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THE STATE AND FEDERAL RESPONSE TO STORM DAMAGE AND EROSION IN ALASKA'S COASTAL VILLAGES

HEARING

BEFORE THE

AD HOC SUBCOMMITTEE ON DISASTER RECOVERY

OF THE

COMMITTEE ON
HOMELAND SECURITY AND
GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

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THE STATE AND FEDERAL RESPONSE TO STORM DAMAGE AND EROSION IN ALASKA'S COASTAL VILLAGES

TUESDAY, OCTOBER 11, 2007

U.S. SENATE,
AD HOC SUBCOMMITTEE ON DISASTER RECOVERY,
OF THE COMMITTEE ON HOMELAND SECURITY
AND GOVERNMENTAL AFFAIRS,
Anchorage, Alaska

The Subcommittee met, pursuant to notice, at 9 a.m., in Z.J. Loussac Public Library, Anchorage, Alaska, Hon. Mary Landrieu, Chairman of the Subcommittee, presiding.

Present: Senators Landrieu and Stevens.

OPENING STATEMENT OF SENATOR LANDRIEU

Senator LANDRIEU. I would like to call the Subcommittee on Disaster Recovery to order. I thank our panelists for being available and thank all of you for your interest and work on this important subject.

I am going to turn the gavel over to Senator Stevens, who needs no introduction, of course, here in Anchorage, Alaska. He is not only a giant among Senators, a veteran, and a hero, but a tireless advocate for the interest of the citizens of this State.

I have been pleased to work with him, to battle with him on behalf of the citizens throughout all parts of Alaska. And it is a great privilege for me, really, to be with him in his home State.

He has stood by the side of the people of New Orleans and Louisiana as we tried to rebuild out of the rubble of two of the worst storms to ever hit the continental United States, Hurricanes Katrina and Rita, which decimated large swaths of the Gulf Coast States just 2 years ago.

So again, it is a pleasure for me to be here. We had a remarkable visit yesterday and I am looking forward to the testimony today. At this time, I will turn the gavel and microphone over to Senator Stevens.

OPENING STATEMENT OF SENATOR STEVENS

Senator STEVENS [presiding]. Thank you, very much, Senator Landrieu. You are very generous. I am delighted that you have scheduled this hearing.

Yesterday I attended a portion of the hearing of the State legislature here on some of the State functions regarding the disaster areas that we are concerned with here this morning. And for the

interest of everybody, we did go to Shishmaref yesterday and had a very short but meaningful visit there. I am delighted that Senator Landrieu was willing to go there to see the devastation that has been caused along our shore.

It is an important thing for us to try and deal with this now. I want to emphasize, of course, that I am sure Alaskans know that no State is more affected by global climate change than ours. We have rising temperatures. The permafrost is melting. The trees are growing further up north. The sea ice is melting. And the storms, in particular, have increased in their severity and their number.

I hope that we are going to be able to hear today some of the concepts that are involved in Federal responsibilities with regard to these villages.

As you all know, in 2003, at our request, the GAO examined and produced a report concerning the flooding and erosion of Alaskan Native villages. They found that 184 of the 213 at that time, 86 percent of the villages were affected. Shishmaref, Kivalina, and Newtok were those who had suffered the worst.

We are in the process still of dealing with the Federal a gencies, particularly those who are here today, to determine what can be done on the Federal level to deal with these villages and the results of the storms so far. And really, we went yesterday, to see how effective some of the steps we have taken to try and protect the villages have been. And clearly, we have to find a way to work together if we are going to solve this problem.

So I am delighted, Senator, that you are willing to do this, make this trip, to listen to this, and conduct this hearing. It is a most important thing for us, I think, to pursue.

I have been to New Orleans 2 days after the Hurricanes Katrina and Rita disasters. I served in World War II and saw a lot of devastation, but I have never seen devastation in the United States like I saw there. At least 20 square miles of homes were totally flattened. We had a real emergency and I do believe that Senator Landrieu and her colleagues, moved forward to try and get the massive efforts of the Federal Government coordinated and effective.

We have a similar situation, only it is spread along the coastline, half of the coastline of the United States. It is more difficult to deal with. But I know that the experience that Senator Landrieu has had with regard to that major disaster is going to help us in terms of trying to deal with those that we are facing now and may face in the future.

So let me, if I can, at your suggestion, introduce to you the people who are going to testify today.

First, we are going to hear from Brigadier General John Peabody, who is the Commander and the Division Engineer for the Pacific Ocean Division of the Corps of Engineers. He is responsible for engineering design, construction, and real estate management of all of the military establishments in the Pacific Region, as well as the Corps of Engineers water resource development and regulatory programs for Alaska, Hawaii, American Samoa, Guam, and Northern Marianas. He has a vast area, so we are happy to have you with us today.

Is the time limit 7 minutes for statements? We would like to see you keep your statements as short of possible, so we can go into some questions. The Chairman says 5 minutes.

So General, let's hear from you first.

STATEMENT OF BRIGADIER GENERAL JOHN W. PEABODY,[1] COMMANDER AND DIVISION ENGINEER, PACIFIC OCEAN DIVISION, U.S. ARMY CORPS OF ENGINEERS

General PEABODY. OK, sir. Thank you, very much.

Madam Chairman, Senator Stevens, thank you for the opportunity to appear before you today to discuss coastal storm damage and related issues in Alaska.

I am General John Peabody, Commander of the Corps of Engineers Pacific Ocean Division, and I will provide a brief overview of the Pacific Ocean Division, review our Corps of Engineers' Authorities and programs, and highlight some of the challenges regarding coastal erosion affecting Alaskan communities.

The Pacific Ocean Division is headquartered in Honolulu, Hawaii. We have four district offices in Hawaii, Alaska, Japan, and South Korea. All of our districts have important military construction missions. In addition, the Honolulu and Alaska districts have a civil works mission that provides for water resources development and restoration, primarily in the areas of commercial navigation, flood and coastal storm damage reduction risks, and ecosystem restoration.

It is through our Alaska District civil works program that we are involved in addressing erosion problems that affect Alaskan communities.

The Corps of Engineers has several civil works authorities to address flooding and erosion problems. They include specific Congressional authorizations, the Continuing Authorities Program, the Planning Assistance to States Program, the Tribal Partnership Program, the Flood Control and Coastal Emergencies Authority, and Alaska-specific authorizations such as Section 117 of Public Law 108–447 of the Fiscal Year 2005 Consolidated Appropriations Act. This relates to Alaska flood, erosion, and ice damage. Each of these authorities has different implementing rules and limitations.

In addressing erosion problems, the Corps works closely with local, State, Federal, tribal, and private interests to understand and incorporate the concerns represented by these various stakeholders. The Corps weighs the concerns, balances the needs, and examines the risks, costs and benefits to determine Federal interest and to make technically, environmentally, socially, and economically sound risk-informed decisions.

I would like to highlight a few of the Alaska-specific coastal erosion authorities.

A recent authority that has been useful in addressing Alaska coastal erosion problems is Section 117 of the Fiscal Year 2005 Appropriations Act, which authorizes the Secretary of the Army to "carry out, at full Federal expense, structural and non-structural projects for storm damage prevention and reduction, coastal ero-

[1] The prepared statement of General Peabody appears in the Appendix on page 45.

sion, and ice and glacial damage in Alaska, including relocation of affected communities and construction of replacement facilities."

The Corps of Engineers has demonstrated some success with the Section 117 authority as implemented under the Alaska Coastal Erosion program. In June 2007, with funding provided by Congress, the Alaska District awarded a $6.5 million construction contract to build approximately 625 linear feet of rock revetment to protect infrastructure at Shishmaref. The interim erosion protection at Shishmaref has an estimated project life of approximately 15 years, which will allow the community sufficient time to develop and implement alternative plans. An additional 2,500 feet at an estimated cost of $25 million is required to complete the interim protection for the entire community.

Additionally, the Alaska District executed a Project Cooperation Agreement with the City of Unalakleet in January 2007 for erosion protection, subject to the availability of funds. Finally, the Alaksa District is also currently negotiating a Project Cooperation Agreement with the city of Kivalina for erosion protection.

In addition, under the Alaska Tribal Partnership Program, the Alaska District is preparing the Alaska Baseline Erosion Study. This will provide a systems approach for coordinating, planning, and providing an overall assessment to help prioritize shoreline erosion management efforts in Alaska. To date, the study has identified 165 communities that are experiencing erosion problems. The Alaska District has also initiated the Alaska Erosion Data Collection study under this program.

As noted in the June 2004 General Account Office report on Alaska Native villages affected by flooding and erosion, it is often difficult for the majority of Alaska's small and remote communities to finance and meet the multiple criteria required for Federal participation in solutions. The remoteness of many of the areas, severe weather conditions, and the subsistence economies of the communities are major contributing factors to this limitation.

Perhaps the biggest challenges are the costs and risks associated with implementing erosion control solutions in these usually remote communities. These include high mobilization costs, limited construction season, and the difficulty and expense of transporting and obtaining adequate rock and other construction materials. In April 2006, the Corps completed the Alaska Village Erosion Technical Analysis Report—also known as the AVETA study—which estimated costs for providing erosion protection for seven villages.

In addition, in Alaska we lack adequate scientific data on the factors that contribute to coastal erosion such as wave, wind, tide, current, storm surge, and ice pack. The Alaska Erosion Data Collection study should help provide some of this important information.

The risks associated with coastal erosion challenges in Alaska are great. Risk considerations include determining what level of protection from erosion and flooding are acceptable, deciding whether to relocate or remain, and balancing the costs, social, cultural, and environmental impacts.

In summary, the Corps of Engineers has the technical expertise to address solutions based on a systems approach and to communicate and assist with risk informed decisionmaking associated

with the complex storm damage and erosion problems in Alaska's coastal villages.

We are proud to work in collaboration with the many Federal, State, and local entities to assist in recommending and implementing solutions for the coastal erosion challenges faced by the Alaskan communities.

Madam Chairman and Senator Stevens, I am honored to appear before the Subcommittee today and thank you for the opportunity. I look forward to any questions you may have.

Senator LANDRIEU. Thank you very much.

Senator STEVENS. Thank you very much.

Madam Chairman, now we are going to hear from John Madden, who is the Director of the Division of Homeland Security and Emergency Management for the Department of Military and Veterans Affairs of the State of Alaska. He has extensive experience in the State, and he has also had a distinguished career with seven Federal agencies.

Thank you, Mr. Madden, for being with us. We are pleased to have your statement.

STATEMENT OF JOHN W. MADDEN,[1] DIRECTOR, DIVISION OF HOMELAND SECURITY AND EMERGENCY MANAGEMENT, DEPARTMENT OF MILITARY AND VETERANS AFFAIRS OF THE STATE OF ALASKA

Mr. MADDEN. Thank you, Senator Stevens and Madam Chairman, for inviting me to present testimony on the State response to storm damage and erosion in Alaska's coastal villages.

In the past 30 years, Alaska has declared 226 State disasters. Of these, 20 were further declared Federal disasters by the President. The disasters included floods, storm surges, extreme freezing, high winds, wildfires, structure fires, earthquakes, volcanoes, and other damage to critical infrastructure. About $436 million in State and Federal funds have been spent to recover from these Alaskan disasters. More than half of these disasters and two-thirds of the funds were for recovery from floods, storm surges, and erosion disasters.

Since 1978, the State of Alaska has declared 23 disasters due to damage from sea storms that have hit every coastal area from Metlakatla, throughout the Southeast, the Gulf of Alaska, the Aleutians, and the full extent of our western and northern coasts, a distance greater than the entire U.S. coast from Maine to Mexico and California to Canada.

According to the National Weather Service, an average of five storms of hurricane force approach Alaska each year from the Pacific and Arctic Oceans, and the Bering and Chukchi Seas. In recent years, the ice advances southward from the Arctic later and slower. This is an extremely important factor in the storms' effects on coastal communities. Shore fast ice greatly reduces the wave erosion action of the storms.

Both Alaskan and Federal statutes enable and authorize immediate actions and immediate funding when disasters are imminent, meaning likely to occur at any moment. When there is a question of safety of life, there is no bureaucracy, only swift and hopefully

[1] The prepared statement of Mr. Madden appears in the Appendix on page 50.

effective action. But where a possibility exists for a future disaster, but at an uncertain time, neither the Alaska Disaster Relief Act nor the Federal Stafford Act authorizes funds to prevent the disasters, no matter how certain the odds. Until the disaster can be clearly seen, disaster relief funds—State or Federal—cannot be used.

In fiscal year 2007, Congress appropriated $100 million for the Pre-Disaster Mitigation program for the entire Nation. Under this program, a project is deemed ineligible if another Federal agency has primary authority, even if that agency has no funds appropriated for that purpose.

FEMA administers the Hazard Mitigation Grant Program for long-term projects following a major disaster declaration. The purpose is to reduce the loss of life and property in future disasters by funding mitigation measures during the recovery phase. Projects must provide a long-term solution and the potential savings must be more than the cost of implementing the project. Allocations are calculated as a percentage of the costs of recent disasters. These funds are limited and are the only means to address the full range of hazards facing the State, including earthquakes, fires, floodings, and coastal storms.

Since 1997, Alaska has received about $16 million to mitigate the potential for damage from all future disasters, far less than the cost of fully mitigating just a single community against coastal erosion.

In July 2006, I testified before the Senate Commerce, Science, and Transportation Committee and recommended that unmanned aerial systems based in Alaska would greatly improve science, safety, and security. With these communities at increasing risk, the need is even stronger for these unmanned aerial systems in Alaska to help improve weather and climate predictions that are required for developing sound public policy.

Based on these observations, I do recommend the deployment and basing of unmanned aerial systems in Alaska for weather observations, coastline documentation, and immediate damage assessment following events. I recommend increased technology and staffing resources by the National Weather Service, particularly here in Alaska, to work with the State on improving their climate models and integrating their weather warnings with the emergency preparedness and response.

Last, I recommend increased funding for the Hazard Mitigation Grant Program and the Pre-Disaster Mitigation Program and greater latitude on their use for coastal erosion.

In conclusion, Alaska faces a spectrum of risks, threats, and hazards disproportionate to our population, a point not adequately measured or fully appreciated in the Federal grants process. The problems of coastal erosion and flooding are and will continue to be significant dangers to many Alaskan communities. The solutions to these problems lay beyond the existing capabilities of the communities and of the State. Existing authorities covering disaster response and recovery do not recognize changing or emerging conditions as an imminent disaster.

Coastal erosion and the flooding problems associated with them will place a greater number of Alaskans at a higher risk at a faster pace.

This concludes my prepared remarks and I stand ready to answer any questions the Subcommittee may have.

Senator STEVENS. Thank you very much.

Our next witness, Madam Chairman, is Susan Reinertson. She is the Administrator of FEMA for Region X. She is responsible for coordinating FEMA's mitigation, preparedness, and disaster response and recovery activities in four States: Alaska, Idaho, Oregon, Washington.

Thank you very much for coming to our hearing, Ms. Reinertson.

STATEMENT OF SUSAN K. REINERTSON,[1] REGIONAL ADMINISTRATOR, FEMA REGION X, FEDERAL EMERGENCY MANAGEMENT AGENCY, U.S. DEPARTMENT OF HOMELAND SECURITY

Ms. REINERTSON. Thank you. Chairman Landrieu and Ranking Member Stevens, I am Susan Reinertson, Regional Administrator of the U.S. Department of Homeland Security's Federal Emergency Management Agency, Region X. On behalf of FEMA and the Department of Homeland Security, we appreciate the invitation to appear today before the Subcommittee. It is a distinct honor and privilege for me to be here.

All of FEMA Region X and, I am sure, all of FEMA, are dedicated to meeting the needs of the people of Alaska within the programs and authorities provided to us by the Congress and the President.

I would like to acknowledge the leadership of our Alaska State partners, Major General Craig Campbell and John Madden, with whom we have forged a strong professional partnership that ensures successful emergency management for the Alaskan communities and citizens.

FEMA is the lead Federal agency responsible for coordinating disaster response, recovery, and mitigation efforts following disasters and emergencies declared by the President, as authorized under the Stafford Act. Three programs are made available to communities through our State partner organizations to supplement the response activities and recovery programs of the State include the Public Assistance Program, which provides assistance for the restoration of public and certain private nonprofit facilities damaged by an event, and the reimbursement of the costs associated with emergency protective measures and debris removal. The six Alaskan Native villages most prone to erosion have received $3.1 million in public assistance over the last 5 years as a result of three federally declared disasters.

We also have the Individuals and Households Program, which helps ensure that the essential needs of individuals and families are met after disasters so that they can begin the road to successful recovery.

And finally, there are three Mitigation Grant Programs which, given the focus of this hearing, I will discuss in more detail.

[1] The prepared statement of Ms. Reinertson appears in the Appendix on page 55.

First, the Pre-Disaster Mitigation Grant Program was authorized by Congress under the Disaster Mitigation Act of 2000 and is available through the State to fund State and local mitigation projects and planning efforts. Funding for this competitive grant program is not triggered by a presidential disaster declaration. Rather, it is funded through the annual appropriations process.

Examples of projects funded under the program include the development of all-hazard mitigation plans, seismic retrofitting of critical public buildings, and acquisition or relocation of flood-prone properties located in the flood plain. All projects must be cost-effective, technically feasible, and are selected following a nationally competitive peer-review process.

Since the inception of the program in 2003, Alaska has received $1.9 million to address several local and State-wide planning projects and seismic retrofits of schools in Anchorage and Kodiak Island.

Second, we have the Hazard Mitigation Grant Program, which is available to States and communities following presidential disaster declarations. The amount of assistance available under this program is a percentage of FEMA's assistance made available under the response and recovery programs.

Of the $18.5 million in Hazard Mitigation Grant Program funds obligated in Alaska since the inception of the program, $7.5 million or 40 percent has been spent on relocation projects for Alaskan Native villages. Specifically, over $6.3 million in Federal funding was provided to relocate 11 structures in Alatna; $900,000 was provided for relocating 27 homes in Allakaket; and $200,000 was provided for relocating and elevating homes and a city building in Alakanuk. For all of these projects, the State of Alaska provided a 25 percent match funding.

