, Alaska Native villages' requests for the Corps' assistance are denied because of the Corps' determination that project costs outweigh the expected benefits. Alaska Native villages have difficulty meeting the cost/benefit requirement because many of these villages are not developed to the extent that the value of their infrastructure is high enough to equal the cost of a proposed erosion or flood control project. For example, the Alaska Native village of Kongiganak, with a population of about 360 people, experiences severe erosion from the Kongnignanohk River. The Corps decided not to fund an erosion project because the cost of the project exceeds the expected benefits and because many of the structures threatened are private property, which are not eligible for protection under a Section 14 Emergency Streambank Protection project. One additional factor that makes it difficult for Alaska Native villages to qualify for the Corps' program is that the cost of construction is high in remote villages—largely because labor, equipment, and materials have to be brought in from distant locations. The high cost of construction makes it even more difficult for villages to meet the Corps' cost/benefit requirements.

[12]The Corps' guidelines are based on the Flood Control Act of 1936, which provides that "the Federal Government should improve or participate in the improvement of navigable waters or their tributaries . . . if the benefits . . . are in excess of the estimated costs." 33 U.S.C. §701a.

Even villages that do meet the Corps' cost/benefit criteria may still fail to receive assistance if they cannot provide or find sufficient funding to meet the cost-share requirements for the project. By law, the Corps generally requires local communities to fund between 25 and 50 percent of project planning and construction costs for flood prevention and erosion control projects.[13] According to village leaders we spoke to, under these cost-share requirements they may need to pay hundreds of thousands of dollars or more to fund their portion of a project—funding that many of them do not have.[14]

Qualifying for Some NRCS Programs Is Less Difficult

As shown in table 3, NRCS has three key programs that can provide assistance to villages to protect against flooding and erosion—two of which are less difficult to qualify for than the Corps program. The NRCS programs are the Watershed Protection and Flood Prevention Program, the Emergency Watershed Protection Program, and the Conservation Technical Assistance Program. The purpose of the Watershed Protection and Flood Prevention Program is to assist federal, state, and local agencies and tribal governments in protecting and restoring watersheds from damage caused by erosion, and flooding.[15] Qualifying for funding under the NRCS Watershed Protection and Flood Prevention Program requires a cost/benefit analysis similar to that of the Corps. In fact, according to an NRCS headquarters official, there should be little if any difference in the standards for cost benefit analyses between the Corps and NRCS programs. As a result, few projects for Alaskan Native villages have been funded under this program.

[13]The Corps has the authority to make cost sharing adjustments based upon a community's ability to pay under section 103 (m) of the Water Resources Development Act of 1986, as amended. 33 U.S.C. §2213 (m).

[14]According to state of Alaska officials, historically the state has provided the nonfederal matching funds for most Corps of Engineers (and other federal projects), and with the extreme budget deficits currently faced by the state of Alaska, the matching funds have been severely limited.

[15]The Watershed Protection and Flood Prevention Program was authorized under the Watershed Protection and Flood Prevention Act, Pub. L. No. 83-566 (1954).

In contrast, some villages have been able to qualify for assistance from the Emergency Watershed Protection Program, because for this program NRCS's policy is different and allows consideration of additional factors in the cost/benefit analysis.[16] Specifically, NRCS considers social or environmental factors when calculating the potential benefits of a proposed project, and protecting the subsistence lifestyle of an Alaska Native village can be included as one of these factors. In addition, NRCS headquarters officials have instructed field staff to "take a second look" at proposed projects in which the potential benefits are nearly equal to the project costs. In some cases, according to NRCS's National Emergency Watershed Protection Program Leader, there may be unusual circumstances that might make the project worthwhile even if the costs slightly outweigh the benefits. One example provided by this official was for projects that involved protecting Native American burial grounds. Furthermore, while NRCS's program encourages cost sharing by local communities, this requirement can be waived when the local community cannot afford to pay. Such was the case in Unalakleet, where the community had petitioned federal and state agencies to fund its local cost-share of an erosion protection project and was not successful. Eventually, NRCS waived the cost-share requirement for the village and covered the total cost of the project itself. (See fig. 6.) Another NRCS official in Alaska estimated that about 25 villages have requested assistance under this program during the last 5 years; of these 25 villages, 6 received some assistance from NRCS, and 19 were turned down—mostly because there were either no feasible solutions or because the problems they wished to address were recurring ones. One factor that limits the assistance provided by the program is that it is intended for smaller scale projects than those that might be constructed by the Corps. Moreover, because this program is designed to respond quickly to emergencies, it is limited to addressing one-time events—such as repairing damage caused by a large storm—rather than addressing recurring flooding and erosion.

[16]The Emergency Watershed Protection Program was authorized under the Flood Control Act of 1950, Pub. L. No. 81-516 (1950).

Figure 6: NRCS Seawall Erosion Protection Project at Unalakleet (c. 2000)

Source: NRCS.

Unlike the other NRCS programs and the Corps program, NRCS's Conservation Technical Assistance Program does not require any cost benefit analysis to qualify for assistance.[17] An NRCS official in Alaska estimated that during the last 2 years, NRCS provided assistance to about 25 villages under this program. The program is designed to provide technical assistance to communities and individuals that request help to solve natural resource problems, improve the health of the watershed, reduce erosion, improve air and water quality, or maintain or improve wetlands and habitat. The technical assistance provided can range from

[17]The Conservation Technical Assistance Program was authorized under the Soil Conservation and Domestic Allotment Act of 1935, Pub. L. No. 74-46 (1935).

advice or consultation services to developing planning, design, and/or engineering documents. The program does not fund the construction or implementation of a project.

Alaska State Programs Are Also Available to Respond to Flooding and Erosion

In addition to the federal programs, the state of Alaska has programs to help address or respond to flooding and erosion problems of Alaska Native villages. These include:

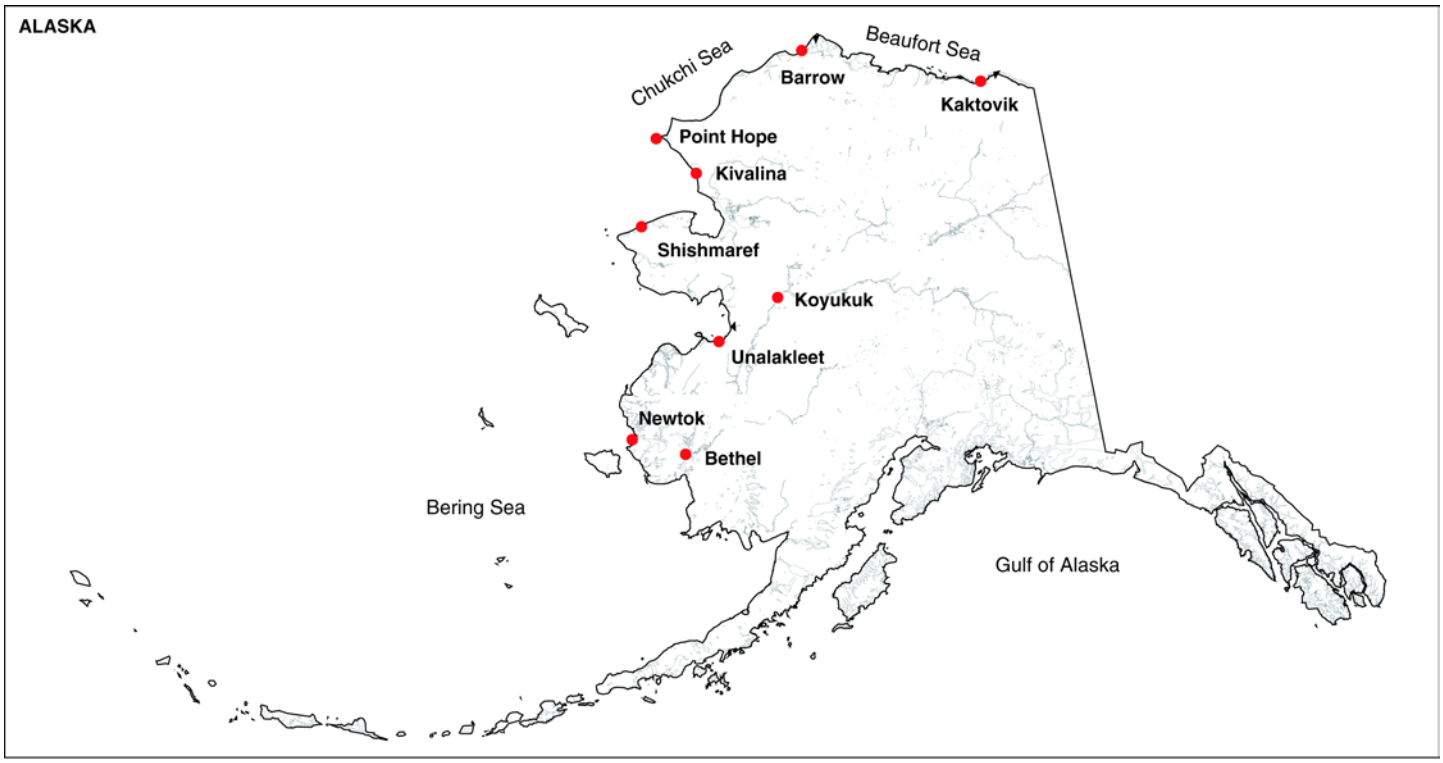
- The Alaska Department of Transportation and Public Facilities, which funds work through its maintenance appropriations to protect village airstrips from erosion.
- The Alaska Department of Community and Economic Development, which has a floodplain management program that provides coordination and technical assistance to communities to help reduce public-and private-sector losses and damage from flooding and erosion.
- The Alaska Department of Environmental Conservation, which has a Village Safe Water Program that can pay to relocate water or sewage treatment facilities that are threatened by erosion.
- The Alaska Housing Financing Corporation, which has a program to provide loans or grants to persons in imminent danger of losing their homes.
- The Alaska Division of Emergency Services, which coordinates the response to emergencies resulting from flooding and erosion, as requested by local communities. Its mission is to lead, coordinate, and support the emergency management system, in order to protect lives and prevent the loss of property from all types of hazards. With authorization from the governor, the state Disaster Relief Fund can make up to $1 million (without legislative approval) available to communities recovering from a state declared disaster. More funding may be available, with legislative approval, for presidential disaster declarations, for which the state is obligated to pay a 25 percent funding match.

In addition to these programs, the state legislature, through its appropriations, has funded erosion control structures including bulkheads and sea walls. According to state documents, between 1972 and 1991 the state spent over $40 million for erosion control statewide.

Four Villages in Imminent Danger Are Planning to Relocate, and the Remaining Five Villages Are Taking Other Actions

Four of the nine villages we reviewed are in imminent danger from flooding and erosion and are making plans to relocate, while the remaining five are taking other actions. (See fig. 7.) Of the four villages relocating, Kivalina, Newtok, and Shishmaref are working with relevant federal agencies to locate suitable new sites, while Koyukuk is just beginning the relocation planning process. The cost of relocating these villages is expected to be high, although estimates currently exist only for Kivalina. Of the five villages not planning to relocate, Barrow, Kaktovik, Point Hope, and Unalakleet each have studies under way that target specific infrastructure that is vulnerable to flooding and erosion. The fifth village, Bethel, is repairing and extending an existing seawall to protect the village's dock from river erosion. Table 5 summarizes the status of the nine villages' efforts to respond to their specific flooding and erosion problems. During our review of the nine villages, we found instances where federal agencies had invested in infrastructure projects without knowledge of the villages' plans to relocate.

Figure 7: Map of Alaska with Nine Villages Highlighted



Source: Mapping information from Meridian GeoSystems, Inc.