Third, the Flood Mitigation Assistance program is authorized for mitigating structures insured by the National Flood Insurance Program within a community participating in that program. Currently, 32 boroughs, cities, towns, and Alaska Native village municipalities participate. Eligible projects for this program include the elevation, relocation, and acquisition of flood-prone structures.

In 1998, the Flood Mitigation Assistance Program was able to fund $600,000 to relocate nine private structures within Shishmaref.

There are significant eligibility and funding challenges to FEMA and the State developing successful mitigation projects, including relocation, in Alaska Native villages. With respect to eligibility, projects that receive FEMA grant funding must demonstrate that the benefit of the project is the same or greater than the cost. With the high costs in rural Alaska and low population, developing a project or relocation effort with a positive benefit-to-cost ratio is difficult.

In regard to funding challenges, our mitigation program's funding is insufficient to comprehensively address the Alaska Native villages erosion problem. Since the Hazard Mitigation Grant Program's funding availability is based on declared disaster losses, it would take a catastrophic disaster or disasters for the State to receive the needed level of mitigation funds. The Pre-Disaster Mitigation grant program is funded nationally at $100 million for fiscal

year 2007, with a $3 million cap on each nationally selected project. Nevertheless, FEMA will continue to work with the State of Alaska to identify and provide technical assistance for planning and development of cost-effective project for consideration under all programs of the Stafford Act.

Please be assured if one or more communities experience significant flooding and a major disaster is declared, the full breadth of the Staff Act programs will be provided with the greatest of coordination and allowable flexibility within the scope of the law to ensure the long-term plans of the communities are considered, to include the potential relocation of certain structures and facilities.

In closing, I appreciate the opportunity to represent the Federal Emergency Management Agency and the Department of Homeland Security before the Ad Hoc Subcommittee on Disaster Recovery.

Senator STEVENS. Thank you very much. Madam Chairman.

Senator LANDRIEU. Thank you. I appreciate you all keeping it in the time frame and I do have a few questions.

General Peabody, you spoke about the civil works budget for the country. Could you just repeat again what your budget is for civil works for your division and what it is for the full country every year?

General PEABODY. Yes, ma'am.

The last 5 years, we have averaged roughly about $80 million a year for the——

Senator LANDRIEU. For your division.

General PEABODY [continuing]. Pacific Ocean Division. I do not have the exact figures off the tip of my tongue, but I believe the last few years and the President's budget this year is on the order of magnitude $4 to $5 billion a year for civil works across the Nation.

Senator LANDRIEU. The reason I want that to be on the record is that while these numbers seem impressive when you throw them out, just to give you a relative number, the damage for just these two storms for Hurricanes Katrina and Rita has already cost the Federal Government—just these two storms, not Hurricane Wilma, not Hurricane Andrew, not any of the other hurricanes that hit the South, and I am sure that the earthquakes and storms, as you pointed out, Mr. Madden, a whole series that have hit Alaska, and it is one of the more vulnerable States—is exceeding $150 billion, the damage that the Federal Government has already contributed.

So what we are paying on the back end to put communities back together is something that I have been trying to bring that message to Washington and to the Nation, is that it is such a relatively small amount of money that we are spending on the front end. And no matter how great our plans are, without some additional resources, we will not be making as much progress as I think we could.

There is a baseline erosion Corps of Engineers report of communities at risk, to determine the cost of continued erosion, to determine the cost of relocation. This was done, interestingly, before the storms of Hurricanes Katrina and Rita, which really focused the Nation's attention on just the devastation that can occur in a populated area, as well as isolated areas along the coast.

In 2003, the report was requested or required. Do you know what the status of that report is? Have you prioritized a list of communities in your region that might need relocation aid, those that are open to relocation or those that are interested in securing themselves in place where they are?

General PEABODY. Yes, Senator, there are actually two reports that your question refers to. One is the Alaska Village Erosion Technical Analysis (AVETA) report. That report focused on seven or nine villages specifically that were, based on discussion with local authorities, deemed to be at highest risk.

That particular report is completed and submitted to the Congress in April or the summer of 2006. I believe we completed the report in April 2006. That estimated the cost—it did three things. One was to identify how much time—rough order of magnitude, it is all rough order of magnitude—about how much time we thought the communities had before coastal erosion would effectively make their communities uninhabitable.

Two, it told us about how much the cost would be to shore up the communities.

And three, it told us about the cost to actually relocate the communities.

Senator LANDRIEU. But that report was Alaska-specific.

General PEABODY. That is correct, ma'am.

Senator LANDRIEU. That was not for the whole Nation.

General PEABODY. That is correct.

The rough order of magnitude—and I have the details here. But the rough order of magnitude for either—I will talk about a semi-permanent solution. Because any solution is only as good as what——

Rough order of magnitude for either relocation or shoring up the communities ranged from about $50 to $125 million.

The other report you referred to is the Alaska Baseline Study. That is a study of all Alaska Native villages. That was generated by the GAO report of 2000 for—so far we have 165 communities that have self-identified as being at risk to coastal erosion, whether from the coast or actually from—some of these are close to rivers and have river erosion affecting them, as well.

And we will complete that report in October of next year.

Senator LANDRIEU. Are you all using the new technologies that—I think it is global spatial satellites—to determine your actual sea levels and measurements?

The reason I ask is because, as Senator Stevens knows, one of the shocking developments after the storms that we experienced was that the Corps of Engineers and the people in the region thought that the levees were a certain height but found out, after more accurate measures, that they were three to four feet lower than where they should have been due to lack of accurate measuring.

Now with technology today, and I have introduced this to Louisiana and I want to ask if you have it here, you can literally get very quickly the levels of—I guess land levels and rises. Are you all using that technology? Do you have it available to you in the region?

General PEABODY. Yes, we are using that technology—the point you are getting to is actually a really important point. This is absolutely essential. To make good informed decisions and to spend the taxpayers' dollar in the most effective and efficient way, we really need to have good hard scientific data. In Alaska, we are data poor.

So the two studies I referred to, in my judgment, really are starting us on a journey to get the data that we need to be able to make these good well-informed judgments that are based on science and sound technical knowledge.

Senator LANDRIEU. Well, I would really strongly suggest that we pursue that in every region of the Corps because Senator Stevens, without a doubt, the decisions we make could be extremely costly to the citizens, to the taxpayers, and we need to make them smartly.

Let me just ask, Mr. Madden, if I could—and I am sorry I do not have this data—but you said in your statement that Alaska had experienced an inordinate number of disasters, that the State had declared disasters, and the Federal Government indicated 20 or so, as you stated.

As your experience as a disaster leader for recovery, how does Alaska rank with all the other States? Do you all ever sort of rank how many disasters you have relative to other States? And the intensity of those disasters. Could you, just from your experience, say that Alaska would be the No. 1 State? Or high up on the listing of both State declared and federally declared?

Mr. MADDEN. We do make informal comparisons with the other States, ma'am, and Alaska is probably within the top five or six in the Nation for the number of State-declared disasters.

The nature of our disasters that have reached Federal level for the widespread devastation, they are infrequent but they are severe. We are the only State to ever get earthquakes above 9.0 on the Richter scale, and we have had three of them.

We are the only State that gets five hurricane force storms every year, guaranteed.

So the number of disasters is probably in the top five or six in the Nation. I think we are probably No. 1 in the Nation for the range of disasters: Volcanos and earthquakes and floods and fires and high winds and extreme freezing. So the spectrum of these disasters is probably greater in this State than in any other State.

Senator LANDRIEU. One more question. Do you find, and this is not the subject of this hearing specifically but it is on our minds as we struggle to rebuild in the Southern part of the country, what is the—just a brief comment about the insurance availability to people to recover their homes and businesses after a catastrophic loss? Is there any insurance sold in the State that is affordable that covers catastrophic loss? For a residence, not necessarily businesses?

Mr. MADDEN. We have been checking most recently into the seismic events as one of our threats out there. We are experiencing within the State, I think now only one carrier offers earthquake insurance. Other carriers have pulled out of the market and they may have grandfathered in their policies but are not writing new policies.

And on the flood insurance for individuals, so little of the State outside of the developed areas have the right documentation to understand if they are or are not in flood plains. So without that documentation, insurers are reluctant to even enter the market.

Senator LANDRIEU. One of the things that our Subcommittee is going to do is to try to come up with a different paradigm of recovering after a catastrophic disaster that entails more than just government subsidies, that entails some sort of partnership with the private sector and the government to rebuild, whether the small villages like I saw in Shishmaref yesterday, or whether they were larger communities like the 450,000 people in the city of New Orleans, which is my hometown, that lost 80 percent of the city was lost to flooding.

The whole country, I just want you to know, is really struggling with this, from the East Coast to the South Coast of the country. Here in Alaska, I would think it would be a problem, as well.

Ms. Reinertson, I know that you commented, and FEMA has generated, I have to say, a tremendous amount of criticism at home not because of the people of good intentions. But the Stafford Act has just been found very wanting to try to recover from catastrophic disaster.

So the project work order sheets that have to be filled out to rebuild every building, every classroom, respond to every desk that has been destroyed or firehouse or police station. The communities are really struggling to find the money to rebuild them and them have FEMA reimburse them. If your community is destroyed, you do not have the money to put up to rebuild your schoolhouse.

Are you all having any internal discussions inside of FEMA as to a way that we can get a better public work order process within the ranks of FEMA? Has that come up at all in your discussions this year as you looked at what is not working in the southern part of the country?

Ms. REINERTSON. As being the Regional Administrator for Region X, I do not get involved in those discussions. I am unaware of what has been happening at FEMA headquarters regarding that issue.

Senator LANDRIEU. Because I just think that—and the Senator knows this better than almost anyone—but the military, when they go through exercises does lessons learned because all battles are not the same. We want to learn from the battle so your generals do not repeat mistakes in the next one.

I really hope that the other 10 regions are paying more attention to what happened in our region because you could learn a great deal about what is not working for the people as we struggle to recover, in terms of bureaucracy and red tape associated with the current Stafford Act.

So as part of what we are here to try to prevent the disaster, mitigate against it and if it happens, to be better responders. And I thank you for your comments.

Senator Stevens.

Senator STEVENS. Thank you very much.

General Peabody, you passed over Section 117 of the Appropriations Bill so quickly, just so we will all remember what you said, it authorized the Secretary of the Army to "carry out, at full Federal expense, structural and non-structural projects for storm dam-

age prevention and reduction, coastal erosion, and ice and glacial damage in Alaska, including relocation of affected communities and construction of replacement facilities." A very general authorization to go on top of the Stafford Act.

It does not seem the Corps was impressed by that authorization at all. Did you have any instructions at all from your headquarters about how to react to that authorization?

General PEABODY. Sir, we actually have used that authorization, which the key component from our perspective is that it provides 100 percent Federal funding in that the cost-sharing aspect of it, which is a key ingredient to practically every other authority that we have, is not a requirement. And that is critical for most of the villages in Alaska because they just do not have the resources to be able to do any of the cost-sharing.

Senator STEVENS. I know that, and the difficulty I have is with a new paradigm that we cannot add money to the budget, as has been requested by the President, you initiate the Corps of Engineers project for this area, the Pacific Region. Did you request any money in 2006 or 2007 pursuant to Section 117?

General PEABODY. Did I, sir? No, sir, I did not.

Senator STEVENS. Why not?

General PEABODY. Sir, I am not asked to request money for the Federal budget. The Corps of Engineers does that at the headquarters with the Assistant Secretary of the Army for Civil Works?

Senator STEVENS. Well, don't they come to you and ask you what your requirements are before they prepare their budget?

General PEABODY. No, sir.

Senator STEVENS. Well, I hate to tell you, back in my day, in the Eisenhower Administration, they did. And the bureaus and the local offices went to the regions, and the regions went to their bureaus and the bureaus went to the assistant secretaries and the assistant secretaries went to the Secretary and the Secretary went to the OMB.

Now who is going to go to OMB and request money for the authorization I got under Section 117 unless you do it?

General PEABODY. Well, sir, we do make it known to the Corps headquarters what the requirements are for Alaska.

Senator STEVENS. But do you take into account the authorization, the specific authorization that Congress gave us for these storms on the West Coast? This was specifically directed to the storm damage on the West Coast. We all knew that.

General PEABODY. Yes, sir.

Senator STEVENS. But your agency has never requested any money from headquarters to carry it out; right?

General PEABODY. Not to my knowledge, sir. No, sir.

Senator STEVENS. Well, maybe I better get the General in charge of the Corps of Engineers and ask him why he did not. But I have not seen any requests at all for money to carry it out.

We are faced with the problem of trying to write that in one of these infamous earmarks now to meet the needs of these people unless someone authorizes it, someone recognizes the authorization you already have.

General PEABODY. Yes, sir.

Senator STEVENS. That is sort of mind-boggling, to say the least.

What about coordination with the State and the agencies we have created like the Denali Commission? Have you instituted a program of cooperation with the State, and particularly the agency we created which is Federal/State in nature?

General PEABODY. Yes, sir, we have. In fact, there are three main areas where we have collaborated. One with the Natural Resources Conservation Service, which has done something——

Senator STEVENS. I am only interested in this one subject——

General PEABODY. Denali.

Senator STEVENS [continuing]. Erosion damage. Do you have a coordinating concept with regard to the State of Alaska and particularly this Federal/State agency, Denali Commission, for erosion damage on the West Coast?

General PEABODY. Yes, sir, we do. With the Denali Commission, we are involved and actively collaborating and coordinating with them for the last 2 years. In fact, the Denali Commission just gave us nine task orders recently to do some work on providing barge landings and—designs for barge landings and docks in communities.

Senator STEVENS. Did any of those committees come up and ask about the need, the dollars required from the Federal Government to carry on your work?

General PEABODY. For the total program, sir? Not to my knowledge.

Senator STEVENS. The West Coast. We are talking about that erosion on the West Coast.

General PEABODY. Yes, sir.

Senator STEVENS. Did you come up with any specific numbers?

General PEABODY. With the Denali Commission?

Senator STEVENS. Working with the State and the Denali Commission?

General PEABODY. Well, Senator, the State has a committee that we have our engineering division chief cochairs one of the working groups on the coastal erosion on the West Coast with the State.

Senator STEVENS. What I am trying to point out, what you have left is a void. It means those of us from Alaska have to dream up these figures and ask Congress to appropriate money so you can go ahead with the program. Who is going to ask for the money? You have seen the damage. We know it is there. It has been 3 years of damage.

Have you ever requested money from the Corps of Engineers to meet the needs of Section 117?

General PEABODY. Sir, we made clear to the Corps what the requirements are after the different—for the different issues on coastal erosion——

Senator STEVENS. That is what I am asking.

General PEABODY [continuing]. In Alaska.

Senator STEVENS. Did you ask for money under Section 117?

General PEABODY. Sir, I do not formally send up a memo saying I need money under Section 117. But we make known the requirements that we have. That then goes into the budget process. And there are six or seven key parameters that are used, again at an echelon above me, at the headquarters and in the Secretary's office, to determine whether or not these will compete at the national

level. Those have to do with dam safety, they have to do with economic benefit-cost ratios, and so forth.

And frankly, sir, they do not compete because they do not meet any of the criteria that the Federal policy establishes as a priority to meet the budget requirements?

Senator STEVENS. What is Section 117? There is a declaration signed by the President that it is your job, that the Secretary of the Army is to carry out this program with regard to both prevention and reduction and erosion and ice and glacial damage in Alaska because it was an emergency at the time.

My great friend from Louisiana, we went down there. We immediately put up money for the Corps of Engineers. There was not an environmental impact statement. There was not a basic study. But we did give you some money that one year in that bill.

General PEABODY. Yes, sir.

Senator STEVENS. It was used for an environmental impact statement. It was used for design analysis. It wasn't used for an emergency basis.

General PEABODY. Sir, those are requirements under the law to execute the actual construction.

Senator STEVENS. This is the law, to use the money, including relocation of affected communities and construction of replacement facilities. That is the law in 2005.

General PEABODY. Yes, sir, and I agree with that. But the environmental impact requirements, environmental assessments, are also a part of the law that we must follow.

Senator STEVENS. Why didn't they follow them in New Orleans? They did not do a—we had damage up and down the West Coast just like they had in New Orleans. But every time we get money, we have to use it for an environmental impact statement. You can see the damage. It takes a full year to get people in there to start preventing the next year's damage.

General PEABODY. Yes, sir, it does take——

Senator STEVENS. And now the damage has already taken place. That is what we saw yesterday. Three different stages of damage in Shishmaref, the first initial money was washed away, the second one was washed away. Now we hope the third one succeeds. But it could have—if we moved in immediately, the first time, and spent the money instead of spending it for studies and gone in and done it on an emergency basis probably the second and third one would not have been necessary.

General PEABODY. Sir, we did execute emergency erosion control at Kivalina. The problem with executing things on an emergency basis is they are very temporary in nature.

Senator STEVENS. I understand that, Colonel. But that did not say Kivalina. It said the whole West Coast.

General PEABODY. Yes, sir, but I am giving you an example of where we have done an emergency basis execution on a construction mission and it does not last. Those studies are really key and central for us to be able to execute a shoreline protection system that will have some duration.

Senator STEVENS. You have got another authority called a continuing authority program; right?

General PEABODY. Yes, sir, we do.

Senator STEVENS. Did you use the capability for each one of those nine threatened cites, the continuing authority program? Have you used it on the West Coast for those nine villages that were identified both by the GAO and by your report, as being in dire trouble?

General PEABODY. Sir, we have——

Senator STEVENS. Have any economists or anyone else looked at the continuing authority program?

General PEABODY. Sir, we have used the continuing authority program. All of the studies, all of the work that we are doing with the continuing authorities program currently is focused on studies. And that is because the 2006 Appropriations Act basically told the Corps of Engineers no new starts—you have to finish what you have already started.

So if we had not started any of those projects, which we had not at that time, we were essentially frozen in being able to go forward.

Senator STEVENS. I am not trying to beat you up, General. I am just trying to say the programs——

[Laughter.]

General PEABODY. I understand.

Senator STEVENS. Have you identified any additional funds for that Tribal program for these affected communities? Have you delineated the needs for the Tribal Partnership Program for those nine areas?

General PEABODY. Sir, we have not. And I have probably done a poor job of answering your question. We do identify the needs and we do make clear to the headquarters all of the requirements that we have based on coordination and collaboration with local, State, and Federal authorities here in Alaska, to include the Denali Commission.

When we send it up, however, again when that goes into the budget process to determine what is going to be funded and what is not going to be funded across the Pantheon of Federal programs that are requirements, they do not compete based on the rules that are currently part of the game.

Senator STEVENS. I have a definite feeling if the Federal Government had reacted in the first instance with the storms in 2005 the way we reacted in New Orleans, we would not be spending money now to deal with the tertiary damage that has taken place in 2006 and 2007 in these villages.

We did not move, and I do not know why because we gave you a general authority to move, the Secretary. We are going to have a little fun with the Secretary later this year in the Appropriations Committee.

Let me move on. Mr. Madden, I am interested, after listening yesterday at the State legislature's hearing. One of the great problems I see is that we have Federal programs—and FEMA is one of them—they have requirements for eligibility. They have to have an approved mitigation plan in order to move forward to mitigate damage.

As I take it, the problem is that these villages do not have the money for that. Have you ever looked at trying to ask the legislature to make money available to these villages so they can get included in the Hazards Mitigation Program?

Mr. MADDEN. Not to the legislature, sir. We have been trying to handle that within our direct resources. We have teams that have gone out to several of the communities to help them write it from scratch, develop a template that can be used across a range of villages. We have used some of the Pre-Disaster Mitigation Grant money for that, for them to accomplish that.

Senator STEVENS. Ms. Reinertson's statement indicates that only two villages were prepared. Shishmaref and Kivalina are working on a plan. But other than that, there is no plan. Am I right? There is no pre-mitigation plans prepared yet in these areas. And that is why we cannot deal with the mitigation programs. Is that correct, Ms. Reinertson?

Ms. REINERTSON. The mitigation plans, to my knowledge, are in a draft form right now. We have been working with them and helping them with the planning process.

Senator STEVENS. But there were nine villages noted in the GAO program and seven of the nine were in the Corps program. And only two of them seemed to be having progress on the plans. And until they have a plan, they cannot get your assistance. Am I right?

Ms. REINERTSON. Correct.

Mr. MADDEN. Sir, we have 15 communities that are in the final stages of several of those mitigation plans, which are the central first step. So we do have all of those communities covered, plus several others.

Senator STEVENS. Isn't there any way to waive that, for people in dire emergency, and have suffered emergencies, serious storms three times? Why do we have to wait to make plans now for these villages that we know were damaged three times by storms in the last 3 years? Don't you have authority to waive that, Ms. Reinertson?

Ms. REINERTSON. No, I do not have the authority.

Senator STEVENS. It was waived in New Orleans. I saw it. Every Federal agency went in there and started working. But they did not do that here.

Ms. REINERTSON. No, that is correct. The Stafford Act does not allow us to waive for a natural process such as erosion.

Senator STEVENS. That was declared a Presidential declaration of disaster in the first storm. And the declaration was available in New Orleans, the Presidential disaster declaration.

Now why did we require more in Alaska to deal with disasters than they did in New Orleans?

Ms. REINERTSON. I do not know the answer to that question.

Senator STEVENS. Well, I hope you will ask your people to be prepared for that question when we get back to Washington, will you?

Ms. REINERTSON. Yes, sir.

Senator STEVENS. Thank you very much.

Senator LANDRIEU. Thank you.

Mr. Madden, you testified, and this is following up on what Senator Stevens said, that FEMA mitigation funds cannot be used for flood studies, mapping, control or demolition. Is that true? That is, I think, what you testified. And could you comment on it?

And then, Ms. Reinertson, what do you think FEMA's position should be about these restrictions? Is that what you testified to?

Mr. MADDEN. Yes, ma'am, it is. And I drew those words directly from the FEMA guidance from their brochures and publications with the programming. This is a direct quote from them as to what they can and cannot be used for.

Senator LANDRIEU. Do you agree?

Ms. REINERTSON. I implement and execute the policies. The policy questions are up in the headquarters.

These are great—the Pre-Disaster Mitigation and Hazard Mitigation Grant programs are wonderful programs. But we are limited by the eligibility and the funding that goes into them as to how a disaster declaration can be used.

Senator LANDRIEU. You are not only limited by the amount of money, which is clearly just a cursory review of the budget, but it seems like you are limited by the language itself. If you are ordered to mitigate and you get money, even if it is a small amount, and you cannot use it to do flood studies, mapping, or demolition in disasters, how do you begin the process?

As General Peabody testified, that is one of the most essential elements of mitigation, to figure out how high you are, how high you need to be, before you can even make a plan to either stay or move depending on what is decided. If you cannot use the mitigation money for mapping maybe, Senator, we need to either change the law or be more—do you want to comment, Mr. Madden? Would it be helpful to you?

Mr. MADDEN. Well, I agree with the concept that you have to understand before you can act. The State is very vigorously pursuing digital mapping to document elevations and contours for higher study. There has not been a strong Federal effort to do that. So the State is trying to do that, mapping not only for aviation but for navigation and these land use issues.

It is restrictive and the Federal law does prevent us from doing the right thing. The right thing is helping the communities. So even when we apply, our application will not even get past the first range of review because of the limitations of the program.

Senator STEVENS. How do you explain the great reaction in New Orleans? Although, even with that, it actually was insufficient. It should have gone on for a lot longer and it should have been more directed. They were not bound by the laws you are talking about right now. Why should those laws not bind the Federal agencies in New Orleans but totally prevent us in Alaska from getting any reaction in those nine villages?

You were there yesterday, Ms. Reinertson. You saw Shishmaref. You saw some damage, didn't you?

Ms. REINERTSON. There are a whole lot of other programs that can come into effect other than the Hazard Mitigation Grant program. There is Flood Mitigation Assistance. The National Flood Insurance Programs, of course, today have their own eligibility issues and benefits.

But there are a lot of programs with different eligibility issues that are more than a hazard mitigation grant program.

Senator STEVENS. In New Orleans your agency appointed a coordinator for all Federal programs to meet New Orleans' needs. Did your agency ever think about appointing a coordinator for the nine villages?

Ms. REINERTSON. Not that I am aware of.

Senator LANDRIEU. That might be very helpful, but let me just clarify for the record, Senator. As you know, when I talked about the figure of $150 billion basically allocated for the catastrophic disaster that occurred, please do not let the record reflect that that money has actually been spent. It is stuck in bureaucratic machinations, basically, just along the same lines as we are talking.

And for the record, even though I requested, in our delegation, to have some of the environmental impact statements required by the law waived, it was denied. So we are not moving forward with all the waivers that we asked for. The waivers were clearly necessary then. They are obviously necessary now.

And we are dealing with the Stafford Act and it is wholly inadequate for what we are attempting to do. I have said before part of this is trying to help these villages and coastal communities to prevent destruction. But the other aspect of it is helping them recover once destruction comes.

And to use the analogy, it would be like us trying to rebuild Europe after World War II with FEMA project work order sheets, without maps that anybody either has or can read. It is just a fool's errand is what it is.

And our constituents are depending on us to get a better system for you, General Peabody, to request the money that you need; for Congress to appropriate it so that we do not get blamed when we ask for extra money, act like we do not know what we are doing in our States when we do; and have a better system.

And that is what this field hearing is about. And I intend, Senator, to have field hearings around the country on this issue because there are many coastal communities at risk, Alaska being on the front line, but the Gulf Coast States also being on the front line and many other communities in the country.

But Mr. Madden, do you have any suggestions for us as we move forward? Your testimony was full of some. Would you like to spend a few minutes talking about a few?

Mr. MADDEN. Well, ma'am, my counterparts from the 50 States and the territories and possessions all met in Oklahoma City about 2 weeks ago. And we have been working to understand what should have been in place before Hurricane Katrina and what would have enabled a better response, and how that would have affected it.

And my colleague, Jeff Smith, from Louisiana has done a wonderful analysis of how those laws limited the reaction. There will be ready, within the next 30 to 60 days, several legislative proposals that will emerge from our collection of State directors that look to not only streamlining the process but to allow examination of these disasters and threats beforehand so we can invest something before, instead of paying great amounts after.

So there is communication amongst the States trying to find the coalitions of constituencies dealing with these threats similar to what happened in the 1970s and 1980s with fires which know no boundaries. We have the storms which know no coastline exclusively.

So I would expect that before the next legislative session there will be a number of proposals that come from my counterparts in

the other States as we unite to improve our recognition of how the Federal Government has helped and how they have hindered the States in preparing.

Senator STEVENS. I hope you look at that time, when you are preparing these proposals, at the requirements of Federal law that impose upon communities like Shishmaref the duty to have a prepared mitigation plan. Unless they have it, they are not going to get any assistance.

Now we may be able to cut through that. I am not sure. But at least the State ought to be looking at all of these areas that are threatened and help them to get a mitigation plan prepared.

One of the things that bothers me after the trip yesterday was the comments that were made by some of the people, the local residents, in terms of the lack of ice. That the ice—this one person told me, in the days gone by when there was a storm, was a threat in and of itself because big chunks of ice came up and hit the village. Now the ice is disappearing. At the same time, it was a buffer to large waves and held down some of the larger waves in some circumstances and was a protection that is not there now for the storm walls that we are putting up.

The question is what we should do in terms of having—someone suggested some kind of a baffle outside of that rock wall that is being put up to protect Shishmaref so that there would be a baffle to the waves as they come up, which is what the ice would have done if it was there.

Are you looking at how the State can help get prepared to have plans that will get the assistance from FEMA if that should develop, that the storms hit us again and there is no protection?

Mr. MADDEN. Yes, sir. We are working on several different levels on that. As an example, when the storm hit in Kivalina on September 13 or 14, within about 18 hours I had two people from the State on the ground. One was for the emergency response, the immediate safety of the community and the immediate needs of the people who had evacuated.

Accompanying him was our State hazard mitigation officer to look at it for the longer term. So as that storm hit, he immediately gathered the information that we could use and share with our other Federal partners to get that plan done.

And also, that the mitigation plans that we are helping the communities develop not be just single purpose. There are other risks at Kivalina, in particular, and other coastal communities about the permafrost and how buildings are built on them, and whether that could be a risk in the future. We want to ensure that the mitigation plans look at the entire community and all of the risks.

And we are pushing, on a very fast track, 15 of the most vulnerable communities we have on the Western Coast.

Senator LANDRIEU. Can I ask specifically, and I am so glad that Senator Stevens pushed me, but he did not have to push too hard, to get me to Shishmaref because I told him if I had not seen it I would not have believed it. And I am not unfamiliar with coastal communities. I represent a State with very small villages, but not one as isolated as this.

But when a community—this particular village, I spoke to the mayor and the community leaders that spent about an hour with

us walking through the village and seeing the rock walls, the jetties and the levees, that the community was contemplating a potential move. But one of the problems is if they did, they could not—no one would guarantee, the State or the Federal Government, the building of the airstrip which, of course, they are very dependent upon for any kind of access.

Can you all comment about that? Are villages that are given—are they given choices, real choices about relocating? Or is the option you can stay where you are and take the storms and the devastation that comes? Or you can move and not have an airstrip and be completely isolated? Because that is not a very good choice. And this might not be the only village in this situation.

Is that an option? If they want to move, will somebody build them an airstrip?

Mr. MADDEN. Each village will be unique on this issue as to how close the airstrip is located to the community. There is a commitment by the Federal Aviation Administration that they put on record that if a community moves and the same airstrip is usable, that they will build the necessary roads and contacts between the new location and the existing airstrip. That is a commitment that FAA said in the past recent years.

Senator LANDRIEU. That is in the law now? Is it just Alaska that that commitment has been made to, so they will not build a new airstrip but they will build a road to the old airstrip?

Mr. MADDEN. Yes, ma'am. And where the location will not be served by the airstrip at the former location, that must enter into the entire national program for airport improvement programs. And in Alaska it takes, just for a 3,000 foot gravel strip with minimum instrumentation it takes at least 3 years, usually more than that. And that is after the location has been decided and aligned with prevailing winds.

Senator LANDRIEU. Well, that obviously is a system that is not going to work and needs some serious adjustment. And I am sure it is not just communities in Alaska that are in this situation, but Alaska is somewhat unique in its breadth and isolation for the communities.

So when people say just move them, it involves cultural considerations. But if the village could get past that and decided for the most part they will move, their choices are very limited about where you would move to and what kind of infrastructure would allow you to stay together.

General PEABODY. Ma'am, if I could comment on that, there are some technical, from a constructability aspect also, limitations. Most of the area where most of these villages are located are basically coastal plains that are wetlands. That is why we have the issue of permafrost. So when you do move, it will require significant material to be brought in. It will require significant investigation to make sure you can put your village at a location that can survive and that will endure and not just fall apart after you build it in 5 or 10 years.

So it is very complex and it is very difficult from a technical standpoint to make sure that when you put the airfield in, it will endure. The further you get back from the coast, of course, the

more that affects the cultural aspects of their subsistence livelihood, as well.

Senator STEVENS. Let me ask just one last question, Madam Chairman.

When we went to New Orleans, we found that there were Federal agencies, State agencies, there were regional agencies, and they were all working and trying to do their best. The President used his authority to appoint a coordinator. It was a Coast Guard Admiral who did an admirable job. I think he tried to get it done. There were too many people tying his hands behind his back.

But we do not have that here. Yesterday, at the legislative hearing, George Cannelos, the head of the Denali Commission, suggested they would be willing to consider taking that on. I am not so sure as we would like to see that happen.

But do you see a need to have in the law a provision that someone will appoint a coordinator of all Federal agencies and a person to work with the State agencies and local agencies in the event of emergencies like this?

General PEABODY. Sir, let me take a first pass before my colleagues here. Sir, that would be an extremely useful function because as one of your earlier questions to me indicated, we do have to coordinate across many different Federal, State, and local agencies to understand the details of the problem and then come up with viable solutions that are going to actually work over the long haul.

If you have a coordinator that can pull together not just the Federal but I would also advocate for the State and the local agencies as well, I think that could at least help identify maybe quicker where some of the obstacles are so that we could address or you could address with the Administration appropriate solutions from a local policy and a statutory aspect.

Senator STEVENS. I would like to see that person have the authority to go to a Federal court and get a waiver approved of some of these restrictions that prevent immediate action in an emergency. Do you see a problem with that?

General PEABODY. Sir, we can take immediate action in emergencies. The problem is once the——

Senator STEVENS. You cannot waive for the environmental impact statements. You cannot waive for the provisions and laws you have just been talking about.

General PEABODY. Sir, I think there is probably a disagreement on the definition of an emergency. I believe your definition of an emergency in Alaska is not one that is broadly recognized in the Federal Government. And it is certainly not one that I can point to either policy or statutory limitations and say yes, that is an emergency.

Senator STEVENS. If a village is about to be annihilated, you do not think that is an emergency?

General PEABODY. Well sir, it is. But there are constraints in the law. For example, the advanced measures that we used in Kivalina, the only reason we were able to execute that was because there was public property that was threatened in the form of the tanks.

Senator STEVENS. I am in favor of defining a power for this person we appoint in the event of a regional emergency to go to a Federal court and get a waiver for specific restrictions for a period of time to enable them to protect the people and the property from further damage caused by that emergency.

Now somehow or another we have got to find some way to cut through this. And I think certainly this is something that New Orleans needed. I was there when they were starting to fight between themselves as to who has the authority, someone else has authority, you cannot do this, but before you do what you have got to do, we have got to do this.

Now somehow there has to be some control, if this process we are in is going to continue for a period of years, we are going to see more of these emergencies. And I would not like to see them end in the future like we have seen these nine villages in the past.

General PEABODY. Sir, that would be a useful function. I would just caution that if we do bypass some of the constraints and we do execute short-term or we do execute emergency solutions, those emergency solutions are likely to be very short-term and we still have to deal with the longer term aspects of the problem. And that is all of the Pantheon of factors that are contributing to this coastal erosion which appears to be—I am not a scientist, I have not studied it except as a citizen just like the rest of us here—but it appears to be a long-term issue that is likely to continue for some time.

I do not believe that this is really amenable, in my judgment, to the emergency kind of solutions.

Senator STEVENS. We have a disagreement there.

General PEABODY. I am not sure if my colleagues want to comment on this one.

Senator STEVENS. I do not know either, but I think the people that make judgments like that ought to go live in Kivalina or Shishmaref for the winter.

[Applause.]

Senator LANDRIEU. I do not believe there are any further questions for this panel, so thank you all very much. We really appreciate your testimony.

Senator STEVENS. Ms. Reinertson, you started to say something and I interrupted you.

Ms. REINERTSON. I was going to comment that what you are suggesting is outside of my authority, but I just wanted to let the Subcommittee know how committed we are, that we are working with the local and State in a culture of preparedness and that we are obviously going to be there in the event of a disaster. If something happens, we are not going to wait for a piece of paper to pass from here to Washington. We will move forward. And we will help victims and forward lean and get things to the people that we need to get them out of there.

We also work very closely, our mitigation division works very closely with the local, with the Alaskan Native villages and the State in prioritizing. Thanks to the post-Katrina reforms, we now have an office in Alaska. FEMA has an office in Alaska that never existed before, with a full-time manager, with a full-time oper-

ational plan and a full-time Department of Defense planner as well.

And we are working with the entire State of Alaska, including the Alaskan Native villages, in lots of new efforts since the post-Katrina Reform Act. There is a gap analysis that is occurring that we are going to be starting on hurricane safety because of hurricane season. It is a wonderful tool that we are going to start. And it is very comprehensive that we are going to be working with the local, State and our other Federal partners.