Table 5: Nine Alaska Native Villages' Efforts to Address Flooding and Erosion

Alaska Native village	Population	Status of efforts
Villages planning to relocate		
Kivalina	377	Located on a barrier island that is both overcrowded and shrinking. Cost estimates to relocate range from $100 million to over $400 million. The village is working with the Corps on further site selections for evaluation.
Shishmaref	562	Located on a barrier island and experiencing chronic erosion. Working on constructing a temporary seawall while concurrently working on a relocation site selection with NRCS.
Newtok	321	Suffers chronic erosion along its riverbank. Legislation for a land exchange with the U.S. Fish and Wildlife Service became law in November 2003 (Pub. L. No. 108-129). Under the Corps' Planning Assistance to States Program, the relocation study is continuing.
Koyukuk	101	Experiences severe flooding from Yukon and Koyukuk Rivers. Community is in the process of assessing prospective relocation sites.
Villages taking other actions		
Kaktovik	293	Airport runway is subject to annual flooding. FAA-funded study under way to determine least cost alternative.
Point Hope	757	Airport runway experiences flooding and is at risk of erosion. The North Slope Borough is analyzing construction alternatives for an evacuation road.
Barrow	4,581	The Corps has begun a feasibility study to address beach flooding and erosion problems, particularly along the village's utility corridor.
Unalakleet	747	Coastal and river flooding and erosion have combined to create a chronic problem at the harbor. The Corps has begun a study on improving navigational access.
Bethel	5,471	Spring break-up ice jams on the Kuskokwim River cause both periodic flooding and severe erosion along the riverbank. A seawall to protect the dock and small boat harbor is currently being repaired and extended.

Source: GAO analysis.

Four Villages in Imminent Danger Are Making Plans to Relocate

Four villages—Kivalina, Koyukuk, Newtok, and Shishmaref—are in imminent danger of flooding and eroding and are planning to relocate. (See table 5.) Kivalina and Shishmaref are located on barrier islands that are continuously shrinking due to chronic erosion. In Newtok, the Ninglick River is making its way ever closer to the village, with an average erosion rate of 90 feet per year, and is expected to erode the land under homes, schools, and businesses within 5 years. The fourth village, Koyukuk, is located near the confluence of the Yukon and Koyukuk Rivers and experiences chronic annual flooding.

Kivalina

The village of Kivalina lies on a barrier island that is both overcrowded and shrinking from chronic erosion. Surrounded by the Chukchi Sea and the

Kivalina Lagoon, the village has no further room for expansion. (See fig. 8.) A 1994 study by a private contractor found more than one instance of 16 people living together in a 900-square-foot home. Overcrowding and poor sanitation have led to an extremely high incidence of communicable diseases and other health problems in Kivalina. Chronic erosion on the lagoon side of the island and along its southeastern tip where the lagoon empties into the sea has further exacerbated overcrowding. Several homes along this side are currently in danger of falling into the lagoon. On the seaside of the island, fall storm surges create annual coastal flooding and beach erosion. Portions of the island have been breached before, and it is believed that the right combination of storm events could flood the entire village at any time.

Figure 8: Aerial view of Kivalina (c. 1999)

Source: FAA.

In 1990, the Corps placed sandbags around the southern tip of the island in an attempt to stem the erosion, but that proved to be only a temporary solution. Most recent efforts to respond to flooding and erosion have involved studying the feasibility of possible relocation sites. The villagers would like a site that is near their current location with access to the ocean so that they can continue to pursue their subsistence lifestyle. Much of the surrounding area, however, is low-lying wetlands or tundra. One of the main obstacles for selecting a site has been the requirement of a gravel pad for some of the sites under consideration. In those cases, several feet of gravel must be spread over the entire site, both to elevate the new village above the floodplain and to protect the fragile permafrost. However, gravel is not easily accessible and would have to be barged in. Similarly, the harsh, remote terrain and limited site access drive up other costs for materials and machinery. The Corps has estimated that the cost to relocate Kivalina could range from $100 million for design and construction of infrastructure (including a gravel pad) at one site and up to $400 million for just the cost of building a gravel pad at another site. As a result, the community is now considering whether to ask the Corps to evaluate completely new sites that would not require a gravel pad. Remaining on the island, however, is no longer a viable option for the community.

Shishmaref

Like Kivalina, the village of Shishmaref is located on a barrier island in the Chukchi Sea and experiences chronic erosion. During severe fall storms, as occurred in 1973, 1997, 2001, and 2002, the village has lost on average between 20 and 50 feet of land and up to 125 feet at one time. This loss is considerable for an island that is no wider than one-quarter mile (1,320 feet). After a severe storm in October 2002, stress cracks along the western seaside bluffs became evident. These cracks were 5 to 10 feet from the edge of the banks and indicated that the permafrost that holds the island together had been undermined by the storm. As the permafrost melts, the banks cave in. (See fig. 9.) Several homes located along these banks had to be relocated to prevent them from falling into the sea. After the 1997 fall storm, which was declared a state disaster, FEMA and state matching funds were used to help move 14 homes along the coastal bluff to another part of the village, and in 2002, the Bering Straits Housing Authority relocated an additional 5 homes out of harm's way.

Figure 9: Bluff Erosion and Permafrost Melting in Shishmaref (c. 2002)

Source: Kawerak.

Although the Corps had informed the villagers of Shishmaref in 1953 that relocation would be a cheaper alternative to building a seawall to protect the bluffs, the community did not vote to relocate until 1973 when it experienced two unusually severe fall storms that caused widespread damage and erosion. However, the site that the community selected proved to be unsuitable because it had an extensive layer of permafrost. Furthermore, other government agencies told the villagers that they would not receive funding for their new school or a much-needed new runway if they decided to relocate. According to Corps documents, the community reversed its decision and voted in August 1974 to stay on the island. The new school was completed in 1977, and a few years later a new runway was also built.

Since the 1970s, the village has attempted a variety of erosion protection measures totaling more than $5 million. These projects have included various sandbag and gabion seawalls (wire cages, or baskets, filled with

rocks) and even a concrete block mat. Each project has required numerous repairs and has ultimately failed to provide long-term protection. In October 2001, the governor of Alaska issued an administrative order for an $85,000 protective sandbag wall that was intended to last only one storm—and it did just that. In July 2002, the community again voted to relocate, and it is currently working with NRCS to select an appropriate site. Once a site is selected, the relocation process itself will take a number of years to complete. In the meantime, stopgap erosion protection measures and other federal and state services continue to be necessary to safeguard the community. For this reason, the community is working with Kawerak, a nonprofit Native corporation, to build a 500-foot seawall at an estimated cost of $1 million along the most affected part of the seaside bluff. The village is also seeking the Corps' assistance to extend the wall farther to protect the school and other public buildings. In addition, the community is applying for assistance through the Alaska Army National Guard's Innovative Readiness Training Program, in which guard units gain training and experience while providing medical, transportation, and engineering services to rural villages.

Newtok

The village of Newtok, located in the Yukon-Kuskokwim Delta on the Ninglick River, suffers from chronic erosion along its riverbank. Between 1954 and 2001 the village lost more than 4,000 feet of land to erosion. The current erosion rate has been estimated at 90 feet per year. At this rate, the Corps believes that the land under village residences and infrastructure will erode within 5 years.[18] Among its various attempts to combat erosion, the village placed an experimental $750,000 sandbag wall along the riverbank in 1987. The wall, however, failed to slow the rate of erosion. The community recently negotiated a land exchange with the U.S. Fish and Wildlife Service for a new village site. Legislation authorizing the conveyance to Newtok of both the surface and subsurface estate of specified federal lands on nearby Nelson Island in exchange for land the village currently owns or would receive title to under ANCSA was signed

[18]Under the Tribal Partnership Program, authorized by section 203 of the Water Resources Development Act of 2000 (Pub. L. No. 106-541, 114 Stat. 2572, 2588-2589 (2000)), the Corps is currently examining impacts of coastal erosion due to continued climate change and other factors in the Alaska Native villages of Bethel, Dillingham, Shishmaref, Kaktovik, Kivalina, Unalakleet and Newtok. Congress provided $2 million for these activities in fiscal year 2003.

into law in November 2003.[19] In anticipation of a move, the village is studying the soils and geology of the proposed relocation site to determine its suitability.

Koyukuk

The fourth village planning to relocate is Koyukuk, which is located entirely in a floodplain near the confluence of the Yukon and Koyukuk rivers. It experiences severe flooding, mostly as a result of ice jams that occur after the spring breakup of river ice. (See fig. 10.) Water that accumulates behind the ice jams repeatedly floods homes and public structures, including the school and runway. The flooding is episodic, but villagers prepare for it every year in the spring by placing their belongings in high places and putting their vehicles on floats. The village has been evacuated more than once. In July 2003, with funding assistance from FEMA, the Tanana Chiefs Conference, which is a nonprofit regional corporation, developed a flood mitigation plan for Koyukuk that includes both evacuation and relocation strategies. The community is in the process of assessing prospective relocation areas to find an appropriate site. In the meantime, the FAA has awarded a grant to the state to both raise the grade of and lengthen Koyukuk's runway at a cost of $10.3 million.[20]

[19]Pub. L. No. 108-129, 117 Stat. 1358 (2003).

[20]According to FAA officials, the planned relocation of the village will not include the construction of another airport.

Figure 10: Aerial View of Ice Jam and Flooding at Koyukuk, Near the Confluence of the Yukon and Koyukuk Rivers (c. 2001)

Source: Alaska Division of Emergency Services.

Five Villages Are Conducting Flooding and Erosion Studies or Improving Infrastructure

The remaining five villages, while not in imminent danger, do experience serious flooding and erosion and are undertaking various infrastructure-specific activities to resolve these problems. Kaktovik is studying how best to address flooding of its airport runway. Point Hope is studying alternatives for an emergency evacuation road in the event of flooding. Barrow has a study under way for dealing with beachfront erosion that threatens the village's utility corridor. Unalakleet is beginning a study to respond to erosion problems at its harbor and improve its navigational access. Finally, Bethel is repairing and extending an existing seawall to protect the village's dock from river erosion.

Kaktovik

The village of Kaktovik, located on Barter Island at the northern edge of the Arctic National Wildlife Refuge, experiences flooding of its airport runway. The eastern end of the runway is approximately 1 to 2 feet above mean sea level, while the western end is approximately 7 to 8 feet above mean sea level. As a result of this low elevation, the runway usually floods every fall and is inoperative for 2 to 4 days, according to Kaktovik's mayor. In 2000, the North Slope Borough, which operates the airport, contracted with the

Arctic Slope Consulting Group, Inc., to conduct a flood study at the airport. The study presented a preliminary cost estimate of $11.3 million for protecting the runway from damage by storm events resulting in 100-year flood conditions. Recently, the North Slope Borough and FAA hired an engineering company to prepare an Airport Master Plan that will provide alternatives for upgrading the existing runway or building a new airport, either on Barter Island (estimated at $15 to $20 million) or on the mainland (estimated at $25 to $35 million). FAA will support the least-cost alternative and will fund 93.75 percent of the project, while the North Slope Borough will fund the remaining 6.25 percent. The study should be completed in 2004.

Point Hope

The village of Point Hope, located on a spit of land that is one of the longest continually inhabited areas in northwest Alaska (with settlements over 2,500 years old), moved to its current location in the 1970s because of flooding and erosion problems at its original site. However, flooding and erosion remain a concern for the community at its new location, prompting efforts to build an evacuation road and relocate its runway. The North Slope Borough has funded a Project Analysis Report that assesses three construction options for an emergency evacuation road, which include reconstructing an existing road, extending that road to the mainland, or constructing a new road altogether. The road would not only facilitate emergency evacuation in the event of a flood, but would also provide a transportation route to a relocated runway. The village's current runway, which is a mile west of the current village and extends to the Chukchi Sea, floods during fall storms and is at risk of erosion. According to village representatives, the runway was inoperable for 5 days last year because of flooding. (See fig. 11.) One end of the runway is currently about 80 feet from the ocean, and village officials estimate that between 5 to 8 feet of land are lost to erosion annually. They noted however, that a single storm could take as much as 20 feet of land.

Figure 11: Airport Runway at the Native Village of Point Hope (c. 2001)

Source: Tikigaq Corporation.

Barrow

The Alaska Native village of Barrow is grappling with ways to address beach erosion and flooding. Much of the community's infrastructure is at risk from storm damage, shoreline erosion, and flooding. About $500 million of Barrow's infrastructure is located in the floodplain. In particular, the road that separates the sewage lagoon and an old landfill from the sea is at risk, as well as the village's utility corridor. This underground corridor contains sewage, water and power lines, and communication facilities for the community. Beach erosion threatens over 1 mile of the corridor. According to village and North Slope Borough officials, the Borough coordinates erosion projects for the village and spends about $500,000 each time there is a flood. The Corps has recently begun a feasibility study for a storm damage reduction project along Barrow's beach.