So I just wanted to point out that there are so many great things that happened since the post-Katrina Reform Act that we are able to be in a better position to help in the event of an emergency but also in building this culture of preparedness for Alaska and the entire region so that we can build and strengthen national preparedness.

Senator LANDRIEU. Well, that is good to hear.

What is the gap analysis that you are doing, just real briefly, maybe a minute on that. And Mr. Madden, I would like to recognize you on that.

Ms. REINERTSON. We are going to be beginning at the start of the hurricane season. It was developed in New York. It is a tool that looks at what is out there, what is needed, who can fill the gap. And if no one can fill the gaps, where do we go to figure out how to fill those gaps. And it includes the private industry, private nonprofit, Federal, State and local governments.

Senator LANDRIEU. But is that focus from right at the aftermath of the event itself? Or is it a gap analysis for a long-term sustainable either prevention or long-term sustainable rebuilding?

Ms. REINERTSON. It is a holistic look at preparedness, which includes response, recovery, planning, and everything.

Senator LANDRIEU. John Madden.

Mr. MADDEN. It has been my honor to have served 38 years in Federal service and 2 years ago to be selected by the State to serve in this position.

Bringing that knowledge to bear suggests that having a Federal coordinator is of two natures. One, it is very important to coordinate the existing resources in those activities. The State accomplished this with Federal partners on a new innovative concept to protect the energy sector against terrorist and natural threats.

The other part is that it is in the nature of Federal agencies to control the outcome through controlling the delegation of authority. So just as General Peabody said, with national decisions at national level, no agency is going to give up what they would call their own sovereignty for a region unless it was really clearly directed on how that happens.

The State is very eager to align with those proper agencies. And within the Federal community I have found no better partners for the State than FEMA and the National Weather Service, and in this last year with the Corps of Engineers. Their eagerness to help us is there. Their willingness is there. Their commitment is there. But the limitations by their headquarters are extreme.

So if that could be broken, I think the State is very well prepared to use its existing structures and the new Climate Change Subcabinet and other needs to work with those Federal agencies. But my

concern is having someone authorized by title but not granted the authority to act for those other agencies.

Senator LANDRIEU. Well, the State could not be blessed with a more determined and able advocate than Senator Stevens to get the headquarters to focus and to listen about what Alaska needs. But I can just tell you, there is a long way that we have to go.

Senator Stevens.

Senator Stevens. Thank you very much. I do not mean to be offensive, but this is the third year now we have tried to find a solution to these problems. And what I heard yesterday is it appears that we are going to have another bad year. So I would hope we can find a way to get Congress to listen to us, to give us that authority to have an appointment.

As I said, the Denali Commission is in place. It may be a place we turn to for temporary coordination. But I would like to see some kind of a structure that exists on all of our coasts, not just our coast, but the coastlines on the East and West and the Gulf and everywhere, to have this in place before these disasters take place.

I do thank you very much and thank you for going along with us, Ms. Reinertson, and thank you for your testimony today.

Senator LANDRIEU. Thank you all for your service.

Senator STEVENS. We will take a 5-minute recess.

[Recess.]

Senator LANDRIEU. If everybody could come in and take their seats, we are going to begin.

Senator STEVENS. Madam Chairman, on the second panel we are going to hear first from Colleen Swan. Ms. Swan currently serves as the Tribal Administrator for the Native Village of Kivalina, a post she has held for 16 years. She is a career Tribal Administrator and has worked to protect the well-being of the community and has been very much engaged in the discussions pertaining to the restoration project in Kivalina.

Thank you, Ms. Swan.

STATEMENT OF COLLEEN E. SWAN,[1] TRIBAL ADMINISTRATOR, NATIVE VILLAGE OF KIVALINA, ALASKA

Ms. SWAN. Thank you, Senator. Thank you, Subcommittee, for inviting us to provide testimony on the situation in Kivalina.

The Village of Kivalina is located on the southern tip of an 8-mile long barrier reef. According to Earnest Burch, Jr., the village was officially established with the introduction of a school that was built in 1905–06 on the southern tip of the island, and the immigration of a reindeer herder from Barrow who brought much needed reindeer meat to the village, and the establishment of a mission.

The Kivallinigmiut, the Kivalina population, are the original native inhabitants of the area that includes both the Kivalina and Wulik Rivers. The Kivalina people originally lived their lives in settlements located inland for most of the year along the rivers. Their hunting habits determined their movements in the Kivalina region, including hunting along the coast for sea mammals. The construction of the school required them to settle on the island in order for their children to gain an education.

[1] The prepared statement of Ms. Swan appears in the Appendix on page 62.

Erosion problems have always naturally occurred along the Kivalina coast. According to a National Geodetic Survey Erosion Impact Study conducted by the National Oceanic and Atmospheric Administration, which began in 1953 and ended in 2003, the island of Kivalina has lost approximately 27 acres on the Chukchi Sea side of the island with eight acres accreted on the Kivalina Lagoon, resulting in a net loss of 19 acres in the study period. Naturally occurring erosion and accretion is considered to be typical of barriers islands. The result of this study confirms the stories that elders of the community have told about the second and third ridges of the island parallel to the existing village site that no longer exist due to erosion.

The village began discussions in the 1950s about relocating the village after minor flooding occurred that did not inundate the village but the storms did over-top the uplands of the island and threatened to flood homes located along the coast. A vote was held in an election process that resulted in a split decision that ended the effort to relocate the village almost immediately.

In 1990, discussions to relocate the village began once again to address overcrowding conditions caused by the shrinking island and a growing population. Because of the overcrowding due to lack of development space coupled with the lack of water/sewer services, health conditions of the community became a concern. Land erosion and global warming were minor issues during the first years of the developing village relocation project.

In 1998, an election was held by the City of Kivalina to provide the people in the village an opportunity to select an option to address the concerns raised during the 8 years of discussions. In that election process, a site was selected that was later determined by studies done by the Army Corps of Engineers to be rich with permafrost and was deemed unsuitable as a potential new village site. In response, in 2000, another election was held by the city of Kivalina which resulted in the selection of another site closer to the ocean. Global warming remained a part of the discussion because of land erosion along the Wulik River—that were beginning to emerge.

Once what the people thought was the final vote for a new village site was made, global warming became an open issue. Predictions were made of a potential for coastal flooding in Alaska. Although no concrete evidence existed, and while skeptics abound, the global warming discussion began to have its effect on the Kivalina Relocation Project. Studies that were thought to be near completion became insufficient to address global warming and what is now perceived to be an unsuitable site because of the unproven flood-prone designation of the selected site. The Kivalina Relocation Project is now hindered because of this discussion. The original master schedule, as devised by the Army Corps of Engineers, planned for the village move to begin in the summer of 2006.

In the summer of 2004, a laundry facility drain field project was constructed by the Alaska Native Tribal Health Consortium. This project required a certain amount of fill material to cover the leach field. The material used to cover the field was taken from an area adjacent to it behind the Northwest Arctic Borough School District

property despite warnings from a local resident that this removal of beach material would cause an erosion problem.

During the fall sea storm season in 2004, approximately 60 feet of land eroded, as predicted by the local resident. An elder in the village observing the efforts of the local volunteers to save the property from erosion made a comment of how he had never seen sea levels that high as he was witnessing it that day. In his book entitled "The Inupiaq Eskimo Nations of Northwest Alaska," Earnest Burch, Jr. states, "oceans begin to freeze in October until the time the ice leaves in early July." That is no longer occurring.

The ocean ice that had traditionally kept sea storms under some control to prevent waves from slamming into the land were absent that year and have been absent during the last few years. The fall sea storms of 2005 followed with the same results.

In the summer of 2006, the Northwest Arctic Borough, with funds from the Denali Commission and the State of Alaska, constructed a project to protect life and property in Kivalina with concertainers, or wire baskets, and fabric lining stapled together at the seams. On the day that the celebration of the completion of this project was scheduled, a minor sea storm struck and immediately damaged the sea wall. The celebration was cancelled and repair work began with funds left over from the original project. A combination of several factors may have contributed to the failure including poor engineering and design work, elevated sea levels, lack of fall ice formation, and annual fall sea storms.

I have to mention at this point that there was no consultation with the residents of Kivalina. Neither was there any consultation with the leadership in the community.

At the request of the Tribal Office staff of the federally recognized tribe, the Native Village of Kivalina, the Army Corps of Engineers designed a geotextile two cubic yard sack erosion protection project after assessing the damage to the sea wall. But before any funds could be found to pay for this project, unusually early fall sea storms struck the village in July. That project design was abandoned due to an early fall sea storm season and lack of funding. The project design was fashioned based on the current condition of the existing seawll. The storm surge changed the condition significantly to a point where the new design could not be used.

The undertow of the ocean surge has considerable strength. Not only does the wave action slam the wall, causing damage with each blow, but the undertow in turn draws the fill material out from under the baskets, causing them to collapse. To address this situation, when the Borough made the leftover funds available, the project supervisor devised a plan to restore some of the damaged baskets. But before any significant progress could be made, an earlier than usual sea storm struck again in August 2007 and destroyed the plans to salvage and fill the wire mesh baskets with supersacks filled with gravel. That plan was abandoned also due to more unusually early sea storms.

With funds left over from the original sea wall project, which is mostly depleted today, the Kivalina work crews have managed to keep the sea wall from tumbling into the ocean. But with the lack of support for their efforts from the usual slush ice that once formed in October, all they have been able to do is to throw super

sacks at the problem. Each time a storm strikes, more one-cubic yard super sacks are lost to the ocean. As of Monday, October 8, 2007, the sea walls continues to develop new problems, including a deepening ocean along the shore. Another problem that we face is lack of funding needed to prevent the loss of critical infrastructure, such as the fuel storage facility for the power plant that serves the community.

The Alaska District Army Corps of Engineers has developed a plan and design for a rock revetment project for construction in 2008 pending appropriation of funding from Congress.

Based on our situation here in Kivalina, and all of the problems that seem to be associated with global warming, the Native Village of Kivalina recommends the following: First, inter-agency response, which includes the State of Alaska, the Federal Government as part of their trust responsibility to tribes, and other entities need to come together with the local governing bodies of the village to devise a plan to address erosion and relocation issues. More funds should be provided to the local governing bodies, whose knowledge has been more accurate due to the fact that the people live close to the land, to provide for coordination of the project. Every prediction made locally regarding the Kivalina situation by the elders and local community members has come to pass.

Second, consideration should be made for the Army Corps of Engineers to be designated new responsibilities to take the lead in addressing the issues of relocating the village of Kivalina in consultation with the Native Village of Kivalina as part of their trust responsibilities to the tribe. No agency has been identified to take the lead in the Kivalina Relocation Project and no discussions have taken place on a continuous basis. Because of the erosion problems that we are facing today, the Relocation Project discussions have come to a stop.

Third, since no real studies have ever been done on permafrost and being that Alaska is 70 percent wetland, study plans need to be devised to monitor the permafrost condition in Arctic Alaska. Teck Cominco Red Dog Mine has been monitoring the temperature of the permafrost in the Red Dog mine area that shows warming temperatures of the permafrost. With the land slides now occurring inland, this leaves a question wide open for the residents of Kivalina who wish to move inland to higher ground as to just how safe any area is in Alaska.

And fourth, response to Kivalina's situation has been piecemealed so badly that no one seems to know what to do. An interagency committee should be formed to address erosion in Alaska given the fact that arctic conditions seem to be deteriorating with rising sea levels and warmer temperatures. According to a report made recently to the Alaska Climate Impact Assessment Commission by the National Fish and Wildlife Service's Jim Dau, there are more slumps, which are also called sinkholes by others, than he has ever seen before. Being that Alaska is 70 percent wetland, a committee would be appropriate to address the many problems associated with the warming climate.

Senator STEVENS. Thank you, Ms. Swan.

Madam Chairman, we are now going to hear from Stanley Tom, who is the Tribal Administrator for the Newtok Traditional Coun-

cil. Tom also serves as a Bureau of Indian Affairs Housing Improvement Coordinator. He has held various other positions within Newtok's local government, including terms as President of the Traditional Council, member of the school board, and General Manager of the Newtok Traditional Commission and Mayor of the city.

Thank you very much.

STATEMENT OF STANLEY TOM,[1] TRIBAL ADMINISTRATOR OF THE NEWTOK TRADITIONAL COUNCIL, NATIVE VILLAGE OF NEWTOK, ALASKA

Mr. TOM. Thank you for inviting me here. I have some copies of my testimony if you want to have a copy.

Senator LANDRIEU. Thank you.

Senator STEVENS. Thank you, sir.

Mr. TOM. I am Stanley Tom. I am the Tribal Administrator for the Newtok Traditional Council.

My village is located in Western Alaska, about 92 air miles, in the Bering and Chukchi Seas area. We are one of the four villages identified as being in imminent threat from flooding and erosion.

There is three things happening here in Newtok: Flooding, erosion, and sinking of the village because we are sitting on the permafrost. We are making plans to relocate our village.

The village protection is not an option because they did try to stop the erosion with a protection and it did not work out. There is no permanent cost-effective way to remain in the current village right now.

My points today are the problem with the severe erosion that cost my village and what my village has accomplished, we are working with the Newtok Planning Group, and the challenges we are facing with our work plan.

In the picture, you can see the erosion here. Back in 1983 we took a picture of the aerial. You can see how much we lost. Back in 1996, it cut off the river and it still is causing erosion.

We had hired ASCG to try to show the Federal and State agency how much it was going to have—and we used a 1954 map to indicate the erosion, and we had lost about 3,600 feet. We lost the barge landing, the old dump site, and the nearest one that will be impacted will be like within 3 to 4 years. We did use between 2012 and 2017, but that is a conservative figure we used.

We got this drill rig that fell off in the river. You can see the picture there. Last year you can see the gap there. We lost quite a bit of land just last year. And we had lost like about 80 feet just this summer.

The new village site that we selected is out on Nelson Island. It is nine miles from the village and it is on Nelson Island that we selected. We call it Mertarvik.

Back in 1996, we had a land exchange and Gale Norton signed an agreement and we own the surface and subsurface rights in the new village site.

In 2004, we lost a lot of erosion. We lost quite a bit. You can see the picture, the map of the village there. You can see how much we lost. We are in a flood-prone area. This is a really low land, and

[1] The prepared statement of Mr. Tom with attachments appears in the Appendix on page 68.

you can see the picture that the flooded area before it happened. You can see that we are surrounded by the water.

These houses, we have got three houses that are really bad. They are in imminent danger and—the State gave us a piece of equipment that we can purchase and I am going to try to move these three houses away from this flood-prone area.

The YKC did a health assessment and our sanitation condition in Newtok is grossly inadequate for public health protection. Our kids are hospitalized, 20 percent of them are going, they are hospitalized with a pneumonia in our villages because we are lacking water in our village. We are still doing honey bucket in the village. When we have a high water, that honey bucket debris goes into our village area. It scatters.

Right now our barge landing is gone. We do not have the barge landing right now. We are suspended delivering materials to the village site, the existing site. The barge landing, actually the fuel barge came into Newtok and they got stuck for 3 days. And now they are afraid to go into our river because the river has no current.

The tank farms are obsolete. You can see the tank farms here. They are corroding away. They are tilting. They are really in a bad state. The Commission suspended us from getting any funding in our existing village right now. They do not want to upgrade anything, any facilities. Our power companies are deteriorating. But they are trying to keep the generator running.

We have a landfill problem, too. This river is drying up. It is getting shallower. And our trash is piling up in the village because it is across the river and it is a real big problem.

Newtok Planning Group has been helping us since 2006. They did help us to fill out EDA money, and that is the barge landing for the new village site. DOT put in $200,000 so we have $1 million to build a barge landing in the new village site that we selected.

We have a Village Safe Water Preparedness Committee for the land/water/sewer system in the new village site. You can see the map there, this is a rough draft that they made for us.

The Commission gave us $30,000 to do a community layout to pinpoint where the school will be, and the post office. We are trying to build the community in the center, the public facilities in the center of the village.

The Village Safe Water is doing a test water well right now. We got the drill rig in the new village site and they are drilling the new water source. They should start next week, so they have the material there.

Corps of Engineers already did a geotech investigation in the village site. They also drilled the barge landing, and the roads in the new village site. They are now—we should begin the test later on, when they get them done.

The DOT did put in a wind collection data. They are collecting the wind direction right now.

The challenges are there is no agency right now leading our relocation effort. There is no specific funding for the relocation, too. We are like getting a few grants from here and there but not specifically for the relocation. We need to get this money as soon as we can because erosion is coming in quickly.

Our new village site, we call it Mertarvik. It means "getting water from the spring."

We did build a barge landing, a temporary barge landing, for other agencies that they can bring in materials. We have three houses right now built, three houses right now in the village site. We are done with it. We are almost done with these three houses. So we are working hard to move our own village as much as we can. Thank you.

Senator STEVENS. Thank you, Mr. Tom. Our next witness is Tony Weyiouanna. He is the Village Transportation Planner for the Village of Shishmaref, where we were yesterday and provides vital transportation links between isolated Shishmaref, and other villages. We are pleased to have you with us, Mr. Weyiouanna.

STATEMENT OF TONY A. WEYIOUANNA, SR.,[1] KAWERAK TRANSPORTATION PLANNER AND TECHNICAL STAFF ASSISTANT TO THE SHISHMAREF EROSION AND RELOCATION COALITION, SHISHMAREF, ALASKA

Mr. WEYIOUANNA. Madam Chairman, Senator Stevens, first of all, I would like to thank you for this opportunity to testify before you today to voice my concerns regarding climate change, global warming, and its effect on my people and home, Shishmaref.

My name is Tony A. Weyiouanna, Sr., from Shishmaref, Alaska. I am married to my wife, Fannie. We have four children, three boys and one girl.