Unalakleet

The Alaska Native village of Unalakleet experiences both coastal and river flooding, which, when combined with shoreline erosion, have created an access problem at the harbor. Eroded land has piled up at the harbor mouth, creating six distinct sandbars. These sandbars pose a serious problem for barge passage; barges and fishing boats must wait for high tide to reach the harbor, delaying the delivery of bulk goods, fuel, and other items, which increases the costs of the cargo and moorage. The sandbars also pose a risk to those whose boats get stuck at low tide and who must simply sit and wait for a high tide. Unalakleet serves as a subregional hub for several nearby villages that rely on the harbor and fish processing plant for conducting their commercial fishing businesses. The village was recently able to raise $400,000 from the Norton Sound Economic Development Corporation and $400,000 from Alaska Department of Transportation and Public Facilities for the local share of a Corps study on improving navigational access to its harbor.

Bethel

Bethel, the regional village hub of the Yukon-Kuskokwim Delta, experiences periodic flooding, mostly because of ice jams during the spring breakup of the Kuskokwim River. The ice also causes severe erosion by scouring the riverbanks. The spring ice breakup in 1995 caused such severe erosion that the governor of Alaska declared a state of emergency—ice scour created a cove 350 feet long and 200 feet inland, endangering several structures and severely undercutting the city dock. The village's main port is the only one on the western Alaska coast for oceangoing ships and serves as the supply center for over 50 villages in the Yukon-Kuskokwim Delta. In response to the 1995 emergency, the village placed rock along 600 linear feet of the riverbank and dock. This was the beginning of an 8,000-foot bank stabilization seawall that cost $24 million. Currently, the Corps has a project under way to repair this seawall by placing more rock and by replacing the steel tieback system and placing steel wale on the inland side of the pipe piles. The project will also extend the seawall 1,200 feet so that it protects the entrance to Bethel's small boat harbor. The initial cost estimate for this project in 2001 was over $4.7 million, with average annual costs of $374,000.

Federal Agencies Are Investing in Infrastructure without Knowledge of Villages' Relocation Plans

During our review of these villages, we found instances where federal agencies invested in infrastructure projects without knowledge of the villages' plans to relocate. For example, the Denali Commission and the Department of Housing and Urban Development were unaware of Newtok's relocation plans when they decided to jointly fund a new health clinic in the village for $1.1 million (using fiscal year 2002 and 2003 funds).

During our site visit to Newtok, we observed that the new clinic's building materials had already been delivered to the dock. Once it is constructed and the village is ready to relocate, moving a building the size of the new clinic across the river may be difficult and costly. Neither the Denali Commission nor the Department of Housing and Urban Development realized that the plans for Newtok's relocation were moving forward, even though legislation for completing a land exchange deal with the U.S. Fish and Wildlife Service was first introduced in March 2002. Similarly, in Koyukuk, the FAA was initially unaware of the village's relocation plans when it solicited bids for a $10.3 million state project to increase the grade of and lengthen the village's existing runway, according to FAA officials. When we further discussed this with FAA officials, however, they noted that it is the state of Alaska that prioritizes and selects the transportation projects that receive FAA grants. According to these FAA officials, who awarded the grant for Koyukuk's runway, state transportation officials were aware of the village's decision to relocate.

Although we recognize that development and maintenance of critical infrastructure, such as health clinics and runways, are necessary as villages find ways to address flooding and erosion, we question whether limited federal funds for these projects are being expended in the most effective and efficient manner possible. The Denali Commission, cognizant of the stated purpose of its authorizing act to deliver services in a cost-effective manner, has developed a draft investment policy intended to guide the process of project selection and ensure prudent investment of federal funds. The draft policy provides guidance for designers to tailor facilities based on six primary investment indicators: size of community and population trends, imminent environmental threats, proximity/access to existing services and/or facilities, per capita investment benchmarks, unit construction costs, and economic potential. These indicators provide the Denali Commission and its partners with an investment framework that will guide selection and funding for sustainable projects. Flooding and erosion issues fall under the "imminent environmental threats" indicator. The commission has applied this draft policy to Shishmaref, which requested a new clinic at its current location. Given that the village is in the process of relocating, the commission awarded $150,000 to repair the existing clinic in Shishmaref in lieu of building a new clinic.

In addition, the Denali Commission recognizes that systematic planning and coordination on a local, regional, and statewide basis are necessary to achieve the most effective results from investments in infrastructure, economic development, and training, and has signed a memorandum of

understanding with 31 federal and state agencies to achieve this goal. This memorandum of understanding could serve as a vehicle by which other federal agencies would follow the lead of the Denali Commission regarding decisions to invest in infrastructure for communities threatened by flooding and erosion.

Alternatives for Addressing Barriers That Villages Face in Obtaining Federal Services

The unique circumstances of Alaska Native villages and their inability to qualify for assistance under a variety of federal flooding and erosion programs may require special measures to ensure that the villages receive certain needed services. Alaska Native villages, which are predominately remote and small, often face barriers not commonly found in other areas of the United States, such as harsh climate, limited access and infrastructure, high fuel and shipping prices, short construction seasons, and ice-rich permafrost soils. In addition, many of the federal programs to prevent and control flooding and erosion are not a good fit for the Alaska Native villages because of the requirement that economic costs of the project not exceed the economic benefits. Federal and Alaska state officials and Alaska Native village representatives that we spoke with identified several alternatives for Congress that could help mitigate the barriers that villages face in obtaining federal services.

These alternatives include (1) expanding the role of the Denali Commission to include responsibilities for managing a flooding and erosion assistance program, (2) directing the Corps and NRCS to include social and environmental factors in their cost/benefit analyses for projects requested by Alaska Native villages, and (3) waiving the federal cost-sharing requirement for flooding and erosion projects for Alaska Native villages. In addition, GAO identified a fourth alternative—authorizing the bundling of funds from various agencies to address flooding and erosion problems in these villages. Each of these alternatives has the potential to increase the level of federal services provided to Alaska Native villages and can be considered individually or in any combination. However, adopting some of these alternatives will require consideration of a number of important factors, including the potential to set a precedent for other communities and programs as well as resulting budgetary implications. While we did not determine the cost or the national policy implications associated with any of the alternatives, these are important considerations when determining appropriate federal action.

Expand the Role of the Denali Commission

Congress may want to consider expanding the role of the Denali Commission by directing that federal funding for flooding and erosion studies and projects in Alaska Native villages go through the commission. Currently, the Denali Commission does not have explicit responsibility for flooding and erosion programs. This alternative would authorize the Denali Commission to establish a program that conducts studies and constructs projects to mitigate flooding and control erosion in Alaska Native villages that would otherwise not qualify under Corps and NRCS flooding and erosion programs. The commission could set priorities for its studies and projects and respond to the problems of those villages most in need, and it could enter into a memorandum of agreement with the Corps or other related agencies to carry out these studies and projects. One of the factors to consider in adopting this alternative is that additional funding may be required.

This alternative is similar to the current proposal in S. 295 that would expand the role of the Denali Commission to include a transportation function.[21] S. 295 would authorize the commission to construct marine connections (such as connecting small docks, boat ramps, and port facilities) and other transportation access infrastructure for communities that would otherwise lack access to the National Highway System. Under the bill, the commission would designate the location of the transportation project and set priorities for constructing segments of the system.

Direct the Corps and NRCS to Include Social and Environmental Factors in Their Cost/Benefit Analyses

A second alternative is for Congress to direct the Corps and NRCS to include social and environmental factors in its cost/benefit analysis for flooding and erosion projects for Alaska Native villages. Under this alternative, the Corps would not only consider social and environmental factors, but would also incorporate them into its cost/benefit analysis. Similarly, NRCS for its Watershed Protection and Flood Prevention Program would also incorporate social and environmental factors into its cost/benefit analysis. To capture these factors even when they cannot be easily quantified, the Corps and NRCS may have to consider these factors explicitly. Several Alaska Native entities have raised this issue with the Corps and the Alaska congressional delegation. For example, the Native village of Unalakleet has led efforts to have the Corps revise its cost/benefit analysis. As part of these efforts, the village has worked with state and

[21]Denali Transportation System Act, S. 295, 108th Cong. (2003).

federal agencies; the Alaska Federation of Natives, which represents Native corporations statewide; and the Alaska congressional delegation. One implication of adopting this alternative for Alaska Native villages may be that it could set a precedent for flooding and erosion control projects in other communities.

This alternative is intended to benefit small and remote villages that often fail to qualify for assistance because the cost of the study or project exceeds the benefits. The number of villages that may be able to qualify for a study or project under this alternative will depend on the extent to which the Corps and NRCS incorporate social and environmental factors into their calculations. However, if more villages qualify for projects under this approach, the increase could have an impact on the amount of funds and resources that the Corps and NRCS have available for these efforts.

Congress is currently considering a bill that would direct the Corps to approve certain projects that do not necessarily meet the cost/benefit requirement. In H.R. 2557, the Corps would be authorized to provide assistance to communities with remote and subsistence harbors that meet certain criteria.[22] In particular, for studies of harbor and navigational improvements, the Secretary of the Army could recommend a project without the need to demonstrate that it is justified solely by net national economic development benefits, if the Secretary determines that, among other considerations, (1) the community to be served by the project is at least 70 miles from the nearest surface-accessible commercial port and has no direct rail or highway link to another community served by a surface-accessible port or harbor or is in Puerto Rico, Guam, Northern Mariana Islands, or American Samoa; (2) the harbor is economically critical such that over 80 percent of the goods transported through the harbor would be consumed within the community; and (3) the long-term viability of the community would be threatened without the harbor and navigation improvement. These criteria would apply to many remote and subsistence harbors in Alaska Native villages.

[22]H.R. 2557, §2011, 108th Cong. (2003).

Waive the Federal Cost-Sharing Requirement for Flooding and Erosion Projects

A third alternative is to waive the federal cost-sharing requirement for flooding and erosion projects for Alaska Native villages. As required by law, the Corps currently imposes a cost-share of between 25 and 50 percent of project planning and construction costs. These sums, which are generally in the hundreds of thousands of dollars, are difficult for villages to generate. This difficulty has been one of the more common criticisms of the Corps' program. For example, the village of Unalakleet had difficulty obtaining funding for its local cost-share requirement for a project. Adopting this alternative for Alaska Native villages would require an assessment of several factors, including setting a precedent for other flooding and erosion control projects in other communities as well as budgetary implications.

In H.R. 2557, Congress is considering waiving the cost-sharing provisions for studies and projects in certain areas. In this bill, the Secretary of the Army would be required to waive up to $500,000 of the local cost-sharing requirements for all studies and projects in several locations, including land in the state of Alaska conveyed to Alaska Native Village Corporations.

Authorize Bundling of Funds from Various Agencies to Respond to Flooding and Erosion Problems

Congress could also consider authorizing the bundling of funds from various agencies to respond to flooding and erosion in Alaska Native villages. Under this alternative, Alaska Native villages could consolidate and integrate funding from flooding and erosion programs from various federal agencies, such as the Bureau of Indian Affairs and the Department of Housing and Urban Development, to conduct an erosion study or to help fund the local cost share of a Corps project. Doing so would potentially allow Alaska Native villages to use available federal assistance for flooding and erosion more effectively and efficiently. By law, Indian tribal governments are currently allowed to integrate their federally funded employment, training, and related services programs from various agencies into a single, coordinated, comprehensive program that reduces administrative costs by consolidating administrative functions.[23] Many Alaska Native villages participate in this program.

[23]Indian Employment, Training and Related Services Demonstration Act of 1992, Pub. L. No. 102-477, 106 Stat. 2302 (1992).

Several bills have been introduced to authorize tribal governments also to bundle federal funding for economic development programs and for alcohol and substance abuse programs. For example, in the 106th, 107th, and 108th sessions of Congress, bills were introduced to authorize the integration and coordination of federal funding for community, business, and economic development of Native American communities.[24] Under these bills, tribal governments or their agencies may identify federal assistance programs to be integrated for the purpose of supporting economic development projects. Similarly, in the 107th and 108th Congresses, S. 210 and S. 285 were introduced to authorize, respectively, the integration and consolidation of alcohol and substance abuse programs and services provided by tribal governments.