Currently, I am working for Kawerak Transportation Program, providing technical assistance to the Shishmaref Erosion and Relocation Coalition to move the community of Shishmaref onto a safe site on the mainland selected by our community.

As a past time activity, my family owns a small kennel of dogs for mushing along the coast of Shishmaref, reminiscing of times gone by and enjoying the unique lifestyle of the people of Shishmaref.

In Shishmaref, we have continued to live our subsistence life style, passed on to us from generation to generation for the past 4,000 years. The yearly spring hunt is our main season of hunting for our winter supply of seal oil and dried wheat, which is our main staple of our diet. The spring hunting season of the past 20 years has been shorter due to the climatic weather changes and global warming. Due to the unusually thin ice this past spring, one of our young local hunters lost his life, which has not occurred in our community in my lifetime.

Due to the tragedy, our hunters had to wait for the ice to break up to use the boats for our hunting, which is a relatively safer transportation mode for our hunting. By the time hunters caught their catch, it was too hot to make the drying and preservation of seal oil, resulting in families losing a majority of their catch due to spoilage from the unusually hot weather.

Climate change and global warming has caused extensive flooding and erosion in my community, making my family and my people feel unsafe on our island, especially in fall, due to the eroding

[1] The prepared statement of Mr. Weyiouanna with attachments appears in the Appendix on page 86.

beachfront. Every year, we dread the coming of the fall storms, hoping for a peaceful freeze. Help is desperately needed for communities requesting financial assistance to relocate and to protect communities from flooding and erosion.

We recommend the following projects to help move the Shishmaref Relocation Project forward: One, that funding to the Shishmaref Erosion and Relocation Coalition for administrative capacity building, comprehensive relocation planning, and funding of our office to ensure that the relocation of our community is completed in the most cost effective, efficient, and suited for the traditional values of our community.

Two, authorize and appropriate $30 million in the coming year's appropriations budget for the complete construction of a 21-mile road from Tin Creek to Ear Mountain, a rock and gravel source. The Alaska Department of Transportation has started the process of the reconnaissance study for the road and has targeted the fall of 2008 for the study completion.

Also, within this part of the project is getting the airport wind study started and the development of the new airport master plan for the new site.

Three, continue seawall funding to the Army Corps of Engineers, who has identified an additional $25 million needed to complete the recommended 3,000 feet of rip rap seawall.

Four, authorize and appropriate $5 million for the construction of emergency evacuation shelter on the mainland at Tin Creek for the community of Shishmaref.

Five, that Congress authorizes the National Park Service to dedicate the public roadway easement for an access corridor across the Bering Land Bridge to provide access to Ear Mountain, the gravel source. An alternative solution is to move the Bering Land Bridge corridor south on the other side of Ear Mountain.

Six, a couple of other things I want to mention. One is that the Native Village of Shishmaref is a federally recognized tribe formed under the Indian Reorganization Act of 1934. The Native Village of Shishmaref also seeks to improve the local social, economic education of culture and political conditions within our community.

Seven, in addition, Kawerak is the recognized regional non-profit tribal entity established to serve the Native Villages in the Bering Strait region and is currently compacting their Federal funds directly from Washington and has the expertise to provide assistance to Shishmaref.

Eight, we recommend that consideration be made to amend the Denali Commission Charter to include a department with the funding mechanism to take the lead in providing assistance to communities needing relocation and flooding assistance. One possibility is directing the Commission to work within an agency such as the Corps of Engineers as a lead agency on the Federal side and a State agency to assist, selected by the governor.

Nine, we value the working relationships that we have developed with the Congressional and State representatives agencies and look forward to the continued progress of relocating our community, with your continued support.

In closing, we are a federally recognized tribe asking for your help to save our unique traditional culture of our community. We ask that funding be allocated to move our community. Thank you.

Senator STEVENS. Thank you very much.

Our last witness, Madam Chairman, is Steve Ivanoff from the Village of Unalakleet. He is the Village Transportation Planner. He is also the Recreation Director of the Bering Straits School District and is a self-employed fisherman.

STATEMENT OF STEVE IVANOFF,[1] VILLAGE TRANSPORTATION PLANNER, UNALAKLEET, ALASKA

Mr. IVANOFF. Thank you, Senator. Welcome to our great State, Senator Landrieu and staff members. Nice to have you here.

I am Steve Ivanoff from Unalakleet, lifelong resident, and will be speaking to you today as a representative of the Eastern Norton Sound, an area that has felt the effect of increasing fall storms. Thank you for this opportunity to testify on the flood and erosion problems we have along the Western Alaskan coast. All of our villages in our Bering Straits region are situated along the coast with a handful experiencing erosion in and around the communities.

Unalakleet is 400 miles West of Anchorage. It is a location that was built because of quick and easy access to the many subsistence activities that it has to offer. It sits on a sand spit between the river and Norton Sound and has been in existence for over 2,000 years. The population is approaching 800 with Native population consisting of the Inupiat, Yupik, and Athabascan Indians, of which my children are all three, along with Irish, Russian, and Norwegian. Kind of like a melting hub of the area.

It is classified as a regional sub-hub, serving mail and freighting services for itself and four other villages. The Bering Straits School District central offices are located in Unalakleet, serving 15 villages. We have a sub-regional clinic that provides service in Unalakleet and four other villages. Commercial fishing was our primary source of income, but we are now getting into the service providing arena.

We had a military Air Force Base in Unalakleet for over two decades. We built a 6,000 foot runway, which is being renovated right now, as we speak. And we were a site for White Alice station and the FAA, and had many groups of environmental haz-mat cleanups coming through our area and are in the process of wrapping that up.

Flooding. The Norton Sound area went 29 years without a flood, from 1974 until 2003. We then had three in a row, having disaster declarations in 2003, 2004, and 2005. The next village, 38 miles north of us, Shaktoolik, becomes an island during these floods with no means of evacuation. They have a population of roughly 250 residents and are all on watch during these floods, hoping that the tides reverse before the ocean consumes them.

Residents in well-developed States can jump into a car and leave these flood-prone areas. They cannot. They have just got to sit and wait. I had friends of mine that flew a plane the next morning, after the water had subsided. And for five miles, all they saw was

[1] The prepared statement of Mr. Ivanoff appears in the Appendix on page 135.

water. Then off in the distance, in the window, they saw Shaktoolik appear. It was completely surrounded by water.

Our floods occur during the late evening, early morning hours, when it is dark and too dangerous to navigate any type of boats. They need an evacuation route, as their airport, too, is flood-prone. I am not sure I included it in the photos, but the last page has two photos of Shaktoolik.

The past problems we have had with the flood declarations is that the time schedule to assess the damage does not fit our freeze case. When it floods, it freezes as the flood is occurring. So the ice builds up and we cannot assess the damage until the springtime. We have asked for extensions and they have given it to us, but it is just another hurdle for us to have to go through.

Another one is they are late to award the funds. In the flood of 2003, the repairs to the gabion wall did not happen until—or did not finish until the day before the next storm in 2004.

They had notices out in the stores and the Post Offices for residents to apply for $5,000 assistance for the flood. But when you had 50 signs in the store, you just do not take your time every day to go there. And the time flew by with the residents not knowing that the signs were there and nobody in our village got any of that funding that was available to them, because we did not know of the print that was in a corner in the Post Office and store.

Erosion. Erosion in our community has occurred in several sections within the city boundaries. The greatest erosion occurs at the mouth of the river. Protection was constructed in 2000, a gabion wall, by NRCS in the amount of $1 million. This 1,400-foot wall was funded by NRCS, and is shown in the attached photos.

The timing of the construction of the wall could not have come at a better time, protecting a church, a fish processing plant, a store, a hotel, a restaurant, the Post Office, teacher housing, school district storage fuel tanks, a small engines repair shop, and several homes. This southern section of the town is the heart of the village and would have seen substantial damage without the wall.

We felt the gabion wall would have a 5-year life span and give us enough time to work towards a permanent fix. The wire coating is coming off and is now rusting and quickly deteriorating. Repair work must be done following each storm and back fill replaced, as in Kivalina.

The Corps of Engineers are in the final stages of a design for a rip rap wall that would put armor rock along the full length of the gabion wall. We have had several public meetings reviewing the design and are very pleased with their recommendation. The rip rap wall is the most feasible option over a 50-year period, having the lowest maintenance cost. Once the design is complete, we will seek funding for this project and are hoping for your assistance.

The State DOT is completing an erosion design for a rip rap wall along the beach adjacent to the DOT property and airport. This project is along the Northern end of the community and scheduled to go out to bid this winter.

DOT is also elevating the evacuation road and will complete this project next summer. In the past storms of 2004 and 2005, after the flood of 2003, our residents—our evacuation road became completely submerged in the flood. So our residents said, could we put

markers on the road so when we leave the village we will know where the road is. That is being taken care of by DOT, but we had to wait several years for this to happen and it should not have to take that long for an evacuation road.

Our community water source is five miles north of the village and the piping runs alongside of the beach. Erosion threatened this line, so the Village Safe Water is working on a design to construct a new line along the hillside, well away from the beach. This is expected to start within 2 years.

In Unalakleet, we are fortunate to have hills a short distance away that we are now migrating into. More of our residents are now building homes in these hills, even if it means packing their water, because it offers a long-term safer area. Some of the homes have wells and septic systems, but not all. We do need to build access roads to speed up the process to encourage more development in the hills.

The rip rap wall will protect the heart of our village, as it will protect our structures that are needed to function until we can make the transition into the hillside.

Shaktoolik was a village situated eight miles east of the village until the Bureau of Indian Affairs built a school near the beach to cut down on mobilization costs, forcing the residents to migrate to what is now called the old site. My father was born in the site upriver. His father built 54-foot schooners up there because of the timber. But they were in a safe, flood-free area. The Bureau of Indian Affairs built the school, forcing all the people to move down to the coast so their kids can attend school.

Senator LANDRIEU. Why did they build the school there?

Mr. IVANOFF. To cut down on mobilization costs. The site was eight miles upriver and the Bureau of Indian Affairs built the school, even though there were no homes there, forcing the village to move down.

Following the flood of 1974, the village moved two miles further north to higher ground, where it is now located. The natural barrier that had protected them for nearly 30 years has eroded from the three floods and is no longer sufficient to provide for their safety.

St. Michael, 54 miles south of Unalakleet, has also had erosion and may need to move several homes in the near future. Fortunately for them, higher ground is a short distance away.

There are funds available for reactive measures, but not nearly enough for proactive measures, as you had stated. In the news, we hear about the funds of the Gravina Bridge being in limbo. I recommend we funnel these and direct other necessary funds towards flooding and erosion. How can anyone argue with providing safety for our residents that are in harms way?

A number of Alaska Native Villages that are either coastal communities or situated along rivers, as Newtok, or streams continue to experience significant loss of land and property and significant threat to life. These events are increasing not only in number but also in severity. Some of these villages do not have the internal capacity and funds to handle the additional burden of interacting with the various State and Federal agencies.

I believe the State needs to get more involved and send their administrators to the most affected communities to see firsthand the dire situations we face. The State DOT has made some improvements for roads and airport protection, but I feel the State needs to get more involved with our erosion problems along residential areas.

One problem I have with the DOT matrix system for roads is that it does not give enough merit to life and safety flood issues. This should be above and beyond all other needs. The projects, such as an evacuation road in Shaktoolik, does not score well under their system. Yes, they are small in population, but our Federal Government can take some credit for putting them in harms way with the forced location of the 1930s.

I have served on the Denali Transportation Committee since it was formed 2 years ago and am very pleased with their work. We had the committee travel to our villages this spring. That gave them an understanding about the threats that we have to live with. For them to walk along the massive piles of Yukon logs that are washed up against the homes in Shaktoolik was definitely an eye opener.

Those are the photos on the last page that I gave you.

We are also pleased with the emissions bill in Congress that could direct assistance for this in the future, and would be willing to speak in support of it.

The Federal and State agencies need to assess the flood and erosions in the communities that have immediate needs. We support the GAO recommendation that a Federal agency be appointed to lead a work group consisting of various Federal and State agencies to address the flood and erosion issues in rural Alaska. Here we are still waiting for that to happen.

We also recommend that rural Alaskans be on the work group to make recommendations to Congress and the State of Alaska to streamline the process so that projects can be constructed sooner rather than later. We, in our region, know the communities in dire situations and are available to make recommendations for site visits and assessments. This work group could be within the Denali Commission and led by the Corps of Engineers because of their expertise and understanding of the issues at hand.

If there is a work group now, we have not heard of it because we have not been invited to any of these and we are one of the nine villages mentioned in the GAO report. We have heard of meetings that are being held here in Anchorage but there has been no correspondence with Unalakleet.

We appreciate our Washington delegation and their staff making trips to our problematic areas. We now need to get the State administrators to educate themselves in this area. Do we have an obligation to provide for the safety and protection of our people living under these conditions? They have fallen victim to circumstances that no one saw coming so quickly. Just as we heard of the warnings prior to the hurricanes in New Orleans, this is the warning we are giving, like the canary in the mine or the elephant in the tsunami. This is a warning, and we are trying to get that message out.

I appreciate the discussion on Section 117, Senator. Our design for the erosion wall in Unalakleet is nearly complete and we are told now it is up to us to try to look for funds for the project. We do not really have the resources to interact, to go to Washington, DC and lobby for this project. How can—we heard of them beating up the earmark process in DC. If this is our only means and ways of acquiring a project such as this, it is hard for us because the process under the discussion that I heard earlier, Senator, does not allow for them to go to you to advocate for us for that project. But I appreciate the discussion you had there.

Global warming and the wildlife is endangered. We heard of polar bears. We heard of walruses. And I am sure there is going to be funds directed to address those issues. But we have whole tribes that have been there for thousands of years that are in danger. I mean, we could lose a whole tribe in a storm of a 10 percent higher magnitude than what we had in 2005.

In the developed States, they are fortunate. They have the option—that is the key word, option—they have an option to leave their community in the event of a storm. Some of our villages, like Kivalina, Shishmaref, or Shaktoolik, they do not have that option.

Senator Landrieu, I appreciate your comments on Senator Stevens at the beginning. And you are right. If I had someone that I would like to go to bat for me, it would be him.

In conclusion, I invite you to visit our areas and see the threats we face. Come to Unalakleet. You have already been to Shishmaref. I promise we will make it a pleasant trip for you and one that would be worthwhile. Thank you very much.

Senator LANDRIEU. Thank you all for your testimony. It occurred to me that is an extraordinary amount of coastline and the significant challenges to not only these villages but the other coastal communities in Alaska. It occurs to me that much stronger master planning by Senator Stevens' heroic efforts to bring specific earmarks and dollars and new authorizations have been, over time, somewhat successful. But when you look at the challenges, particularly those brought on by our awareness and understanding of the immediate threat of global warming and the sea-wide temperature changes and ice melting, it seems to me that we probably have to have a paradigm shift.

What could the State of Alaska be doing more to assist you, assuming that whatever we do is going to be in combination with Federal, State and local and using faith-based and private sector, as well.

But my question is, specifically, if each of you would take a minute, what could the State of Alaska be doing more to either help that you could suggest to us? And then I'm going to ask you what you all thought about the Denali Commission.

Go ahead, Ms. Swan.

Ms. SWAN. I work with the Native Village of Kivalina. My experience with the State has been almost—well, we had almost no communication with the State because they work with the Borough governments and a lot of the decisions that are made are made outside the village and without much input from the local governing bodies. In particular, the seawall that was built was then developed without consultation with any of the leaders in Kivalina.

The State needs to communicate directly with the local communities who have the knowledge base to make better decisions than what have been made for years.

Senator LANDRIEU. Mr. Tom.

Ms. SWAN. As for the Denali Commission——

Senator LANDRIEU. I am sorry, let them answer as to the State. Just the State, if the State could do more to help in your situation, what would it be? Would it be technical assistance or coordination or consultation, more money? In terms of the coastal erosion issues, what could the State do more to help?

Mr. TOM. I would like to see the Denali Commission help us out. They have more funding available. And the State is trying to help us right now, but still, it is not enough. There is no specific relocation funding and that is a big problem right now.

Mr. WEYIOUANNA. With respect to the State guidelines for assistance, they are more targeted to helping recognize city governments. Most of our local governments within our community, the most effective ones, are the federally recognized tribes. We need to figure out how to work more closely with the State, especially on flooding and erosion, fire disaster, and earthquake disaster. We need one agency that could provide all the assistance in getting funding for the communities to help with the problems they have due to disaster. We need some kind of funding mechanism on the State side, whether or not it is just State funds or in combination with the Federal funding. We need some kind of coordinating agency to take the lead.

Mr. IVANOFF. As Mr. Weyiouanna stated, the State does not recognize the tribes officially. And most of us do work with the tribes or for the tribes. I do not know if I am going to get reimbursed for this trip. I am here on my own dime right now, but I will do paperwork to try to submit it. The State does not have any kind of funds to allow participants to come to forums such as this.

Senator LANDRIEU. Well, let me ask my question this way, and maybe the Senator can help clarify for me. Does the State of Alaska have any kind of coordinating council for coastal communities that are not tribes or natives? Because there are many coastal communities of those kind. Is there any kind of coastal State agency that tries to help with those coastal-related issues? You have the Corps at the Federal level.

No coastal places, does the State of Alaska have a coastal agency?

Mr. WEYIOUANNA. Madam Senator, the State has—we have worked with Christie Miller in the past. But it is under DCCED but they are not very active as far as reaching out and educating themselves as far as saying we need to get the administrators out to the communities to get that communication going. I do not know who in the State——

Senator LANDRIEU. Well, let me ask you this and then I will turn it over to Senator Stevens. Are you all clear representing the villages that you are representing, and I understand there are more than just the four that you all are testifying on behalf of here.

But if you had a relocation plan, if your village says this is not going to work, we are going to have to relocate, do you have an agency to take your plan to talk with them about the actual reality

of what it would take to relocate? Any one agency or do you have to go to a variety of agencies?

Start with you, Ms. Swan. Is there any agency that you could go to?