Conclusion

Alaska Native villages that are not making plans to relocate, but are severely affected by flooding and erosion, must find ways to respond to these problems. However, many of these villages have difficulty finding assistance under several federal programs, largely because the economic costs of the proposed project to control flooding and erosion exceed the expected economic benefits. As a result, many private homes and other infrastructure continue to be threatened and are in danger from flooding and erosion. In addition, many Alaska Native villages that are small, remote, and have a subsistence lifestyle, lack the resources to help them respond to flooding and erosion. Given the unique circumstances of Alaska Native villages, special measures may be required to ensure that these communities receive assistance in responding to flooding and erosion.

Alaska Native villages that cannot be protected from flooding and erosion through engineering structures and must relocate face a particularly daunting challenge. These villages are working with federal and state agencies to find ways to address this challenge. Any potential solution, however, whether a single erosion protection project or full relocation, goes through stages of planning and execution that can take years to complete. In the interim, investment decisions must be made regarding delivery of services such as building new structures or renovating and upgrading existing structures. Such decisions for villages should be made in light of the status of their efforts to address flooding and erosion. We identified a number of instances where projects were approved and

[24]The bills introduced in the 106th, 107th, and 108th Congresses were S. 2052, S. 343, and S. 1528, respectively.

designed without considering a village's relocation plans. Investing in infrastructure that cannot be easily moved or may be costly to move may not be the best use of limited federal funds. It is encouraging that the Denali Commission is working on a policy to ensure that investments are made in a conscientious and sustainable manner for villages threatened by flooding and erosion. Successful implementation of such a policy will depend in part on its adoption by individual federal agencies that also fund infrastructure development in Alaska Native villages.

Recommendations for Executive Action

In order to ensure that federal funds are expended in the most effective and efficient manner possible, we recommend that the federal cochairperson of the Denali Commission, in conjunction with the state of Alaska cochairperson, adopt a policy to guide future investment decisions and project designs in Alaska Native villages affected by flooding and erosion. The policy should ensure that (1) the Commission is aware of villages' efforts to address flooding and erosion and (2) projects are designed appropriately in light of a village's plans to address its flooding and erosion problems.

Matter for Congressional Consideration

Determining the appropriate level of service for Alaska Native villages is a policy decision that rests with Congress. We present four alternatives that Congress may wish to consider as it deliberates over how, and to what extent, federal programs could better respond to flooding and erosion in Alaska Native villages. In any such decision, two factors that would be important to consider are the cost and the national policy implications of implementing any alternative or combination of alternatives. If Congress would like to provide additional federal assistance to Alaska Native villages, it may wish to consider directing relevant executive agencies and the Denali Commission to assess the cost and policy implications of implementing the alternatives that we have identified or others that may be appropriate.

Agency Comments and Our Evaluation

We provided copies of our draft report to the Departments of Agriculture, Defense, Health and Human Services, Housing and Urban Development, the Interior, and Transportation; the Denali Commission; and the state of Alaska. The Departments of Defense, Housing and Urban Development, and the Interior, as well as the Denali Commission and the state of Alaska, provided official written comments. (See appendixes IV through VIII,

respectively, for the full text of the comments received from these agencies and our responses.) The comments were generally technical in nature with few comments on the report's overall findings, recommendation, and alternatives. The Departments of Health and Human Services and Transportation provided informal technical comments, and the Department of Agriculture had no comments on the report. We made changes to the draft report, where appropriate, based on the technical comments provided by the seven entities that commented on the draft report.

The Denali Commission was the only entity to comment on our recommendation that the commission adopt an investment policy. The commission agreed with the recommendation and noted that such a policy should help avoid flawed decision making in the future. Furthermore, the commission commented that it was not sufficient for it alone to have an investment policy, but believed that all funding agencies should use a similar policy to guide investments. We acknowledge the commission's concerns that other funding agencies should also make sound investment decisions. As noted in our report, the Denali Commission has signed a memorandum of understanding with 31 federal and state agencies with the goal of systematic planning and coordination for investments in infrastructure, economic development, and training, and we believe that this memorandum could serve as a vehicle by which other federal agencies would follow the lead of the commission regarding decisions to invest in communities.

Of the four alternatives presented in the report, the alternative to funnel funding for flooding and erosion projects through the Denali Commission received the most comments. The Denali Commission, the U.S. Army (commenting on behalf of the Department of Defense), and the Department of Housing and Urban Development all raised some concerns about this alternative. The Denali Commission commented that it is not convinced that expanding its role to include responsibilities for managing a flooding and erosion program is the appropriate response. The Army commented that the alternative to expand the role of the Denali Commission to mange a flooding and erosion program might exceed the capabilities of the organization. Lastly, the Department of Housing and Urban Development commented that the Denali Commission, as an independent agency, does not have the capacity to be fully integrated with the efforts of federal agencies to address this issue. Moreover, while each of these entities recognized the need for improved coordination of federal efforts to address flooding and erosion in Alaska Native villages, none of them provided any specific suggestions on how or by whom this should be accomplished. As

discussed in our report, the Denali Commission currently does not have the authority to manage a flooding and erosion program, and should Congress choose this alternative, the commission would need to develop such a program. Consequently, we still believe that expanding the role of the commission continues to be a possible option for helping to mitigate the barriers that villages face in obtaining federal services.

We are sending copies of this report to the Secretaries of Agriculture, the Army, Health and Human Services, Housing and Urban Development, the Interior, and Transportation, as well as to the federal and state cochairs of the Denali Commission, the Governor of the state of Alaska, appropriate congressional committees, and other interested Members of Congress. We will also make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at http://www.gao.gov.

If you or your staff have questions about this report, please contact me at (202) 512-3841. Key contributors to this report are listed in appendix IX.

Anu Mittal
Director, Natural Resources
and Environment

Objectives, Scope and Methodology

The fiscal year 2003 Conference Report for the military construction appropriation bill directed GAO to study Alaska Native villages affected by flooding and erosion. In response to this direction and subsequent discussions with committee staff, we (1) determined the extent to which Alaska Native villages are affected by flooding and erosion; (2) identified federal and Alaska state programs available to respond to flooding and erosion and assessed the extent to which federal assistance has been provided to Alaska Native villages; (3) determined the status of efforts, including cost estimates, to respond to flooding and erosion in the villages of Barrow, Bethel, Kaktovik, Kivalina, Koyukuk, Newtok, Point Hope, Shishmaref, and Unalakleet; and (4) identified alternatives that Congress may wish to consider when providing assistance for flooding and erosion of Alaska Native villages. In addition, during the course of our work we became concerned about the possible inefficient use of federal funds for building infrastructure in villages that were planning to relocate. As a result, we are including information regarding these concerns in this report.

To determine which Alaska Native villages are affected by flooding and erosion, we reviewed Alaska and federal agency reports and databases that contained information on flooding and erosion. We interviewed officials from Alaska and federal agencies, such as the Alaska Division of Emergency Services, the Alaska Department of Community and Economic Development, the U.S. Army Corps of Engineers, and the U.S. Department of Agriculture's Natural Resources Conservation Service, who are involved in addressing flooding and erosion problems. We also interviewed Alaska Native officials from the selected villages, as well as officials from Native village and regional corporations, such as Tikigaq, the Association of Village Council Presidents, and Kawarek. For the purposes of this report we defined an Alaska Native village as a village that (1) was deemed eligible as a Native village under the Alaska Native Claims Settlement Act and (2) has a corresponding Alaska Native entity that is recognized by the Department of the Interior's Bureau of Indian Affairs.[1]

We identified federal flooding and erosion programs by searching the *Catalog of Federal Domestic Assistance* and by using other information.

[1]A total of 220 Native villages were deemed eligible under ANCSA. However, seven of those villages do not have corresponding Alaska Native entities recognized by the Department of the Interior's Bureau of Indian Affairs. For a list of Indian entities recognized by the federal government, see 67 Fed. Reg. 46328 (July 12, 2002).

We reviewed applicable federal laws and regulations for these programs. We also reviewed program file records and interviewed federal program officials to determine the extent to which Alaska Native villages have been provided federal assistance. In addition, to determine the Alaska state programs that are available to villages for addressing flooding and erosion, we interviewed appropriate state officials from the Alaska Department of Transportation and Public Facilities, the Division of Emergency Services, and the Department of Community and Economic Development. We also discussed these programs and the assistance provided with selected village representatives.

While the committee directed us to include six villages, we added three more—Koyukuk, Newtok, and Shishmaref—based on discussions with congressional staff and with federal and Alaska state officials familiar with flooding and erosion problems. To determine the status of efforts, including cost estimates, to address flooding and erosion at these nine selected villages, we reviewed federal and state databases and studies. We also reviewed analyses performed by the Corps and by other federal, state, and local agencies. We visited only four villages—Bethel, Kivalina, Newtok, and Shishmaref—due to the high cost of travel in Alaska. We selected three of the four villages to visit that were in imminent danger (we visited Bethel because in order to reach Newtok we had to go through Bethel). We interviewed village representatives from each of the nine villages. We also interviewed state and federal officials involved in the efforts to address flooding and erosion for each of the nine villages. We identified and evaluated Corps studies that addressed these problems with particular attention to cost estimates. We also assessed the nature and applicability of these cost studies.

To determine what alternatives Congress may wish to consider in responding to flooding and erosion of Alaska Native villages, we interviewed local, state, and federal officials, officials from the Alaska Federation of Natives, and Kawarek representatives. During these interviews, we asked people to identify alternatives that they believed would address impediments to the delivery of flooding and erosion services. We also obtained and reviewed prior congressional bills that addressed Alaska Native issues.

We conducted our review from February 2003 through October 2003 in accordance with generally accepted government auditing standards.

ANCSA For-Profit Regional Corporations and Nonprofit Arms

Table 6 shows the list of the 13 regional corporations and the corresponding nonprofit arms. These nonprofit organizations provide social services to Alaska Native villages and also help Alaska Natives respond to problems, including those dealing with flooding and erosion.

Table 6: List of ANCSA For-Profit Regional Corporations and Nonprofit Arms

For-profit regional corporation	Nonprofit organization
Ahtna, Inc.	Copper River Native Association
The Aleut Corporation	Aleutian Pribilof Island Association
Arctic Slope Regional Corporation	Arctic Slope Native Association
Bering Straits Native Corporation	Kawerak, Incorporated
Bristol Bay Native Corporation	Bristol Bay Native Association
Calista Corporation	Association of Village Council Presidents
Chugach Alaska Corporation	Chugachmiut
Cook Inlet Region, Inc.	Cook Inlet Tribal Council
Doyon, Limited	Fairbanks Native Association
Koniag, Inc.	Kodiak Area Native Association
NANA Regional Corporation, Inc.	Maniilaq Association
Sealaska Corporation	Central Council
Thirteenth Regional Corporation	No nonprofit organization

Source: GAO.

List of 184 Affected Alaska Native Villages by ANCSA Region

Ahtna

Cheesh-Na Tribe (formerly the Native Village of Chistochina)
Native Village of Chitina
Native Village of Gakona
Native Village of Tazlina

Aleut

Agdaagux Tribe of King Cove
Native Village of Akutan
Native Village of Atka
Native Village of Belkofski[a]
Native Village of False Pass
Native Village of Nelson Lagoon
Native Village of Nikolski
Pauloff Harbor Village[a]
Saint George Island (see Pribilof Islands Aleut Communities of St. Paul and St. George Islands)
Saint Paul Island (see Pribilof Islands Aleut Communities of St. Paul and St. George Islands)
Qagan Tayagungin Tribe of Sand Point Village
Qawalangin Tribe of Unalaska
Native Village of Unga[a]

Arctic Slope

Native Village of Barrow Inupiat Traditional Government (formerly Native Village of Barrow)
Kaktovik Village (aka Barter Island)
Native Village of Nuiqsut (aka Nooiksut)
Native Village of Point Hope
Native Village of Point Lay
Village of Wainwright

Bering Straits

Native Village of Brevig Mission
Chinik Eskimo Community (Golovin)
Native Village of Diomede (aka Inalik)
King Island Native Community[a]

Native Village of Koyuk
Nome Eskimo Community
Native Village of Saint Michael
Native Village of Shaktoolik
Native Village of Shishmaref
Village of Solomon
Stebbins Community Association
Native Village of Teller
Native Village of Unalakleet
Native Village of Wales
Native Village of White Mountain
Native Village of Elim
Native Village of Gambell
Native Village of Savoonga

Bristol Bay
Native Village of Chignik
Native Village of Chignik Lagoon
Chignik Lake Village
Village of Clark's Point
Curyung Tribal Council (formerly Native Village of Dillingham)
Egegik Village
Ekwok Village
Igiugig Village
Village of Iliamna
Ivanoff Bay Village
Kokhanok Village
Levelock Village
Manokotak Village
Naknek Native Village
New Koliganek Village Council (formerly Koliganek Village)
New Stuyahok Village
Newhalen Village
Nondalton Village
Pedro Bay Village
Native Village of Perryville

Native Village of Pilot Point
Native Village of Port Heiden
Portage Creek Village (aka Ohgsenakale)
South Naknek Village
Traditional Village of Togiak
Twin Hills Village
Ugashik Village

Calista

Akiachak Native Community
Akiak Native Community
Village of Alakanuk
Algaaciq Native Village (St. Mary's)
Yupiit of Andreafski
Village of Aniak
Asa'carsarmiut Tribe (formerly Native Village of Mountain Village)
Village of Atmautluak
Village of Chefornak
Chevak Native Village
Native Village of Chuathbaluk (Russian Mission, Kuskokwim)
Village of Crooked Creek
Native Village of Eek
Emmonak Village
Native Village of Georgetown
Native Village of Goodnews Bay
Native Village of Hooper Bay
Iqurmuit Traditional Council (formerly Native Village of Russian Mission)
Village of Kalskag
Native Village of Kasigluk
Native Village of Kipnuk
Native Village of Kongiganak
Village of Kotlik
Organized Village of Kwethluk
Native Village of Kwigillingok
Native Village of Kwinhagak (aka Quinhagak)
Lime Village

Village of Lower Kalskag
Native Village of Marshall (aka Fortuna Ledge)
Native Village of Mekoryuk
Native Village of Napaimute
Native Village of Napakiak
Native Village of Napaskiak
Newtok Village
Native Village of Nightmute
Nunakauyarmiut Tribe (formerly Native Village of Toksook Bay)
Native Village of Nunapitchuk
Orutsararmuit Native Village (aka Bethel)
Oscarville Traditional Village
Pilot Station Traditional Village
Native Village of Pitka's Point
Platinum Traditional Village
Village of Red Devil
Native Village of Scammon Bay
Village of Sleetmute
Village of Stony River
Tuluksak Native Community
Native Village of Tuntutuliak
Native Village of Tununak

Chugach
Native Village of Chanega (aka Chenega)
Native Village of Eyak (Cordova)
Native Village of Nanwalek (aka English Bay)
Native Village of Tatitlek

Cook Inlet Region
Ninilchik Village
Seldovia Village Tribe
Native Village of Tyonek

Doyon
Alatna Village

Allakaket Village
Anvik Village
Beaver Village
Birch Creek Tribe (formerly listed as Birch Creek Village)
Chalkyitsik Village
Circle Native Community
Native Village of Eagle
Evansville Village (aka Bettles Field)
Native Village of Fort Yukon
Galena Village (aka Louden Village)
Organized Village of Grayling (aka Holikachuk)
Holy Cross Village
Hughes Village
Huslia Village
Village of Kaltag
Koyukuk Native Village
Manley Hot Springs Village
McGrath Native Village
Native Village of Minto
Nenana Native Association
Nikolai Village
Northway Village
Nulato Village
Rampart Village
Native Village of Ruby
Shageluk Native Village
Native Village of Stevens
Takotna Village
Native Village of Tanacross
Native Village of Tanana
Telida Village
Native Village of Tetlin

Koniag

Village of Afognak[a]
Native Village of Akhiok

Native Village of Karluk
Native Village of Larsen Bay
Village of Old Harbor
Native Village of Ouzinkie

NANA
Native Village of Ambler
Native Village of Buckland
Native Village of Deering
Native Village of Kiana
Native Village of Kivalina
Native Village of Kobuk
Native Village of Kotzebue
Native Village of Noatak
Noorvik Native Community
Native Village of Selawik
Native Village of Shungnak

Sealaska
Angoon Community Association
Chilkat Indian Village (Klukwan)
Craig Community Association
Hoonah Indian Association
Hydaburg Cooperative Association
Organized Village of Kake
Organized Village of Kasaan
Klawock Cooperative Association
Organized Village of Saxman
Yakutat Tlingit Tribe

[a] Reported as vacant by the state of Alaska as of March 2003.

Comments from the Department of the Army

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
CIVIL WORKS
108 ARMY PENTAGON
WASHINGTON DC 20310-0108

26 NOV 2003

REPLY TO
ATTENTION OF

Ms. Anu K. Mittal
Director
Natural Resources and Environment
United States General Accounting Office
441 G Street, N.W.
Washington, D.C. 20548-0001

Dear Ms. Mittal:

This is the Department of Defense (DoD) response to the GAO draft report, "ALASKA NATIVE VILLAGES: Most Are Affected by Flooding and Erosion, but Few Qualify for Federal Assistance," dated November 5, 2003, (GAO Code 360300/GAO-04-142).

Comments on the draft report are enclosed.

Very truly yours,

John Paul Woodley, Jr.
Assistant Secretary of the Army
(Civil Works)

Enclosure

Alaska Native Villages - Most Are Affected by Flooding and Erosion, but Few Qualify for Federal Assistance.

1. General Comments:

Recommend organizing information in accordance with the following outline. The outline below addresses the basic requirements of this report. This should help in reducing the redundancy of information that is presently in this report and provide the reader a clear understanding of the focus and purpose of this study. The suggested outline below addresses the specific requirements that Congress requested GAO to study regarding Alaskan Native Villages affected by flooding and erosion:

Cover Sheet: Executive Summary

A. Introduction

B. Historical Background & Current Efforts Addressing Flooding & Erosion Related Issues

1. Barrow
2. Bethel
3. Kaktovik
4. Kivalina
5. Point Hope
6. Unalakleet
7. Koyukuk
8. Newtok
9. Shishmaref

C. Government Programs that may Provide Assistance in Addressing Flooding & Erosion Related Problems

1. Corps of Engineers
2. Natural Resource Conservation Service (NRCS)
3. Other Federal Agencies
4. State Agencies

D. Alternatives for Congress to Consider in Providing Assistance to Alaskan Native Villages for flooding and erosion related issues.

- Expand Role of Denali Commission
- Direct Corps and NRCS to consider social, cultural and environmental factors in cost benefit analysis for projects (Note: Recommend adding "cultural")
- Waive cost sharing requirement for Corps' flooding and erosion program
- Extend cost sharing waiver eligibility to include Alaska projects located on land conveyed to an Alaskan Native Village Cooperation & increase cost sharing waiver for Civil Works studies and projects.

2. The document does not adequately address FEMA programs to buy out substantially damaged properties. If these communities were in the FEMA national flood insurance program (NFIP), they could potentially qualify for buy-outs to reduce future flood damages. The report should state that approximately 93% of all Alaskans (587,000 out of a total population of 630,000) are able to participate in the N F I P (Alaska Department of Community Economic Development data). It should be noted that the communities that the report shows as having the greatest flooding problems (Kivilina, Aniak, Unalakleet, and Shishmaref) are all non-participants in the NFIP.

See comment 1.

3. The GAO report cites Corps policy on benefits exceeding cost. This is not a matter of policy, it is a legal requirement. The 1936 Flood Control Act requires benefits to exceed costs for flood control projects.

4. The GAO report might also consider:

- Changes in legislation to earmark some of the Federal income for the state (oil, timber or other natural resources revenues/royalties/taxes) to meet the non-Federal cost share (similar to proposals in coastal Louisiana).
- Adequacy of Corps' ability to pay provisions contained in Section 103(m) of WRDA 1986 - and possible adjustments.
- Funding the Denali Commission with specific provision that the funds can be used for non-Federal cost share and/or offset project costs.

5. The bundling of funds from various Federal agencies may help particularly in Barrow. The infrastructure is at risk from storm damage, shoreline erosion and flooding. About $500 million of Barrow's infrastructure is located in the floodplain. In particular, the road that separates the sewage lagoon and an old landfill from the sea is at risk, as well as the village's utility corridor. This underground corridor contains sewage water and power lines, and communication facilities for the community. Other Federal participants could be EPA to protect the Artic Ocean and village water from sewage pollution, FEMA for relocation assistance and HUD for providing minimally acceptable housing and also community infrastructure.

Now on pp. 3 and 4.

Page 4

6. Line 8-11, Sentence reading "Besides programs administered by the Corps of Engineers and Natural Resources Conservation Service, there are several other federal and state programs that can assist Alaska Native villages in responding to the consequence of flooding and erosion." Suggest that this sentence be revised to indicate that theses programs are limited in potential response, as very few of them can address the broad scale and spectrum of erosion and flooding issues that are threatening most Alaska Native villages.

7. The draft report states, "Even villages that meet the Corps' cost/benefit criteria may still fail to qualify if they cannot meet cost-share requirements for the project." This is very interesting especially since several of the villages had no trouble meeting the cost-share requirement for a

small boat harbor (Bethel - $600,000 being one on the study's list). The Alaska District shows on their web page shows forty-nine such harbor / navigation aid projects. Additionally, a number of these communities (Alaska Department of Community Economic Development web site) had little or no trouble in providing the cost-sharing amounts for projects funded from other Federal sources (such as BIA, FAA or HUD).

See comment 2.

8. The report criticizes the Denali Commission and HUD for funding a health clinic at Newtok using 2002 & 2003 funds while the city was planning to relocate. In the case of Kivalina, which is probably the furthest along on relocation, the first indication of relocation occurred in the early 1990's – over ten years ago. It is not realistic to expect a city to go without a health clinic for ten years.

9. Expanding the Denali Commission's charter to include responsibilities for managing flooding and erosion assistance appears as though it might exceed the capability of an organization that currently has in its charter only energy, health care, training, government coordination and other infrastructure. In FY02 almost 60% of its work was on energy projects with much of the remaining 40% going toward health care facilities. This is a large task in itself for approximately 288 towns and cities. It might be worthwhile to consider expanding its role in government coordination (i.e. community planning) in helping the smaller towns (say under 1,000 residents) in doing better planning.

Now on p. 4.

Page 5

10. Paragraph 1. The Bethel project also includes reinforcing the existing pipe-pile seawall and providing rock toe protection.

Now on pp. 5 and 6.

Page 6

See comment 3.

11. While it may be appropriate to have the Denali Commission comment on its ability to perform under an expanded role, it would also be appropriate for agencies that are presently tasked in that role to comment on the introduction of another agency into the mix.

12. Bullet points two and three may be more effectively addressed through the authorization of an Alaska Native Village erosion and flooding program.

13. Recommend adding to bullet point three or as a separate bullet the following:

Extend cost sharing waiver eligibility to include Alaska projects located on lands conveyed to an Alaskan Native Village Cooperation and increase current cost sharing waiver provision for Civil Works studies and projects. (Note: Cost sharing waiver provisions currently apply only to US Territories of Guam, American Samoa, Commonwealth of the Marianas Islands & the Virgin Islands. Current waiver is $200,000 for the study phase and $200,000 for the construction phase. A legislative proposal, originally submitted for Water Resources Development Act (WRDA) 2002, is currently under consideration for WRDA 2003. This proposal recommends language to include Alaska projects located on land conveyed to an Alaskan Native Village Cooperation as

an eligible entity and to increase cost sharing waiver to $500,000 for the study phase and $500,000 for the construction phase.)

14. The recommendations to direct the Corps to consider social and environmental factors in BCR analyses, and waive non-Fed cost-sharing, are caveated on page 39 and other locations, in that it recognizes there could be precedent setting risks and additional burdens on the Federal budget. The GAO report does not seem to recognize Ability to Pay provisions of law, for which many of these villages would probably qualify. The non-Federal share for structural solutions would likely be approximately 5%. The non-structural portion of a project is also subject to the ability to pay provisions; however, the GAO report does not recognize that there are current provisions of law that allow for cost-sharing at less than 25-50%.