Ms. SWAN. The Native Village of Kivalina has been working mostly with the Army Corps of Engineers. Obviously, they have a trust responsibility. I am not aware of any other agency within the State.

We have had very little communication with the State about our issues in Kivalina.

Senator LANDRIEU. Has Kivalina decided to stay or relocate?

Ms. SWAN. The people wanted to move, yes.

Senator LANDRIEU. And right now there is no Federal agency for you to coordinate that move with?

Ms. SWAN. No.

Senator LANDRIEU. How many are planning to move?

Ms. SWAN. About 380.

Senator LANDRIEU. How about you, Mr. Tom?

Mr. TOM. There is 433. The State census says 350 but it is outdated.

Senator LANDRIEU. And it is how many?

Mr. TOM. About 430.

Senator LANDRIEU. And you decided to move?

Mr. TOM. Yes, we have decided. We are already processing our own relocation effort without the help of the Federal and State agencies. We are not moved but we are lacking specific grants for the relocation effort.

Senator LANDRIEU. Mr. Weyiouanna, have you decided to stay or move?

Mr. WEYIOUANNA. In 2002, the community of Shishmaref had a community-wide vote sponsored by the City of Shishmaref asking the question whether you would like to move or not. The majority of the voters voted to move. Then on December 12, 2006, the community had a public meeting, reaffirmed the selection of Tin Creek as the relocation site.

Mr. IVANOFF. In Unalakleet, it is kind of like a voluntary move. We have people migrating into the hills. Like I said, there is at least a dozen homes up on the hillside now and I have three brothers building homes up there next year. And they are doing it out of their own pocket, their own dime, no coordination with the State.

The Corps of Engineers has been the most active agency that has been involved with the flood issues. They have made many trips out to Unalakleet, and I have hosted them many times. The State has not been involved in the process in the past. I am hoping they can become part of it in the future because it would be nice that this erosion project in Unalakleet does not have to be 100 percent funded by the Federal Government. It would be nice if the State could kick in a few million to help with the process.

Senator LANDRIEU. Well, I am going to turn it over now to Senator Stevens. I think this question is going to become more and more real to many communities throughout the United States. We are going through those questions now. What communities are going to stay, what communities need to move. This is happening in many coastal areas.

But it is important that when those decisions are made, which is very tough and can be very traumatic to decide the course for a village or a community to move, there should be a master plan that people can count on for 5 years or 10 years.

But otherwise, we are at risk of losing these villages just by lack of funding and lack of organized effort that is laid out in the future.

Mr. IVANOFF. If I may, Madam Chairman, Senator Stevens, I mean.

One of the villages I work with is Shaktoolik, and they are—like I said, they become an island. They need an evacuation road. And like I said, their natural barrier between them and the ocean has seriously eroded in the last three storms. And they are in the process—mindset, of discussions of relocation.

And with this continued trend, they have no choice. They have to relocate because they do not have the resources and the State is not involved in working with them to figure out a long-term solution. It is kind of like the federally recognized tribe is the only agency right now that we are working with.

Senator LANDRIEU. Senator Stevens.

Senator STEVENS. Thank you, Senator Landrieu.

If you look at what you have just given us, I have gone over it. You want, for Unalakleet, $1 million a year until the move is finished. You have asked for $30 million plus $25 million plus another $5 million for the move, so $61 million. Was that your figures, Mr. Weyiouanna?

Mr. WEYIOUANNA. I think so. Sounds right.

Mr. IVANOFF. You can send it my way.

Mr. WEYIOUANNA. I was just looking at it.

Senator STEVENS. $61.1 million just for this year is what you have asked for, as I understand it.

Mr. WEYIOUANNA. Yes.

Senator STEVENS. The entire budget for the Denali Commission this year was $100 million. The request for next year is $64 million, $60-some-odd million. Your one village request is for the full amount of funding we have been able to get for the whole State.

The problem we have, and Madam Chairman, my friend from Louisiana has really put her finger on it. And that is there has been no coordination within the State of priorities in this request to move. Some of them, as you pointed out, Shaktoolik is absolutely isolated now. They should get priority over everyone else because they are in absolute danger, as I understand it, from another storm.

Mr. Weyiouanna, you are far ahead of some of the others, but very clearly the prospects of each getting—for each of these nine villages—somewhere near $70 million in the next year is next to impossible.

The question is how do we stage this money so we get some money and start putting it where it is absolutely necessary and start the process, the long-term process, of relocation of these villages.

Where will we be able to include all of the coastal villages, as I understand it several others have come into the category of being endangered now because of the last storm. It does seem to me we are going to have to have a State-wide constant evaluating the

problems and trying to allocate resources from both the State and Federal Government to the areas that need it first and most.

It is not there yet, but that is one reason we are holding the hearing. I know that is one reason Representative Samuels held his hearing yesterday. We are going to have to get together and find some way to coordinate the Federal and State efforts with the individual villages that are in need of help.

Mr. Weyiouanna, you are going ahead very quickly, but I am not sure that your village is the one that has to move this year, is what I am saying. That is one of the problems. If we get money, where should it go first? And who is going to allocate it? Who is going to coordinate it with the Federal and State agencies to make sure that we are—this is a very difficult problem. You all ought to be involved in the basic decision of where the money is allocated and how it is to be spent.

I really do not have the answers yet. We hope we can get the answers out of these hearings. I intend to talk to Representative Samuels about his hearings yesterday and see if we can work out a Federal-State coordinating group within the legislative process if we work together with him on that.

As much as I really commend all of you for what you are doing, I think—I do not know which village it is, but the ones that were outlined by the Government Accounting Office as being the most threatened, seemed to be the most threatened. But that list is 3 years old now. And I do think we have to have a new evaluation of those villages that have just come into this category of endangered and make sure that we have representation from them and conversations we are going to have in the next few months, how to start dealing with these problems.

If you have any suggestions, I think you have given us some in your statements. I do not want to be offensive, but each village is proceeding on the basis that they are going to come first. And the demands of each one of them are roughly about the same amount, somewhere near $70 million for this year alone. That is impossible. Unless we have the request from the Federal agencies today, the new rules apply in Congress. We are not permitted to come forward and say you want to earmark money. In this case, it would be over $100 million for the villages alone. It is not possible under our procedures now.

Senator LANDRIEU. Can I ask, do the villages—have you all ever met together?

Mr. IVANOFF. Never.

Senator LANDRIEU. If you come up with some sort of planning process. The reason I say this is we were not doing a very good job in Louisiana with planning, I will have to admit. And this storm did not catch us by surprise. But it was much worse, not just the hurricane, but actually the Corps of Engineers, I used to say their legacy was a city underwater and it was a terrible tragedy when 80 percent of the city went under either four to 20 feet of water and we lost 250,000 homes between Louisiana and Mississippi. Mississippi from the storm surge, but ours from the massive flood that flooded an area greater than New Orleans.

Now we are doing a lot of planning and our cities are working together. We have a group called charettes. And every town, big

and small, all over the Gulf Coast, is in some measure undertaking this discussion about what is going to happen and what are they going to do in 10 or 20 or 30 years? Are they going to move parts of their town? Are they going to build 15 feet up?

And the towns are meeting together and planners have come in from literally all over the world to try to help us. And perhaps that model could be used here.

The Federal Government is not paying for all of this, let me say. The State is responsible, local—we have parishes. We have boroughs, counties, and parishes. The parish level is dealing with the State. It is not just the Federal Government. But these charettes are planning for the people to make the decisions themselves and try to, as Senator Stevens says, to come up with cost-effective solutions. Because our taxpayers all over the country are demanding that we come up with not the most expensive but cost-effective that respects culture and the communities that we are dealing with.

So perhaps you can give some advice to the villages to start working together. Like Senator Stevens says, if you can help decide, even suggest, who should move first, who should move second, etc., kind of a triage or priority decision.

Senator STEVENS. Senator, I am going to meet with the governor tomorrow. We have got to wind this up because we are both due at another meeting. But the next time I will be home will be the week of Thanksgiving. I am going to tell you right now, I am going to try to get the governor to agree to call a meeting here in Anchorage on November 19 and meet for a couple of days, November 19 and 20, to get representatives from each one of the villages that is affected. I am going to ask the Corps of Engineers to come and join us and FEMA and the State agencies. And let's see if we cannot get together and develop some priorities and develop some basic requests that we can take back to Congress. We will be out of session by then and we will be going back into session maybe in December.

But in any event, we are going to have to find some mechanism to get the Office of Management Budget on the Federal level to recognize that there is an emergency up here and get us some emergency assistance for the 2008 period.

I noticed today that I am going to ask for that meeting here starting on the morning of November 19, Monday and Tuesday before Thanksgiving. I am sure the Chairman will help get some representation and get letters out to Federal agencies so they will come and be here. It is not exactly a great week to travel just before Thanksgiving, but we will do it Monday and Tuesday so people can get back home in time for Thanksgiving.

But I do think we have to get some emergency coordination. We have to figure out who should we get the money for? If we get money this year, where is it going to go? And who is going to allocate it? Who is going to supervise it? Who is going to coordinate the Federal and State agencies to see that it is done. It is apparently required because of the storms that have already come. And if we have another storm before then, only God knows what we can do.

The problem with meeting is we do not have any preparation for immediate assistance after a disaster right now and I think the Federal agencies do their best to respond.

This is getting to the point now that I feel that there are 18 villages before the year is out that have similar requirements and we need to get prepared and get it planned and try to work out what can be done. These villages are working on the basis of what you want to have done. Our problem is what can we put together to assist you, what is possible within the time frame ahead.

I will not forget you at that time.

Thank you, Senator Landrieu, for coming. This is a hearing, similar to what Representative Samuels had yesterday, I think we can put together something if we can find a way to work between the Federal agencies and the State agencies to get some answers to the requests.

Senator LANDRIEU. I want to support Senator Stevens in every way. I am not sure that I can be here personally at that time, I will check my calendar to see. But I will give the full support of my subcommittee and will urge the full Homeland Security and Governmental Affairs Committee to make this a priority.

I want to say, I do not keep meaning to refer to Hurricanes Katrina and Rita, but it was a real wake up call. Not to frighten you, but we lost 2,000 people who drowned in that storm. Some of them drowned in their homes. We had children drown in the arms of their parents and senior citizens that could not swim and drowned in their living rooms.

It is clear that it is an emergency. And I just hate to see that happen to communities here.

And we could evacuate. But the City of New Orleans evacuated, outside of first responders, every living person over the course of 2 weeks, every day out of every hospital, every senior citizen out of every nursing home. We did not evacuate, I guess you know, when we should have, 100,000 out of 450,000 were left in the city. But over the course of the next 2 weeks, with the help of the Corps and the Coast Guard, every single person was evacuated.

And today, 2 years later, out of a city of 450,000 only 200,000 people are back. And 2,100 people basically died in that situation.

So we have a lot of emergencies around the country, and Senator Stevens, I do not think I know of one that really understands what our people are faced with here. And the amounts of resources and coordination that must be brought to bear.

So Senator Stevens and I will stand up against the bureaucracy as well as we can.

I want to thank the Loussac Library and thank all of the Federal and State witnesses for coming today.

Senator STEVENS. Mr. Tom.

Mr. TOM. Newtok has less media attention and we decided to move. And no other State Senators ever visit my village. If you are able to come to Newtok and see for yourselves, see how we are in a hard condition where everything is deteriorating.

Senator STEVENS. I understand. I have been to six of the nine but I have not been to your village yet. I will do my best, see if we can work that out when I come back.

Mr. TOM. Thank you.

Senator STEVENS. Thank you all very much.

[Whereupon, at 11:30 a.m., the Subcommittee was adjourned.]

APPENDIX

DEPARTMENT OF THE ARMY
UNITED STATES ARMY CORPS OF ENGINEERS

STATEMENT OF
BRIGADIER GENERAL JOHN W. PEABODY
DIVISION ENGINEER, PACIFIC OCEAN DIVISION

BEFORE THE AD HOC SUBCOMMITTEE ON DISASTER RECOVERY
COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

ON
THE STATE AND FEDERAL RESPONSE TO STORM DAMAGE AND EROSION IN
ALASKA'S COASTAL VILLAGES

OCTOBER 11, 2007

INTRODUCTION

Madam Chairman distinguished members of the committee, thank you for the opportunity to appear before you today to discuss coastal storm damage and erosion issues in Alaska.

I am Brigadier General John Peabody, Commander of U.S. Army Corps of Engineers' Pacific Ocean Division. I will provide you with a brief overview of the Pacific Ocean Division, a review of our Corps of Engineers' erosion authorities and programs, and highlights of the challenges regarding coastal erosion affecting Alaskan communities.

PACIFIC OCEAN DIVISION

The Pacific Ocean Division is headquartered in Honolulu, Hawaii. We have four district offices located in Hawaii, Alaska, Japan, and South Korea. All of our districts have important military missions. In addition, the Honolulu and Alaska Districts have a Civil Works Mission that provides for water resources development and restoration, primarily in the areas of commercial navigation, flood and coastal storm damage reduction risks, and ecosystem restoration.

It is through our Alaska District's Civil Works program that we are involved in addressing erosion problems that affect Alaskan communities.

CORPS OF ENGINEERS AUTHORITIES

The Corps of Engineers (Corps) has several Civil Works authorities to address flooding and erosion problems. They include specific Congressional authorizations, the Continuing Authorities Program, the Planning Assistance to States Program, the Tribal Partnership Program, the Flood Control and Coastal Emergencies authority, and Alaska specific authorizations such as Section 117 (P.L. 108-447) of the Fiscal Year 2005 Consolidated Appropriations Act relating to Alaska flood, erosion and ice damage. Each of theses authorities has different implementing rules and limitations.

In addressing erosion problems, the Corps works closely with local, state, Federal, tribal, and private interests to understand and incorporate the concerns represented by these various stakeholders. The Corps weighs the concerns, balances the needs, and examines the risks, costs and benefits to determine federal interest and to make technically, environmentally, socially, and economically sound risk-informed decisions. I would like to outline each of the authorities related to coastal erosion and what we have accomplished under them.

Specifically Authorized Studies and Projects

Specifically authorized studies may be initiated as provided by the Rivers and Harbors in Alaska Study Resolution, adopted by the U.S. House of Representatives Committee

on Public Works on December 2, 1970. Construction of a project studied under this authority does, however, require specific Congressional construction authorization. The non-Federal cost sharing requirements are 50% for feasibility studies, 25% for preconstruction engineering and design, and 35% for construction of erosion projects. Additionally, studies and projects may also be directly authorized by Congress with specific implementing language.

The Corps has constructed five Congressionally authorized projects at Bethel, Galena, Homer Spit, Dillingham, and Talkeetna and is currently working on five additional studies and projects at Barrow, Matanuska River, McGrath, Bethel, and Dillingham.

Continuing Authorities Program

The Continuing Authorities Program authorizes the Corps of Engineers to plan, design, and construct erosion projects without additional and specific Congressional authorization. The Continuing Authorities Program is funded nationwide and is subject to specific limits on allowable Federal expenditures. The applicable program authorities that address erosion include the following.

- Section 14 of the Flood Control Act of 1946, as amended -- This authorizes emergency stream bank and shoreline erosion protection for public facilities subject to a Federal limit of $1,000,000 per project and $15,000,000 nationwide per year. The non-Federal cost sharing requirement is 35%. The Alaska District has constructed five projects under this authority at Shishmaref, Emmonak, Deering, Metlakatla, and Bethel and is working on four on-going studies at Deering, Kwethhluk, Seward, and Chefornak.

- Section 103 of the River and Harbors Act of 1962, as amended -- This authorizes shore protection for publicly owned property from hurricane and storm damage, subject to a Federal limit of $3,000,0000 per project and $30,000,000 nationwide per year. The non-Federal cost sharing requirement is 35%. The Corps has not constructed any projects under this authority in Alaska and currently has two on-going studies at Nome and Unalakleet.

- Section 111 of the River and Harbor Act of 1968, as amended -- This authorizes mitigation of shoreline erosion damage caused by Federal navigation projects subject to a Federal limit of $5,000,000. The non-Federal cost sharing requirement is at the same proportion as the associated Federal navigation project. The Corps has not constructed any projects under this authority in Alaska and has no on-going work.

Planning Assistance to States

The Corps' Planning Assistance to States program (Section 22, Water Resources Development Act 1974, PL 93-251) allows 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. This may include consideration of erosion problems. There is no construction authority associated with this program. Annual

Federal funding is limited to $500,000 per state or tribe. The non-Federal cost sharing requirement is 50%. The Planning Assistance to States program has been used to provide relocation planning assistance to the villages of Kivalina and Newtok.

Other Corps of Engineers Authorities

Other Corps of Engineers' authorities that exist include the following.

- Technical Assistance – Section 55, Water Resources Development Act of 1974 (PL 93-251). This authority allows the Secretary of the Army, acting through the Chief of Engineers, to provide technical and engineering assistance to non-Federal public interests in developing structural and non-structural methods of preventing damages attributable to shore and stream bank erosion. Section 55 provides no construction authority. Non-Federal cost sharing is not required. The Corps is currently working on Kenai River Bluff under this authority.

- Tribal Partnership Program – Section 203, Water Resources Development Act of 2000 (PL 106-541). This program authorizes feasibility studies of water resource projects that will "substantially benefit Indian tribes and that are located primarily within Indian country or in proximity to Alaska Native villages." Section 203 has a $5,000,000 annual program limit and allows no more than $1,000,000 for one Indian tribe. The program provides no construction authority. The non-Federal cost sharing requirement is 50% for feasibility studies. However, under this authority and at the direction of Congress, we are currently conducting, at full Federal cost, the Alaska Baseline Erosion Study, Alaska Coastal Erosion Data Collection, and providing relocation technical assistance to the village of Newtok.