Page 8

15. In paragraph 2, the second sentence should read as follows. *The loss of sea ice leaves coasts more vulnerable to waves, storm surges, and erosion.*

Page 9

16. This page and the previous page describe the historical context of the Alaska native people and the impacts of the present changing environment. These descriptions do not recognize the fact that the environment also was changing prior to European immigration to Alaska, and that the Alaska native people coped with those changes by being mobile. The impacts of the present changes are onerous because the mobility of the Alaska native tribes has been compromised by the growth in modern infrastructure at sites selected for subsistence activities, not modern infrastructure feasibility. The fact that this infrastructure has been agglomerated into communities at sites not selected or planned for longevity increases the cost of both protection and relocation activities by a very large amount.

17. In the list of groupings, recommend adding Siberian Yupik with Yup'k. The Siberian Yupik are the people of St. Lawrence Island. One other major group in Southeast Alaska is the Tsimshian.

Page 12

18. In the middle paragraph the second sentence says, "The U.S. Army Corps of Engineers has responsibility for planning ..... erosion protection and flood control structures." The Corps has been given authority to provide erosion protection and flood control structures under a specific set of requirements. However, the Corps has not been endowed with a trust responsibility to any individual or group to provide erosion protection and flood control structures (as compared to the Indian Health Service). This is important, as project authorizations are not based upon equitable distribution of support to all needs or at the discretion of the Corps, but rather on congressional authorization and appropriations. Accordingly, suggest changing the sentence to read as follows: "The Corps may study and/or construct erosion protection and flood control structures, provided it receives authority and appropriations from Congress to do so."

19. Also in paragraph 2, non-structural methodologies of the Corps erosion control and flood damage reduction should be mentioned. Please add the following after the second sentence. *Although in many instances, measures undertaken by the Corps are structural in nature, the Corps may also consider and implement both non-structural and relocation alternatives.*

Page 13

20. In paragraph 2, the wording suggests that all coastal and river villages are subject to erosion or flooding. Suggest rewording to state that many coastal and river villages are subject to erosion or flooding.

Page 15

21. In paragraph 1, after the second sentence, suggest inserting a sentence as follows: "Lack of sea ice also increases the distance over water, which can generate increased waves and storm surges."

22. Kivalina, at its present location, has no record of inundation or overtopping by storm surge or waves. Wave run-up has occurred to the line of seaward houses and sea spray crosses the island, but inundation of the village has not been recorded to date. Recent analysis of storm surge and wave activity, based upon recent lack of fall ice cover, indicates the probability of surge and wave action that could overtop the barrier island and demolish the village.

Now on p. 17.

Page 16

23. In paragraph 2, the report states, "For example, Barrow experiences an average temperature increase of 4.16 degrees for the 30-year period from 1971 to 2000, while Bethel experienced an increase of 3.08 degrees for the same time period." The report should specify whether the temperature change is Fahrenheit or Centigrade.

24. The report talks about the flooding as being tied partially to climatic changes and references a study done by the Alaska Climate Research Center. The report says it's an average temperature increase, while the actual web site results are listed as mean annual/seasonal temperatures. There is not a link back to the actual data used by the Center to determine its chart. Their web site does have two reports (at least abstracts) that indicate data different from what is reported in the GAO report. A more relevant comparison would be Degree Days from previous data (Say Marks or ASHRAE) compared to the Degree Day data currently on the NOAA web site for the weather station located at the Point Barrow Airfield. If there were in fact a warming trend, the number of degree-days today would be substantially less than for those reported in Marks or ASHRAE of the early 1970's. The **National Center for Atmospheric Research data** from the Barrow First Order Weather Station indicate an increase in total heating degree-days of 600 from 1991 to 1999 (their records do not indicate any data for degree-days for the years preceding about 1985). This would equate to an overall temperature increase on 1.3 degrees F.

Now on pp. 19 and 20.

Page 19

25. Table 2. For consistency with Table 3 & 4 and the main focus of this report to address flooding and erosion, recommend revising the title of Table 2 to read: "Corps Authorities that Address Problems Related to Flooding and Erosion". Under the Corps Continuing Authorities Program (CAP) the following program authorities would fall within this category (Section 107 and Section 204 deleted):

- Section 14 of the Flood Control Act of 1946
- Section 205 of the Flood Control Act of 1948
- Section 208 of the Flood Control Act of 1954
- Section 103 of the River and Harbor Act of 1962
- Section 111 of the River and Harbor Act of 1968

In addition to the Corps CAP, other Corps authorities that may address problems related to flooding and erosion include the following:

- Section 22 of the Water Resources Development Act of 1974, as amended. Provides authority for the Corps to assist states, local governments and other non-federal entities in the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources.

- Section 206 of the 1960 Flood Control Act (PL 86-645), as amended. The Flood Plain Management Services' Program provides technical services and planning guidance that is needed to support effective flood plain management.

- Section 203 of the Water Resources Development Act of 2000 allows the Corps to investigate (study only) water resources development projects that will benefit tribes and are located primarily within tribal land.

Now on p. 22.

Page 21

26. The Corps does have authority to make cost sharing adjustments based upon a community's ability to pay. (Section 103(m) of WRDA 1986, as amended).

Now on p. 26.

Page 24

27. The listed Alaska State programs are primarily federally funded national or state-specific programs (with a small state cost-share) administered by the state agency. This distinction is important, as the present laws do not allow these programs to provide for the required local cost-share of the federal programs administered by the Corps of Engineers. There are other programs that are available to Indian Reorganization Act (IRA) village governments that can be used to provide local cost-share funds, and a few programs that are available to village City governments (subdivisions of the state) to provide low levels of grant funds that may also be used as a local cost share.

Now on p. 29.

Page 26

28. In Table 5, under Newtok Village, include the following information under "Status of efforts": Under the Corps Planning Assistance to States Program the relocation study for Newtok is continuing.

Now on p. 34.

Page 30

29. In paragraph 2, it should be noted that the Corps is currently examining impacts of coastal erosion due to continued climate change and other factors in the following communities in Alaska: Bethel, Dillingham, Shishmaref, Kakatovik, Kivalina, Unalakleet, and Newtok under the Tribal Partnership Program, Section 203 of WRDA 2000. Congress provided $2 million for FY 2003.

Now on p. 37.

Page 33

30. First sentence after Point Hope. This has been written about the oldest continually inhabited area in North America on several web sites, but the original document it came from referred to the longest continually inhabited area in Northwest Alaska. It isn't the longest continually inhabited area in Alaska (e.g. Nikolski – 4,000 yrs.). Please change *North America* to *Northwest Alaska*.

Now on p. 39.

Page 35

31. The 5th line from the bottom of the page: "emergency, the village placed rock along 600 linear feet of the riverbank and dock." Bethel is too large for a village. It is a regional hub and is the size of a town rather than a village. The state of Alaska officially lists Bethel as a Second Class City.

Now on p. 42.

Page 39

32. Section: Direct the Corps and NRCS to Include Social and Environmental Factors in its Cost/Benefit Analysis. One thing to note is that Point Hope is also a nationally significant cultural site or a National Historic Landmark. Barrow has a National Historic Landmark, properties on the National Register of Historic Places, and numerous well-known sites eligible for the National Register. There are also cultural resources at Kivalina, Shishmaref, Unalakleet, and Kaktovik. Additional research would need to be done to determine if there are sites at Bethel, and Koyukuk that would be threatened. Newtok is a relatively recent occupation, so the significance of its cultural resources is not clear. The report might want to consider including cultural heritage sites in the cost/benefit analysis for flooding and erosion projects for Alaska Native villages as a consideration for Congress to evaluate.

Now on p. 44.

Page 40

33. Cost-benefit waiver legislation. The report refers to provisions of HR 2557 (not enacted). This bill, if enacted, would authorize harbor projects in certain remote areas without justification based on NED benefits. It is not clear why this provision is identified, since it is for navigation harbors, and not flooding/erosion. If the report is trying to make the point that this type of

legislation could be developed for flooding/erosion too, then the report should make that point more clear.

Now on p. 44.

Page 41

34. In paragraph 2, the document mentions H.R. 2557 that will waive various cost sharing provisions. This addresses a major issue, but may not capture the needs of the whole region for determining project justification and cost sharing. In several instances, Congress has developed regional or site specific programs to address certain issues that vary from the specific guidance of the traditional Corps programs, often times looking at the needs of rural communities. There may exist the need to develop a specific program for addressing the Tribal community erosion and flood control issues, through which relocation, cost sharing, and justification issues can be addressed. Other ideas include granting authorization for other Federal funds to be eligible to match funds from other Federal cost sharing programs.

Appendix III

See comment 4.

35. Please correct the following village names (correction in bold):

Ahtna:
Cheesh'Na Tribe (formerly the **Chistochina Village Council**) <–not formerly Native Village of Chistochina>
Change from Native Village of Chitina to **Chitina Traditional Village**
Change from Native Village of Gakona to **Gakona Village Council**

Aleut:
Pauloff Harbor Village **Council**
St. George Island **Traditional Council**
Aleut Community of St. Paul Island
Qagan Tayagungin Tribe of Sand Point (remove Village)
Change Native Village of Unga to **Unga Tribal Council**

Arctic Slope:
Change Kaktovik Village to **Native Village of Kaktovik**

Bering Straits:
Native Village of Solomon
Teller Traditional Council

Bristol Bay**:**
Clark's Point Village Council
Curyung **Native Village** Council
Egetik Village **Council**
Ekwok Village **Council**
Igiugig Village **Council**
Ivanoff Bay Village **Council**

Kokhanok Village **Council**
Levelock Village **Council**
Manokotak Village **Council**
New Koliganek Village Council (formerly Koliganke Village **Council**)
New Stuyahok Village **Council**
Newhalen **Tribal Council**
Nondalton **Tribal Council**
Pedro Bay Village **Council**
Pilot Point Village Council
Port Heiden Village Council
Portage Creek Village **Council** (aka Ohgsenakale **Tribe**)
South Naknek Village **Council**
Togiak Traditional Council
Twin Hills Village **Council**
Ugashik **Traditional** Village **Council**

GAO's Comments

The Army commented on our alternative to expand the role of the Denali Commission, which is discussed in the Agency Comments and Our Evaluation section of this report. We also modified the report on the basis of the technical comments that the Army gave us, as appropriate. In addition, discussed below are GAO's corresponding detailed responses to some of the Army's comments.

1. We disagree with the Corps' statement that the Flood Control Act of 1936 requires benefits to exceed costs for flood control projects. The pertinent provision of the act states that "it is the sense of Congress that . . . the Federal Government should improve or participate in the improvement of navigable waters or their tributaries . . . if the benefits . . . are in excess of the estimated costs." 33 U.S.C. § 701a. This provision, while setting out a statement of Congressional policy, does not establish a legal requirement that benefits exceed costs, nor does it prohibit carrying out a project where costs exceed benefits. We have included a reference to this provision in the report's discussion of the Corps' guidelines for evaluating water resource projects.

2. We agree that it is not realistic for a village to go without a health clinic for 10 years. Our report states that development and maintenance of critical infrastructure, such as health clinics and runways, is necessary as villages find ways to address flooding and erosion. However, given limited federal funds, agencies must explore potentially less costly options for meeting a village's needs until it is able to relocate.

3. As noted in our report, if Congress decides to provide additional federal assistance to Alaska Native villages, it may wish to consider directing relevant executive agencies as well as the Denali Commission to assess the cost and policy implications of implementing the alternatives.

4. The names for the Alaska Native entities used in appendix III of this report are from the official list of federally recognized Indian entities published by the Department of the Interior in the *Federal Register* (see 67 Fed. Reg. 46328, July 12, 2002).

Comments from the Department of the Interior

United States Department of the Interior

OFFICE OF THE ASSISTANT SECRETARY
POLICY, MANAGEMENT AND BUDGET
Washington, D.C. 20240

NOV 25 2003

Anu Mittal
Director, Natural Resources and Environment
U.S. General Accounting Office
441 G Street, NW
Washington, DC 20548

Dear Ms. Mittal:

Thank you for the opportunity to review and comment on GAO's Draft Report entitled, "Alaska Native Villages: Most Are Affected by Flooding and Erosion, but Few Qualify for Federal Assistance" (GAO-04-142).

Although the draft report does not contain any formal recommendations to the Department of the Interior, (Department) the Department may be able to assist the Denali Commission or other federal agencies tasked by the Congress to develop and implement solutions and alternatives that will be identified in the future.

Several of the Department's bureaus have had an opportunity to review the draft report, including representatives of the Bureau of Indian Affairs, the Fish and Wildlife Service, and the Bureau of Land Management. It is their consensus that they would welcome the opportunity to assist in identifying solutions. The solution to the problem presented in the report will take a comprehensive and coordinated effort by all affected parties.

In closing, I want to again thank you for the opportunity to review the report. The cadre of issues and impacts documented in the draft report is overwhelming.

Sincerely,

P. Lynn Scarlett
Assistant Secretary
Policy Management and Budget

ENCLOSURE

Department of the Interior
Comments on GAO Draft Report entitled,
"Alaska Native Villages: Most Are Affected by Flooding
and Erosion, but Few Qualify for Federal Assistance"
(GAO-04-142)

General Comments:

Our records (and the State's online Corporation's Database) indicate that some of the Regional Corporations have slightly different names from those listed. We believe the corporate names should be corrected as shown below, to be consistent.

The Aleut Corporation
Cook Inlet Region, Inc.
Koniag, Inc.
NANA Regional Corporation, Inc.

Specific Comments:

Page 2, first sentence - misplaced comma between the words "local" and "agencies."

Now on p. 29.

Page 26, Table 5, The status of the Newtok exchange needs to be updated.

Now on pp. 34 and 35.

Page 31, First sentence, starting with "Legislation that would covey ... "needs to be corrected and updated. Perhaps something like, "Legislation that would authorize the conveyance to Newtok of both the surface and subsurface estate of specified federal lands on nearby Nelson Island in exchange for land the village currently owns or would receive title to under ANCSA, has passed the House and Senate (the President's signature is expected within two weeks or the bill has recently been enacted)." The point is that the status of the legislation needs to be as current as possible, and Newtok is giving up two parcels–selections on Baird Inlet Island as well as conveyed lands and selections at the Aknerkochik location.

Comments from the U.S. Department of Housing and Urban Development

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-5000

ASSISTANT SECRETARY FOR
PUBLIC AND INDIAN HOUSING

NOV 25 2003

MEMORANDUM FOR: Anu K. Mittal, Director, Natural Resources and Environment, General Accounting Office

FROM: Michael Liu, Assistant Secretary for Public and Indian Housing, P

SUBJECT: Comments on GAO Draft Report, "Alaska Native Villages: Most are Affected by Flooding and Erosion, but Few Qualify for Federal Assistance"

The Department would like to thank GAO for its review of Alaska Native villages affected by flooding and erosion.

The Draft Report presents a sketch of the seriousness of the issue and the feasibility of alternatives for responding to the flooding and erosion problem. The review found that flooding and erosion affect 86 percent of Alaska Native villages. The Department shares the concern of GAO regarding the insufficient coordination of federal agencies that have involvement with this issue. However, the Department is not prepared to endorse GAO's suggestion that the Denali Commission manage federal funds for flooding and erosion problems. We have concerns that the Denali Commission, as an independent agency, does not have the capacity to be fully integrated with the efforts of federal agencies to address this issue. Careful consideration should be given to the financial and managerial capacity of any federal entity that may be considered to coordinate federal funds for flood and erosion control affecting Alaska Native villages.

The Department regards this study as an important resource in the continuing effort to meet the challenge of maintaining a safe and decent environment for Alaska Natives living along the coastline and rivers.

cc: Jeff Malcolm, Assistant Director, Natural Resources and Environment, GAO

www.hud.gov espanol.hud.gov

Comments from the Denali Commission

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

DENALI COMMISSION
510 "L" Street, Suite 410
Anchorage AK 99501

(907) 271-1414
Fax (907) 271-1415
Toll Free (888) 480-4321
www.denali.gov

November 10, 2003

Anu K. Mittal, Director
Natural Resources and Environment
United States General Accounting Office
441 G Street, Rm. 2T23A
Washington, D.C. 20548

Dear Ms. Mittal:

We very much appreciate the opportunity to comment on the draft report concerning flooding and erosion of Alaska Native Villages. In general, we believe the report does a good job of framing the issue and capturing the relevant information concerning this very serious problem. The magnitude of this problem, depending on the alternative(s) selected to address it, is measured in terms of hundreds of millions and possible billions of dollars.

Alternatives for addressing the problem range from moving imminently threatened villages to a new location to simply allowing individual villagers to relocate to other existing communities. There are significant costs associated with either approach, and with either approach there are likely to be interim investment decisions that have to be made.

We recognize the error that was made in the decision to fund a new clinic in Newtok. As pointed out in the report, the Commission's draft Investment Policy should help avoid similar flawed decision making in the future. We are confident that the principles upon which the Policy is based are sound, but its efficacy depends on available and accurate information. Community based, regionally supported comprehensive planning is critical to the sustainability of any public works project in rural Alaska. We will continue to seek the State of Alaska and other agencies' collaboration in making such planning effective.

Additionally it is not sufficient for the Denali Commission alone to have an Investment Policy. To ensure that investments are made in a conscientious and sustainable manner, we believe that all funding agencies should use a similar policy to guide investments. Otherwise communities will shop for the funding agency with the most permissive rules for funding.

As one alternative, the report recommends an expanded role for the Denali Commission to include responsibilities for manage a flooding and erosion assistance program. We are not convinced that a new program is the appropriate response.

For the four villages identified as being in imminent danger from flooding or erosion, prevention or minimization of flooding is very likely neither technically nor financially viable. If that is the case, then either a wholesale relocation of the village or allowing the community members to relocate among other more sustainable communities appears to be the only potentially viable solutions. Each community must make their own case by case decisions.

Wholesale relocation may not be financially viable, which would leave only the option of allowing community members the choice of going without publicly funded infrastructure or moving to where such infrastructure is sustainable. In some cases, the community High School is the most critical public infrastructure weighing heavily in such individual family decision making.

Relocation of an entire community requires some organization to plan and direct the myriad of actions involved. That organization need not necessarily be a federal agency.

With the foregoing in mind, the Commission offers the following recommendations:

See comment 1.

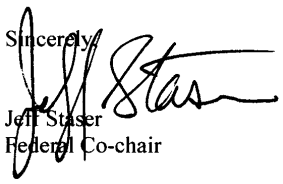
1. We believe that adequate information currently exists to determine whether preventing or minimizing flooding and erosion is technically and/or financially feasible. I recommend that the federal responsibility for such feasibility analysis is appropriately charged to the leadership of the Corps of Engineers.
2. If mitigation measures are not feasible, relocation must be a collaborative process. I believe tribal, local, state, federal and non-profit organizations must be consulted, and criteria established for each element of cost associated with any relocation program. Once established, such cost criteria must be weighed in the context of the only two options available – relocation of the entire community or relocation of individual families to other existing communities. Members of a threatened community should be provided adequate information in order to make informed choices.
3. Roles, responsibilities and functions must be clearly articulated under one comprehensive planning process. No agency should be allowed to act without concurrence and coordination with all agencies affected by such actions.
4. I concur with recommendations to review national criteria with an eye towards providing greater flexibility for the Alaska District of the Corps of Engineers to address Alaska's unique rural community flooding and erosion challenges.

See comment 2.

5. There should be a much larger role outlined for borough and State governments. While it is true that neither borough nor State governments is likely to be significant contributors of funding to address this issue, they can and should play a very central role in developing response strategies, in helping to prioritize the use of scarce resources, and in planning and helping to execute appropriate responses. If the appropriate response is the dispersion of the population to existing communities, borough and State government should play the lead role with little or no involvement from the federal government.
6. The report should strongly encourage all federal and state agencies to adopt an investment policy similar to that being developed by the Denali Commission, particularly for the expenditure of federal funds. Regardless of which approach to this problem is pursued, such a policy will help to ensure consistency and prudent use of limited available resources.

Again, we appreciate the opportunity to comment and will be happy to respond to any questions our comments may generate.

Sincerely,



Jeff Staser
Federal Co-chair

GAO's Comments

The Denali Commission commented on our recommendation and the alternative to expand its role, both of which are discussed in the Agency Comments and Our Evaluation section of this report. In addition, discussed below are GAO's corresponding detailed responses to some of the Denali Commission's general comments.

1. We agree that the Corps can determine whether preventing or minimizing flooding and erosion is technically and financially feasible. Under the Tribal Partnership Program, authorized by section 203 of the Water Resources Development Act of 2000 (Pub. L. No. 106-541, 114 Stat. 2572, 2588-2589 (2000)), the Corps is currently examining impacts of coastal erosion due to continued climate change and other factors in the Alaska Native villages of Bethel, Dillingham, Shishmaref, Kaktovik, Kivalina, Unalakleet and Newtok. Congress provided $2 million for these activities in fiscal year 2003. However, other federal agencies, such as the NRCS, also have the ability to conduct feasibility analyses.

2. We acknowledge the commission's desire for a larger role for Alaska state and local governments in developing and executing response strategies and in helping to prioritize the use of scarce resources. However, whether or not the state and local governments choose to expend their own resources to become more involved in responding to flooding and erosion issues is entirely a state or local government decision. Since this decision would involve the expenditure of state or local government funds, rather than federal funds, it is outside the scope of our report.

Comments from the State of Alaska

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

FRANK H. MURKOWSKI
GOVERNOR
GOVERNOR@GOV.STATE.AK.US

P.O. BOX 110001
JUNEAU, ALASKA 99811-0001
(907) 465-3500
FAX (907) 465-3532
WWW.GOV.STATE.AK.US

STATE OF ALASKA
OFFICE OF THE GOVERNOR
JUNEAU

November 21, 2003

Ms. Anu K. Mittal, Director
Natural Resources and Environment
United States General Accounting Office
441 G Street, Room 2T23A
Washington, DC 20548

Dear Ms. Mittal:

This is in response to your draft report to Senator Ted Stevens regarding Alaska native villages affected by flooding and erosion. The State of Alaska recognizes that many communities in the state are threatened by erosion from ocean tidal activity and river flooding. Some communities are in imminent danger and require federal assistance. We are encouraged that the GAO has recognized the dilemma these communities face and is committed to identifying alternatives that Congress may consider in providing assistance.

Comments for the Denali Commission are in appendix VII.

Enclosed for your review are responses from the Denali Commission, Department of Community and Economic Development, and the Division of Emergency Services. I sincerely appreciate the time and effort invested in preparing this report as well as the opportunity to comment.

Sincerely,

Michael A. Nizich
Deputy Chief of Staff

Enclosures

STATE OF ALASKA

FRANK MURKOWSKI, GOVERNOR

DEPARTMENT OF MILITARY
AND VETERANS AFFAIRS
DIVISION OF HOMELAND SECURITY
AND EMERGENCY MANAGEMENT

P.O. Box 5750
Ft. Richardson, AK 99505-5750
Phone: (800) 478-2337
Fax: (907) 428-7009
www.ak-prepared.com

Nov 20, 2003

Mr. Jeff Malcolm,
Assistant Director
Natural Resources and Environment
US General Accounting Office

Mr. Malcolm,

I represent the State of Alaska, Division of Emergency Services (DES), and I have reviewed your Draft Report to Congressional Committees entitled *ALASKA NATIVE VILLAGES, Most Are Affected by Flooding and Erosion, but Few Qualify for Federal Assistance.* I submit the following comments for consideration.

See comment 1.

- DES has some concern about how the nine "at risk" communities in the study were determined and why there were only nine. Some of the nine communities studied may not be in the top nine communities at risk from flooding and erosion and others at greater risk from flooding and erosion may not be included.

- Page 12. The statement in the second paragraph that identifies the Division of Emergency Services as the first to respond to state disaster declarations dealing with flooding and erosion is not accurate. Local communities are the first to respond to disasters. The state, through DES, responds only when local communities are unable to handle the situation themselves and request our assistance.