- Flood Control and Coastal Emergencies– Under the Flood Control and Coastal Emergencies Advance Measures (Public Law 84-99), assistance may be provided to prevent loss of life and catastrophic property damage when there is an imminent threat of unusual flooding. Under this authority, the Corps provided assistance to Kivalina during the fall storms of 2006 and more recently, for the August and September 2007 storms.

Alaska Specific Coastal Erosion Authorities

A recent authority that has been useful in addressing Alaska coastal erosion problems is Section 117 of the Fiscal Year 2005 Consolidated Appropriations Act (P.L. 108-447) which authorized the Secretary of the Army "*to carry out, at full Federal expense, structural and non-structural projects for storm damage prevention and reduction, coastal erosion, and ice and glacial damage in Alaska, including relocation of affected communities and construction of replacement facilities.*"

The Corps of Engineers has demonstrated success with the Section 117 authority as implemented under the Alaska Coastal Erosion program. In June 2007, with funding

provided by Congress, the Alaska District awarded a $6,500,000 construction contract to build approximately 625 feet of rock revetment to protect infrastructure at Shishmaref. This interim erosion protection at Shishmaref has an estimated project life of approximately 15 years, which will allow the community sufficient time to develop and implement alternative plans. An additional 2,500 feet at an estimated cost of $25,000,000 is required to complete the interim protection. Additionally, the District executed a Project Cooperation Agreement with the City of Unalakleet in January 2007 for erosion protection, subject to the availability of funds. Finally, the District is also currently negotiating a Project Cooperation Agreement with the City of Kivalina for erosion protection.

In addition, under the Alaska Tribal Partnership Program, Alaska District is currently preparing the Alaska Baseline Erosion Study which will provide a systems approach for coordinating, planning, and providing an overall assessment to help prioritize shoreline erosion management efforts in Alaska. To date, the study has identified 165 communities that are experiencing erosion problems. Alaska District has also initiated the Alaska Erosion Data Collection study under this program.

CHALLENGES

As noted in the June 2004 General Accounting Office (GAO) report on Alaska Native Villages affected by Flooding and Erosion, it is often difficult for the majority of Alaska's small and remote communities to finance and meet the multiple criteria required for Federal participation in implementing a solution. The remoteness of many of the areas, severe weather conditions, and the subsistence economies of the communities are major contributing factors.

Perhaps the biggest challenges are the costs and risks associated with implementing erosion control solutions in these often remote communities. These include high mobilization costs, limited construction season, and the difficulty of transporting and obtaining adequate rock and materials. In April 2006, the Corps completed the Alaska Village Erosion Technical Analysis Report which estimated costs for providing erosion protection for seven villages. In addition, in Alaska we lack adequate scientific data on the factors that contribute to coastal erosion, such as wave, wind, tide, currents, storm surge, and ice pack. The Alaska Erosion Data Collection study should help provide some of this important information.

The risks associated with the coastal erosion challenges in Alaska are great. Risk considerations include determining what level of protection from erosion and flooding are acceptable, deciding whether to relocate or remain, and balancing the costs, social, cultural, and environmental impacts.

CONCLUSION

The Corps of Engineers has the technical expertise to address solutions based on a systems approach and to communicate and assist with risk informed decision making associated with the complex storm damage and erosion problems in Alaska's coastal villages. We are proud to work in collaboration with the many Federal, State, and local entities to assist in recommending and implementing solutions for the coastal erosion challenges faced by the Alaskan communities.

I am honored to appear before the committee and thank you for the opportunity. I look forward to any questions you may have.

WRITTEN TESTIMONY OF
JOHN W. MADDEN
DIRECTOR
DIVISION OF HOMELAND SECURITY AND EMERGENCY MANAGEMENT
DEPARTMENT OF MILITARY AND VETERANS AFFAIRS
STATE OF ALASKA

HEARING ON
"THE STATE AND FEDERAL RESPONSE TO STORM DAMAGE AND EROSION IN ALASKA'S COASTAL VILLAGES"

BEFORE THE
AD HOC SUBCOMMITTEE ON DISASTER RECOVERY
UNITED STATES SENATE
October 11, 2007

Introduction

Thank you, Madam Chairman and Members of the Committee, for inviting me to present testimony on the state response to storm damage and erosion in Alaska's coastal villages. I am the Director of the Alaska Division of Homeland Security and Emergency Management. Governor Palin appointed me to this position in January 2007 after serving as the Deputy Director since September of 2005. I also serve as her Homeland Security Advisor. As the Governor's Authorized Representative and the State Administrative Agent for Alaska, I apply for, receive, distribute, administer, and manage several federal grant programs from the Department of Homeland Security. These include State Homeland Security Grants, Emergency Management Performance Grants, Hazard Mitigation Grants, and several others. In the event of a presidentially declared disaster, I am the State Coordinating Official and communicate the Governor's priorities and the State's needs to the Federal Coordinating Official named by FEMA (Federal Emergency Management Agency).

Mission and Authority

Under Alaska statutes, my division is responsible for emergency planning, preparedness, response, and recovery. Through the State Emergency Response Plan, we provide for the prevention and minimization of injury and damage caused by disasters; prompt and effective response to disasters, disaster assistance to communities and individuals, and, most relevant to this hearing, the identification of areas vulnerable to a disaster. As an event emerges my division assesses the need for state assistance and coordinates state actions and request federal assistance as needed.

Alaskan Disasters

In the past 30 years, Alaska has declared 226 state disasters. Of these, 20 were further declared federal disasters by the President. The disasters included floods, storm surges, extreme freezing, high winds, wildfires, structure fires, earthquakes, volcanoes, and other damage to public infrastructure. About $436 million in state and federal funds have been spent to recover from these Alaskan disasters. More than half of these disasters and two thirds the funds were for recovery from floods, storm surges, and erosion disasters.

Since 1978, the State of Alaska has declared 23 disasters due to damage from sea storms that have hit every coastal area from Metlakatla, throughout Southeast, the Gulf of Alaska, the Aleutians, and the full extent of Alaska's western and northern coasts. In other words, the threat from sea storms extends along the entire Alaskan coast, a distance greater than the entire U.S. coast from Maine to Mexico and California to Canada. Many of these storms come in the fall but they can strike in any month. Of the 23 state disasters for sea storms, six were of sufficient damage to warrant a federal declaration, three within the past three years.

According to the National Weather Service, an average of five storms of hurricane force approach Alaska each year from the Pacific and Arctic Oceans, and the Bering and Chukchi Seas. Even when these storms do not make landfall, they significantly affect fishing and subsistence activities.

While there is no consensus that the frequency or intensity of storms are increasing, there is a growing body of scientific research showing that the nature of the sea ice is changing. In recent years, the ice advances southward from the Arctic later and slower. This is an extremely important factor in the effects on coastal communities. Shore fast ice greatly reduces, even eliminates, the wave action and erosion action of the storms.

As measured by the number of declared disasters, the coastal communities of western and northwestern Alaska have experienced a measurable increase in frequency and severity: Shishmaref in 2002; Kivalina, Kotzebue, and Shishmaref in 2002; Unalakleet, Diomede, and Port Heiden in 2003; the entire northwest coast in 2004; and Kivalina in 2006.

Northwest Storm of September 2007

In September 2007, a 960 millibar storm in the Bering Sea approached the northwest coast of Alaska. The timeline for the response to storm illustrates how the federal, state, and local governments and the private sector coordinate.

September 11	National Weather issues its first coastal flood warning
September 12	208 Kivalina residents evacuate to Red Dog Mine and Kotzebue.
September 13	Initial reports of damage to the seawall. Another 22 residents evacuate to the Red Dog Mine.
September 14	Two staff arrive in Kivalina to coordinate among local and borough leaders, support incident management, and conduct preliminary damage assessment. Telephone conference with community, borough, state, and federal agencies, and electrical cooperative for situational assessment, next actions, and most pressing issues. Governor's Disaster Policy Cabinet convened to coordinate activities among all state agencies. Telephone conference with borough, community, Coast Guard, state agencies, and electrical cooperative on improving status of fuel storage. Kivalina residences begin repatriation.
September 15 – 25	Continual coordination to secure fuel storage for power generators
September 25	Northwest Arctic Borough issues a disaster declaration and request for state assistance.

The evacuation was conducted under the Western Alaska Mainland Coast Communities Evacuation Plan written and distributed by the State in February 2005. Also, the community and borough used the Fall Sea Storm Preparedness Handbook prepared and distributed by my division each year. One important element is that the residents of Kivalina chose the known risks of evacuation over the unknown risks of the approaching storm. This likely will be the pattern for local decision making as future storms form.

Coastal Erosion and Disaster Authorities

Both Alaskan and federal statutes enable and authorize immediate actions and immediate funding when disasters are imminent meaning "likely to occur at any moment". When there is a question of safety of life, there is no bureaucracy – only swift and hopefully effective action. Where a possibility exists for a future disaster, neither the Alaska Disaster Relief Act nor the federal Stafford Act authorizes funds to prevent the disasters, no matter how certain the odds. This applies equally to deferred maintenance on a bridge and to disappearing wetlands or coastline. No matter how certain or how inevitable, no disaster exists until it is imminent.

Until the disaster can be clearly seen, disaster relief funds – state or federal – cannot be expended. Improvements in weather forecasting has vastly extended the warning time for hurricanes, tornadoes, severe storms, and floods. This has greatly improved the mobilization and

prepositioning of needed disaster relief assets. This also has enabled a better, more realistic definition of imminent. This was clearly evident with the actions by the State of Texas and FEMA before Hurricane Dean just two months ago. More than $40 million was spent to position buses; prepare evacuation shelters, and food for a hurricane that did not inflict the predicted damages. Had the hurricane followed the predicted, these actions may have saved thousands of lives.

Although the reliability of climatic and forecast models has improved and the timeliness extended, the statutes and authorities covering disaster relief funds have not changed. Only as the sea storms develop with the potential for wind, wave, and surge damages, can the disaster mechanisms be put into action.

Without damage inflicted or damage likely within hours, there is no disaster. Without a disaster, there is no use of disaster relief funds. Currently, there are two federal programs addressing mitigation of future disasters.

Pre-Disaster Mitigation Program

Congress appropriated $100 million for competitive grants, technical assistance, and program support for the FY 2007 Pre-Disaster Mitigation program. FEMA received 430 applications totaling $292 million. While this program may seem the likely source to mitigate the erosion threats to coastal communities, this program specifically prohibits flood studies, mapping, or control projects as well as projects involving demolishing an existing structure and building a new structure. Further ineligible is any project for which another Federal agency has primary authority even if that agency has no funds appropriated for that purpose. The very program designed to prevent the damage of a future disaster cannot be used to protect these Alaskan coastal communities.

Hazard Mitigation Grant Program

FEMA administers the Hazard Mitigation Grant Program for long-term projects following a major disaster declaration. The purpose is to reduce the loss of life and property in future disasters by funding mitigation measures during the recovery phase of a natural disaster. Allocations to the State are calculated as a percentage of the costs of recent disasters. Under this program, funds may be used for projects that will reduce or eliminate the losses from future disasters. Projects must provide a long-term solution to a problem, for example, elevation of a home to reduce the risk of flood damages as opposed to buying sandbags and pumps to fight the flood. In addition, a project's potential savings must be more than the cost of implementing the project. These funds are very limited and are the only means to address the full range of hazards facing the State – earthquakes, fires, ice flooding, and coastal storms. Since 1997, Alaska has received slightly more than $16 million to mitigate the potential for damage from future disasters. The costs of fully mitigating a single community against the hazard of coastal erosion would exceed the total amount received by Alaska for all hazards in the last ten years.

Science and Climate

The National Weather Service reports that the numerical models for Alaskan forecasts and warnings beyond six hours are of significantly less confidence than the rest of the nation because of the extremely low number of observations – particularly for conditions in the Bering Sea and

Arctic Ocean. Only frequent and consistent atmospheric and sea observations will improve the models. Improved models lead to improved and more confident services with greater lead time. Further, improved models provide the sound science on which to base public policy and action.

Last July I testified before the Senate Commerce, Science, and Transportation Committee and recommended that unmanned aerial systems based in Alaska would greatly improve the weather and climate predictions needed for development of sound public policy. I reiterate that recommendation and believe that the use of UAS with dramatically improve the quality and timeliness of forecasts for both weather and for climate. Unmanned aerial systems also could accurately, regularly, and safely document the status of all the Alaskan coastline.

Conclusion

In conclusion, the problems of coastal erosion and flooding are and will continue to be significant dangers to many Alaskan communities. When added to the other natural and manmade threats, Alaska faces a spectrum of risks, threats, and hazards disproportionate to our population, a point not adequately measured in the federal grants processes. The solutions to these problems lay beyond the existing capabilities of the communities and the State. Existing authorities covering disaster response and recovery do not recognize changing conditions as imminent. The failure to find a solution to the coastal erosion and flooding problems will place a growing number of Alaskan residents at an increasing risk at an increasing pace.

This concludes my prepared remarks. I stand ready to answer any questions you may have.

Testimony of
Susan K. Reinertson
Regional Administrator
Federal Emergency Management Agency, Region 10
U.S. Department of Homeland Security
Before
The U.S. Senate
Committee on Homeland Security and Governmental Affairs
Ad Hoc Subcommittee on Disaster Recovery
"The State and Federal Response to Storm Damage and Erosion in Alaska's Coastal Villages"
Anchorage, Alaska
October 11, 2007

Chairman Landrieu, Ranking Member Stevens and Members of the Subcommittee, I am Susan Reinertson, Regional Administrator of the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) Region 10. On behalf of FEMA, and the Department of Homeland Security, we welcome and appreciate the invitation to appear today before the Subcommittee. It is a distinct honor and privilege to be here today.

I am accompanied by our Region's Division Director for Disaster Assistance, Mr. Charles Axton, and Division Director for Mitigation, Mr. Mark Carey, as well as our Alaska Area Office Manager, Mr. Robert Forgit. These gentlemen as well as all men and women of FEMA Region 10 are dedicated to meeting the pre- and post-disaster needs of the people of Alaska within the programs and authorities provided to us by the Congress and the President.

Before I discuss the specific programs applicable to the topic of this hearing, I would like to acknowledge that the success of FEMA and our programs is dependent on a strong professional partnership with State agencies. Thanks to the leadership of Major General Craig Campbell, Commissioner of the Alaska Department of Military and Veterans Affairs, and Mr. John Madden, Director of the Alaska Division of Homeland Security and Emergency Management, we have forged a strong professional partnership that ensures successful emergency management for Alaskan communities and citizens. FEMA greatly appreciates their leadership, professionalism, and dedication.

As you all well know, FEMA is the lead Federal agency responsible for coordinating disaster response, recovery, and mitigation efforts following disasters and emergencies declared by the President. Our programs are made available to communities through our State partner organizations, and are intended to supplement the response activities and recovery programs of States. Most of our assistance programs are authorized under the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, commonly referred to as the "Stafford Act." The Stafford Act is widely known as the authority by which programs are made available following disaster declarations.

FEMA's programs are designed to assist States and communities in carrying out their responsibilities and priorities. Our assistance is available in varying forms, such as grants, technical assistance, and planning assistance to address the impacts of disasters and to take steps to reduce the potential impacts. Assistance that is made available to States, tribes, communities, and individuals following disasters includes:

- The Public Assistance program, which provides assistance for the restoration of public and certain private nonprofit facilities damaged by an event, and the reimbursement of the costs associated with emergency protective measures and debris removal. The six Alaskan Native Villages most prone to erosion, based on GAO Report GAO-04-895T, have received $3.4 million in Public Assistance over the last 5 years as a result of three Federally declared disasters;

- The Individuals and Households program, which helps ensure that the essential needs of individuals and families are met after disasters so that they can begin the road to successful recovery; and

- The Hazard Mitigation Grant Program, which I will discuss in detail in a moment.

The Pre-Disaster Mitigation Grant Program, authorized under the Stafford Act, and the Flood Mitigation Assistance Program, authorized under the National Flood Insurance Reform Act of

1994, as amended, are pre-disaster programs. The National Flood Insurance Program (NFIP), authorized by the National Flood Insurance Act of 1968, as amended, is available also.

Given that subject of today's hearing is "Alaska Native Villages Affected by Flooding and Erosion," I will focus on three of FEMA's programs that are available to the State of Alaska and the Alaskan Native villages in their efforts to address the complex challenges of flooding and erosion. I will also cover the limitations to these programs that results in their being part of the solution, but not the total answer to addressing the flooding and erosion vulnerabilities.

First, the Pre-Disaster Mitigation grant program was authorized by Congress under the Disaster Mitigation Act of 2000, which was signed into law on October 30, 2000. This program is available to communities through the State emergency management organizations, and is designed to fund nationally competitive mitigation projects and planning efforts of States and communities, as identified and prioritized in State and local mitigation plans. The development and adoption of these state and local mitigation plans is required under the Stafford Act as a result of the legislative amendments of 2000. Funding for this competitive grant program is not triggered by a Presidential Disaster Declaration; rather it is funded through the annual appropriations process. All States and communities throughout the nation that have FEMA-approved mitigation plans and are enrolled in the National Flood Insurance Program are eligible to apply for the program. Accordingly, the Pre-Disaster Mitigation grant program will help sustain an enhanced national mitigation effort year-to-year, as opposed to previous years when FEMA mitigation assistance was generally available only after a disaster was declared in a State.

Examples of projects funded under the program include the development of all-hazard mitigation plans, seismic retrofitting of critical public buildings, and acquisition or relocation of flood-prone properties located in the floodplain, just to name a few. All projects submitted are developed at the State or local level, must be cost-effective and technically feasible, and are approved following a nationally competitive peer-review process. In fiscal year 2007, the funding level was $100 million nationwide. Specific project applications are capped at a Federal share of $3 million per project. Since inception of the program in 2003, Alaska has

received $1.9 million to address several local and state-wide planning projects and seismic retrofits of schools in Anchorage and Kodiak Island.