Now on p. 26.

- Page 24. The fifth bullet of the second paragraph identifies DES as "the state agency that responds first . . . " It would be more accurate to say that DES "is the state agency that, when assistance is requested, coordinates the response to emergencies . . . " Also, the last sentence of the fifth bullet needs further defined and should more accurately read as follows. "With authorization from the Governor, the state Disaster Relief Fund can make up to $1 million (without Legislative approval) available to communities recovering from a state declared disaster. Substantially more funding may be available, with Legislative approval, for Presidential Disaster Declarations, for which the state is obligated to pay a 25% funding match."

See comment 2.
Now on p. 42.

- Page 38. The last paragraph needs to better define the recommendation to expand the Denali Commission's role in providing flood and erosion assistance and its relationship to FEMA and state disaster response and recovery. The Denali Commission does not currently have a role in disaster response or recovery.

Now on p. 43.

- Page 39. The second paragraph, sixth sentence states that the Alaska Federation of Natives represents Native corporations statewide. This is not an accurate statement, as they do not represent all Alaska Native corporations. To our knowledge, there is no single entity that represents all Alaska Native corporations.

Thank you for the opportunity to review and comment on this GAO study. If you have any questions, please contact me at 907-428-7030.

Sincerely,

James F. Butchart

James F. Butchart
Deputy Director
Office of Emergency Management

Frank H. Murkowski, Governor

Alaska Department of Community and Economic Development

Division of Community Advocacy
550 W. 7th Avenue, Suite 1770, Anchorage, AK 99501-3510
Telephone: (907) 269-4580 • Fax: (907) 269-4563 • Text Telephone: (907) 465-5437
Email: questions@dced.state.ak.us • Website: www.dced.state.ak.us/cbd/

November 20, 2003

Anu K. Mittal, Director
Natural Resources and Environment
U.S. General Accounting Office
441 G Street, Room. 2T23A
Washington, D.C.

Dear Ms. Mittal:

Thank you for the opportunity to comment on the draft report regarding Alaska Native villages affected by flooding and erosion. As the State-coordinating department for floodplain management in Alaska – an agency that provides technical assistance without dedicated funds to mitigate these significant threats facing families and communities throughout Alaska - we are delighted to have had the congressionally mandated report prepared.

In general the report is well prepared given the short time frame and difficult mandate. We greatly appreciate the trips made to several of the villages by the study team in order to see first hand the problems faced by these communities.

The GAO recommendations may not go far enough to stress all alternatives are considered in current federal agency relocation planning efforts. Relocation options must also include sustainable community planning objectives, and what a 'no action' impact would be (e.g. would residents move to other communities if no new relocation site was developed?). Community relocation planning efforts need to be integrated into other community planning activities such as utility and airport master plans, economic development, or other comprehensive planning activities – many of which are funded by a mix of federal and state program dollars. "Sustainability" with regard to flooding and erosion meaning that a locale is able to withstand a severe natural event or a number of less severe events without incurring permanent degradation of property, diminished productivity, or reduced quality of life, and can afford locally to manage the level of damage that may occur.

The following comments are directed to specific areas in the report:

The 3rd paragraph, line three states: *"Relocation is a daunting process that may take several years to accomplish for these villages."* The daunting process is correct. From

Page Two

our experience, unless a funded, interdisciplinary, systematic approach to relocation is undertaken to assist these most threatened communities, structures will continue to be temporarily moved back to avoid loss but relocation has not, and will not, occur in 'several years.' Relocation has been a topic of discussion and study for Kivalina, Shishmaref and Newtok for at least two decades. We would like to see the federal disaster assistance programs included in the many assistance mechanisms that will be needed to address the relocation needs of these most threatened Alaska villages. In particular, the Flood Mitigation Assistance Program which GAO credits (page 29) as funding the move of 14 homes in Shishmaref after the 1997 storm, is now limited by the Federal Emergency Management Agency guidance only to "repetitive loss structures" as eligible rather than including "structures subject to imminent collapse or subsidence as a result of erosion or flooding" as is allowable under the Congressional authorizing language. [1] This unfairly limits a viable federal funding mechanism that has successfully mitigated the loss of many structures in Shishmaref but currently can not be used.

Now on p. 32.

Page 3-4, repeating on pages 20-21, the report discusses the difficulty of villages to provide cost-share funds, which is a very real problem. What is not mentioned is that historically the State has provided the nonfederal matching funds for most Corps of Engineers (and other federal projects) and with the extreme budget deficits currently faced by the State of Alaska the matching funds have been severely limited.

Now on pp. 3, 22, and 23.

Page 4, line 6, repeating on page 24 2nd bullet states: *"...the Alaska Department of Community and Economic Development provides coordination, (funding) and technical assistance to communities to help reduce losses and damage from flooding and erosion."* Please delete "funding", as DCED assistance is limited. There is no dedicated State fund for relocation, erosion or structural flood control. A number of special legislative pass-through grants and Community Development Block Grants have been used to fund erosion studies and relocation planning projects but no direct general fund exists at the State level.

Now on pp. 4 and 26.

Page 1, repeating on page 3, and 13: By listing *184 out of 213 or 86% of Alaska Native villages "affected" by erosion because quantifiable data are not available for remote locations*, though true misses concerns expressed by this Division about the complexity of the erosion policy arena – and lack of quantifying terms - with regard to erosion. Probably all 213 villages are "affected" because erosion is a naturally occurring process. Data collection needs some framework for quantification. Standard(s) for measurement; erosion zone guidance and federal (or state) standards by which to judge erosion risk are needed. The national standard for designing, development and siting for the "100-year flood" event exists and is quantifiable and measurable. A standard for erosion, such as a distance measurement needs to be established (such as the life of the structure, which itself may need to be standardized - 50-year life for a house, etc.). Congress has provided

Now on pp. 2 and 13.

[1] See Section 1366(e) (5) Eligible Activities (A) of The National Flood Insurance Act of 196as Amended by the national Flood Insurance Reform Act of 1994.

Page Three

limited authorization to implement a coastal erosion management program [2] but this has not advanced to the level of Executive Orders for guiding federal floodplain and wetlands management.

"Imminent threat" was another term used in the report but the definition and varies among agencies (HUD did not consider Unalakleet erosion problems an "Imminent threat", whereas NRCS did.)

Now on pp. 4, 29, and 32.

Page 4, 3rd line, page 26 Table 5, and page 28: describes Corps cost estimates for Kivalina. Suggest verifying with the Corps or footnoting as to the source document, particularly the *cite "...up to $400 million for just the cost of building a gravel pad..."*

Page 10, line 2: Please rewrite to add wording (all CAPS) to this affect: *"Since most OF THE villages AFFECTED BY SEVERE FLOODING AND EROSION THAT ARE PLANNING FOR RELOCATION do not have running water, the washeteria plays an important role;..."*

Page 10, line 3: Consider qualifying statement: *"Because many village homes IN THE VILLAGES MOST IMPACTED BY EROSION AND FLOODING do not have sanitation facilities they rely on honey buckets – a five-gallon bucket that serves as a toilet- or a flush and haul system."* Federal agencies and the State of Alaska have invested heavily in improving rural sanitation but in many villages the sanitation system does not allow for sufficient volume or flow of water to allow for in-home bathing and laundry.

Page 11, line 1: Suggest changing "Most" to MANY delete DOCK OR as follows*: "Most river villages also have a barge landing area where goods are delivered to the community during the ice-free period."* Because of ice conditions very few villages have docks.

Page 13 repeats from cover and page 3.

Page 16, line 3: the referenced 1982 report. If this is the "Listing of Alaskan Communities for Documentation of Erosion Problems" prepared for DCED (then Department of Community and Regional Affairs), please credit this Department. The companion report to this listing was "Understanding and Evaluating Erosion Problems" 9/1982, for DCED.

Now on p. 26.

Page 24, 4th bullet please verify with Alaska Housing Finance Corporation to see if they have *"grants to persons in imminent danger of losing their homes"*.

Now on p. 26.

Page 24, last line please clarify sentence to read: *"According to state documents BETWEEN 1972 and 1991 the state spent over $40 million for EROSION CONTROL STATEWIDE."*

[2] *Managing Coastal Erosion*, National Research Council (Library of Congress CC # 89-13845)

Page Four

Now on p. 32.

Page 29 Add: *"After the 1997 fall storm, which was declared a state disaster, FEMA FLOOD MITIGATION ASSISTANCE PROGRAM GRANT FUNDS (75 % SHARE) ADMINISTERED AND MATCHED BY THE STATE (25% share), helped move 14 homes along the COASTAL BLUFF to another part of the village, and in 2002..."*

GAO staff during their research prepared a list of studies by village. Suggest the village specific bibliography be included in an Appendix to the Final Report for future reference. This kind of community specific research is time consuming to collect and would be a useful addition to this study.

Thank you for the opportunity to comment on this draft report. If you have questions about any of the Division's comments, please contact Christy Miller, floodplain management program coordinator on my staff at (907) 269-4567.

Sincerely,

Gene Kane
Director

cc: Al Clough, DCED Deputy Commissioner, Juneau

GAO's Comments

The state of Alaska provided technical comments from the Division of Emergency Services and the Department of Community and Economic Development, which we incorporated as appropriate. In addition, discussed below are GAO's corresponding detailed responses to some of the state's comments.

1. The fiscal year 2003 Conference Report for the military construction appropriation bill directed GAO to study at least six Alaska Native villages affected by flooding and erosion—Barrow, Bethel, Kaktovik, Kivalina, Point Hope, and Unalakleet—we added three more—Koyukuk, Newtok, and Shishmaref—based on discussions with congressional staff and with federal and Alaska state officials familiar with flooding and erosion problems.[1] As our report states, four of the nine villages, Kivalina, Koyukuk, Newtok and Shishmaref are in imminent danger from flooding and erosion. We agree that the remaining five villages may not be the most at risk from flooding and erosion.

2. It is not our intent to expand the role of the Denali Commission to include a disaster response and recovery component.

[1]H. R. Conf. Rep. No. 107-731, at 15 (2002).

GAO Contacts and Staff Acknowledgments

GAO Contacts

Anu Mittal, (202) 512-3841
Jeffery D. Malcolm, (202) 512-6536

Acknowledgments

In addition to those named above, José Alfredo Gómez, Judith Williams, and Ned Woodward made key contributions to this report. Also contributing to the report were Mark Bondo, John Delicath, Chase Huntley, Marmar Nadji, Cynthia Norris, and Amy Webbink.

GAO's Mission

The General Accounting Office, the audit, evaluation and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through the Internet. GAO's Web site (www.gao.gov) contains abstracts and full-text files of current reports and testimony and an expanding archive of older products. The Web site features a search engine to help you locate documents using key words and phrases. You can print these documents in their entirety, including charts and other graphics.

Each day, GAO issues a list of newly released reports, testimony, and correspondence. GAO posts this list, known as "Today's Reports," on its Web site daily. The list contains links to the full-text document files. To have GAO e-mail this list to you every afternoon, go to www.gao.gov and select "Subscribe to e-mail alerts" under the "Order GAO Products" heading.

Order by Mail or Phone

The first copy of each printed report is free. Additional copies are $2 each. A check or money order should be made out to the Superintendent of Documents. GAO also accepts VISA and Mastercard. Orders for 100 or more copies mailed to a single address are discounted 25 percent. Orders should be sent to:

U.S. General Accounting Office
441 G Street NW, Room LM
Washington, D.C. 20548

To order by Phone: Voice: (202) 512-6000
TDD: (202) 512-2537
Fax: (202) 512-6061

To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Web site: www.gao.gov/fraudnet/fraudnet.htm
E-mail: fraudnet@gao.gov
Automated answering system: (800) 424-5454 or (202) 512-7470

Public Affairs

Jeff Nelligan, Managing Director, NelliganJ@gao.gov (202) 512-4800
U.S. General Accounting Office, 441 G Street NW, Room 7149
Washington, D.C. 20548

United States
General Accounting Office
Washington, D.C. 20548-0001

Official Business
Penalty for Private Use $300

Address Service Requested

Presorted Standard
Postage & Fees Paid
GAO
Permit No. GI00