Second, the Hazard Mitigation Grant Program (HMGP) is available to States and communities following Presidential Disaster Declarations. This program has similar requirements as the Pre-Disaster Mitigation grant program previously described, though funds become available only after a Disaster is declared, and are available anywhere within the State in which the declaration was made. The amount of assistance available under the Hazard Mitigation Grant Program is a percentage of FEMA's assistance made available under the response and recovery programs. The most recent federally declared disaster for Alaska in December of 2006 resulted in $1.5 million in HMGP funds being made available. Over the last 5 years, the eight federally declared disasters resulted in a total of $5.6 million in HMGP funds to be used statewide.

Of the $18.5 million in Hazard Mitigation Grant Program funds obligated in Alaska since the inception of the program, $7.5 million or 40 percent has been spent on relocation projects for Alaskan Native Villages. Specifically, over $6.3 million in Federal funding was provided to relocate 11 structures, including 3 public buildings in Alatna; $900,000 in Federal funding was provided for relocating 27 homes in Allakaket; and $200,000 in Federal funds was provided for relocating and elevating homes and a city building in Alakanuk. For all of these projects, the State of Alaska provided the 25 percent match funding.

As with the Pre-Disaster Mitigation grant program, all projects are developed at the State or local level, must pass a benefit-cost analysis, and are recommended by the State in accordance with the State Hazard Mitigation Plan. Again, examples of projects eligible for HMGP and the PDM grant funds include the development of all-hazards mitigation plans at both State and local levels, the seismic retrofitting of critical public buildings, and acquisition, relocation or elevation of flood-prone properties located in the floodplain. While erosion control may be an eligible project under HMGP, the scope of the erosion in Shishmaref, for example, would likely require a major project generally implemented by agencies such as the Army Corps of Engineers, which has specific authority for these types of projects. FEMA does not fund major

flood control projects or provide assistance for activities for which another Federal program has a more specific or primary authority to provide.

Third, FEMA's Flood Mitigation Assistance program is authorized for mitigating structures insured by the NFIP within a community participating in the NFIP. Projects include the elevation, relocation, and acquisition of flood prone structures. Because this program is funded by monies collected from NFIP policyholders, the recent focus of the program has been on mitigating repetitive loss structures in order to reduce the drain on the National Flood Insurance Fund. Severe Repetitive Loss properties are defined as properties that have experienced four or more flood losses of at least $5,000 each, with at least two claims payments occurring in a 10-year period, and with the total claims paid exceeding $20,000; or properties that have received at least two separate flood claims payments, where the cumulative flood claims payments exceed the value of the property.

The NFIP currently has 32 participating communities in Alaska, representing boroughs, cities, towns, and Alaska Native village municipalities. Collectively they maintain $538 million in flood insurance coverage. Since 1978, the NFIP has paid 398 claims for $3.8 million to Alaska residents. Twenty-nine of the 2,656 policies statewide are subject to coastal flooding and erosion hazards.

Many of the remote Alaskan communities vulnerable to flooding and erosion have not been mapped for flood hazard areas and are not participating in the NFIP, which is a requirement for consideration under the Flood Mitigation Assistance program, even in unmapped areas. In 1998 Shishmaref joined the NFIP and as a result of that was eligible for a Flood Mitigation Assistance grant to relocate some of their structures. In 2001 the Municipality of Shishmaref received their first published Flood Insurance Rate Map. However, many Alaska Native Villages are not in the NFIP because they do not have the land use authority to pass and enforce a floodplain management ordinance required for participation.

There are significant eligibility and funding challenges to FEMA and its state partner in developing successful mitigation projects, including relocation, in Alaska Native Villages. With respect to eligibility, projects that receive FEMA grant funding must demonstrate a positive benefit-cost ratio. The benefit-cost requirement for all Federal grants that FEMA is required to apply to its grants programs is outlined in OMB Circular A-94. Basically, an applicant must demonstrate that the benefit of the project is the same or greater than the cost. With the high costs in rural Alaska and low population benefited, developing a project or relocation effort with a positive benefit-to cost ratio is difficult to impossible. Without a positive benefit-cost ratio, a project is not eligible for funding consideration.

FEMA's programs have other eligibility requirements that most Alaska Native Villages currently do not meet, including a FEMA-approved mitigation plan. FEMA has been actively working with the State to address this eligibility requirement. Over the last 5 years, FEMA has provided over $1 million in funding for planning through the Pre-Disaster Mitigation grant program, plus additional funding through the Hazard Mitigation Grant Program, to support local planning in Alaska. Currently, both Shishmaref and Kivalina are actively working to complete their plans. We will continue to support the State's efforts to assist their local communities and Alaska Native Villages to develop mitigation plans to expand eligibility for project funding.

As previously stated, funding challenges also exist. Since the Hazard Mitigation Grant Program's funding availability is based on declared disaster losses, it would take a catastrophic disaster or disasters for the state to receive the level of mitigation funds needed to address the full relocation needs of the Alaska Native Villages. The Pre-Disaster Mitigation grant program has a total appropriation of $100 million for Fiscal Year 2007, with a $3 million cap on each nationally selected project and a limitation that no one State may receive more than 15 percent of the total available funding. Additionally, the non-Federal cost-share requirements of our mitigation grants can pose a problem if a State passes on these costs to local communities due to the limited financial resources of the Alaskan Native Villages. By statute, the Federal government will pay 75 percent of the eligible costs with the remaining 25 percent paid by either the State or local government. However, with the Pre-Disaster Mitigation grant program,

Alaska Native Villages would be eligible for a 90/10 cost share due to the "small, impoverished" community classification specified in the law.

Within the context of these obstacles, FEMA has worked with our State partners on the challenge of flooding and erosion in Alaska Native Villages. In 1998 the Flood Mitigation Assistance program funded $600,000 of an $800,000 project to relocate nine private structures within Shishmaref. More recently, in 2006, FEMA funded a $46,000 project through the Hazard Mitigation Grant Program to relocate Shishmaref's computer cottage.

FEMA will continue to be an active partner in efforts to address the Alaska Native Villages' vulnerabilities. We will continue to work with the State on defining mitigation planning priorities and in direct partnership with the tribes, in a Federal-to-tribe relationship when applicable, and we will provide technical assistance within our areas of expertise.

Unfortunately, as I have outlined in my testimony, what is needed to comprehensively address the vulnerabilities faced by the Alaska Native Villages at the highest risk is beyond the scope of our existing pre- and post-disaster programs.

In summary, the dedicated professionals of FEMA Region 10 will continue to work with the State of Alaska to identify and provide technical assistance in the development of cost-effective projects for consideration under the Pre-Disaster Mitigation and Hazard Mitigation Grant programs and, for communities participating in the National Flood Insurance Program, promote flood insurance, and the Flood Mitigation Assistance Program.

Finally, if one or more communities experience significant flooding and a Major Disaster is declared, please be assured that the full breadth of our Stafford Act programs would become available. FEMA would ensure the recovery and mitigation programs would be provided with the greatest of coordination and allowable flexibility to ensure the long-term plans of the communities are considered, to include the potential relocation of certain structures and facilities.

In closing, I appreciate the opportunity to represent the Federal Emergency Management Agency and the Department of Homeland Security before the Ad Hoc Subcommittee on Disaster Recovery. I would be pleased to answer any questions you may have.

TESTIMONY OF COLLEEN E. SWAN, TRIBAL ADMINISTRATOR

NATIVE VILLAGE OF KIVALINA

KIVALINA:

The village of Kivalina is located on the southern tip of an 8-mile long barrier reef. According to Ernest S. Burch, Jr. (1998), the village was officially established with the introduction of a school that was built in 1905-06 on the southern tip of the island, and the immigration of a reindeer herder from Barrow who brought much needed reindeer meat to the village, and the establishment of a mission. The *Kivallinigmiut* (Kivalina population) are the original native inhabitants of the area that includes both the Kivalina and Wulik Rivers. The Kivalina people originally lived their lives in settlements located inland for most of the year along the rivers. Their hunting habits determined their movements in the Kivalina region, including hunting along the coast for sea mammals. The construction of the school required them to settle on the island in order for their children to gain an education.

NATURAL EROSION:

Erosion problems have always naturally occurred along the Kivalina coast. According to a National Geodetic Survey-Erosion Impacts Study conducted by the National Oceanic & Atmospheric Administration (NOAA), which began in 1953 and ended in 2003, the island of Kivalina has lost approximately 27 acres on the Chukchi Sea side of the island with 8 acres accreted on the Kivalina Lagoon resulting in a net loss of 19 acres in the study period. Naturally occurring erosion and accretion is considered to be typical of barrier islands. The result of this study confirms the stories that elders of the community have told about the 2nd and 3rd ridges of the island parallel to the existing village site that no longer exist due to erosion.

RELOCATION DISCUSSIONS IN THE EARLY YEARS:

The village began discussions in the 1950s about relocating the village after minor flooding occurred that did not inundate the village but the storms did over-top the uplands of the island that threatened to flood homes located along the coast. A vote was held in an election process that resulted in a split decision that ended the effort to relocate the village almost immediately.

RELOCATION DISCUSSIONS RESUMED:

In 1990, discussions to relocate the village began once again to address over-crowding conditions caused by the shrinking island and a growing population. Because of the over-crowding due to lack of development space coupled with the lack of water/sewer services, health conditions of the community became a concern. Land erosion and global warming were minor issues during the first years of the developing village relocation project.

In 1998, an election was held by the City of Kivalina to provide the people in the village an opportunity to select an option to address the concerns raised during 8 (eight) years of discussions. In that election process, a site was selected that was later determined by studies done by the Army Corps of Engineers to be rich with permafrost and was deemed unsuitable as a potential new village site. In response, in 2000, another election was held by the City of Kivalina which resulted in the selection of another site closer to the ocean. Global warming remained a part of the discussions because of land erosion along the Wulik River beginning to emerge.

GLOBAL WARMING:

Once what the people thought was the final vote for a new village site was made, global warming became an open issue. Predictions were made of a potential for coastal flooding in Alaska. Although no concrete evidence existed, and while skeptics abound, the global warming discussion began to have its effect on the Kivalina Relocation Project. Studies that were thought to be near completion became insufficient to address global warming and what is now perceived to be an unsuitable site because of the unproven flood-prone designation of the selected site. The Kivalina Relocation Project is now hindered because of this discussion. The original Master Schedule, as devised by the Army Corps of Engineers, planned for the village move to begin in the summer of 2006.

LAND EROSION:

In the summer of 2004, a laundry facility drain field project was constructed by the Alaska Native Tribal Health Consortium. This project required a certain amount of fill

material to cover the leach field. The material used to cover the field was taken from an area adjacent to it behind the Northwest Arctic Borough School District property despite warnings from a local resident that this removal of beach fill would cause an erosion problem.

During the fall sea storm season in 2004, approximately 60 feet of land eroded. An elder in the village observing the efforts of the local volunteers to save the property from erosion made a comment of how he had never seen sea levels that high as he was witnessing it that day. In his book entitled, "The Inupiaq Eskimo Nations of Northwest Alaska," Ernest S. Burch, Jr. states, "...oceans begin to freeze in October until the time the ice leaves in early July..." (p. 28). Ocean ice that had traditionally kept sea storms under some control to prevent waves from slamming into the land were absent that year and have been absent during the last few years. The fall sea storms of 2005 followed with the same results.

EROSION PROTECTION MEASURES:

In the summer of 2006, the Northwest Arctic Borough, with funds from the Denali Commission and the State of Alaska, constructed a project to protect life and property in Kivalina with concertainers (wire baskets) and fabric lining stapled together at the seams. On the day that the celebration of the completion of the project was scheduled, a minor sea storm struck and immediately damaged the sea wall. The celebration was cancelled and repair work began with funds leftover from the original project. A combination of several factors may have contributed to the failure including poor engineering and design work, elevated sea levels, lack of fall ice formation, and annual fall sea storms.

NATIVE VILLAGE OF KIVALINA RESPONSE:

At the request of the Tribal Office staff of the *federally recognized Tribe*, the Army Corps of Engineers designed a geotextile 2 cubic yard sack erosion protection project after assessing the damage to the sea wall. But before any funds could be found to pay for this project, unusually early fall sea storms struck the village in July. That project design was abandoned due to an early fall sea storm season and lack of funding.

ALTERNATIVE PLANS:

The undertow of the ocean surge has considerable strength. Not only does the wave action slam the wall, causing damage with each blow, but the undertow in turn draws the sand material out from under the baskets causing them to collapse. To address this situation, when the Borough made the leftover funds available, the project supervisor devised a plan to restore some of the damaged baskets. But the before any significant progress could be made, an earlier than usual sea storm struck again in August of 2007 and destroyed the plans to salvage and fill the wire mesh baskets with supersacks filled with gravel. That plan was abandoned also due to more unusually early sea storms.

EMERGENCY EROSION PREVENTION MEASURES:

With funds leftover from the original sea wall project, which is mostly depleted today, the Kivalina work crews have managed to keep the sea wall from tumbling into the ocean. But with the lack of support for their efforts from the usual slush ice that once formed in October, all they have been able to do is to throw supersacks at the problem. Each time a storm strikes, more 1-cubic yard super sacks are lost to the ocean. As of Monday, October 8, 2007, the sea wall continues to develop new problems, including a deepening ocean along the shore. Another problem that we face is lack of funding needed to prevent the loss of critical infrastructure, such as the fuel storage facility for the power plant that serves the community.

POSSIBLE SOLUTIONS FOR THE FUTURE:

The Alaska District Army Corps of Engineers has developed a plan and design for a rock revetment project for construction in 2008 pending appropriation of funding from Congress.

RECOMMENDATIONS:

Based on our situation here in Kivalina, and all of the problems that seem to be associated with global warming, the Native Village of Kivalina recommends the following:

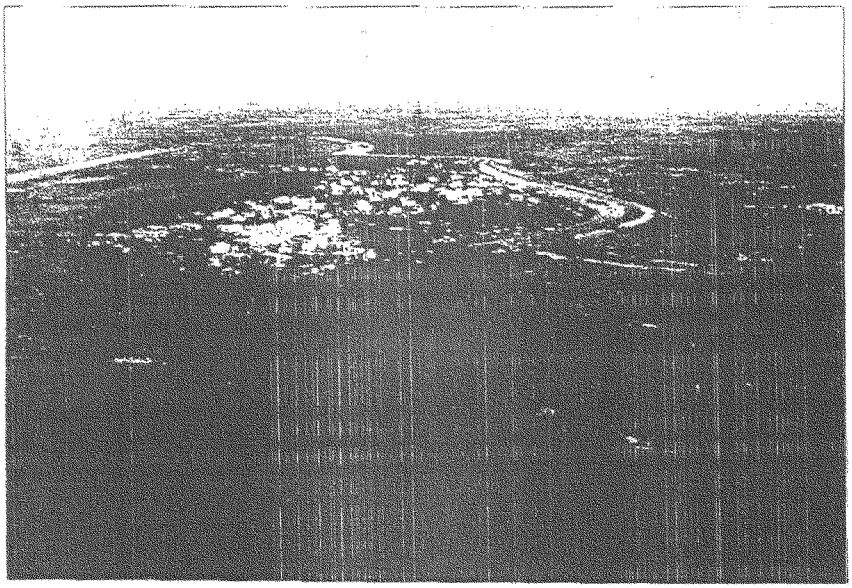
1. Inter-agency response, which includes the State of Alaska, the Federal Government as part of their trust responsibility to Tribes, and other entities need to come together WITH the local governing bodies of the village to devise a plan to address erosion and relocation issues. More funds should be provided to the local governing bodies, whose knowledge has been more accurate due to the fact that the people live close to the land, to provide for coordination of the project. Every prediction made locally regarding the Kivalina situation by the elders and local community members has come to pass.

2. Consideration should be made for the Army Corps of Engineers to be designated new responsibilities to take the lead in addressing the issues of relocating the village of Kivalina in consultation with the Native Village of Kivalina as part of their trust responsibilities to the Tribe. No agency has been identified to take the lead in the Kivalina Relocation Project and no discussions have taken place on a continuous basis.

3. Since no real studies have ever been done on permafrost and being that Alaska is 70% wetland, study plans need to be devised to monitor the permafrost condition in Arctic Alaska. TechCominco-Red Dog Mine has been monitoring the temperature of the permafrost in the Red Dog mine area that shows warming temperatures of the permafrost. With the land slides now occurring inland, this leaves a question wide-open for the residents of Kivalina who wish to move inland to higher ground as to just how safe any area is in Alaska.

4. Response to Kivalina's situation has been piece-mealed so badly that no one seems to know what to do. An inter-agency committee should be formed to address erosion in Alaska given the fact that arctic conditions seem to be deteriorating with rising sea levels and warmer temperatures. According to a report made recently to the Alaska Climate Impact Assessment Commission by the NF&WS's Jim Dau, there are more "slumps", also called "sinkholes" by others, than he has ever seen before. Being that Alaska is 70% wetland, a committee would be appropriate to address the many problems associated with the warming climate.

Stanley Tom's Testimony
Subcommittee on Disaster Recovery
October 11, 2007



An Overview of Erosion, Flooding, and Relocation Efforts in The Native Village of Newtok

Good morning. I am Stanley Tom of the Native Village of Newtok, in Western Alaska. I am the Tribal Administrator of the Newtok Traditional Council.

My village is one of four Alaskan villages identified as being in imminent danger from flooding and erosion and making plans to relocate. Advancing erosion of the Ninglick River near my village has been so severe that critical infrastructure has been lost. My community has become increasingly vulnerable to severe flooding, public health issues, and problems with the delivery of fuel and other critical supplies.

Shoreline protection measures are not an option for my village. Studies conducted since 1983 have concluded that we must relocate because there is no permanent, cost-effective way for my community to remain at the current village site.

My village is working very hard to relocate. We have selected a place to move to and have gained ownership of the land. We have even started to build houses at our new village site. The agencies in the Newtok Planning Group are helping us, but this is very hard to do without a designated lead agency and funding for relocation. We cannot work fast enough to keep up with the erosion. We are very concerned that the next major storm will leave our village uninhabitable before we can move to our new village site.

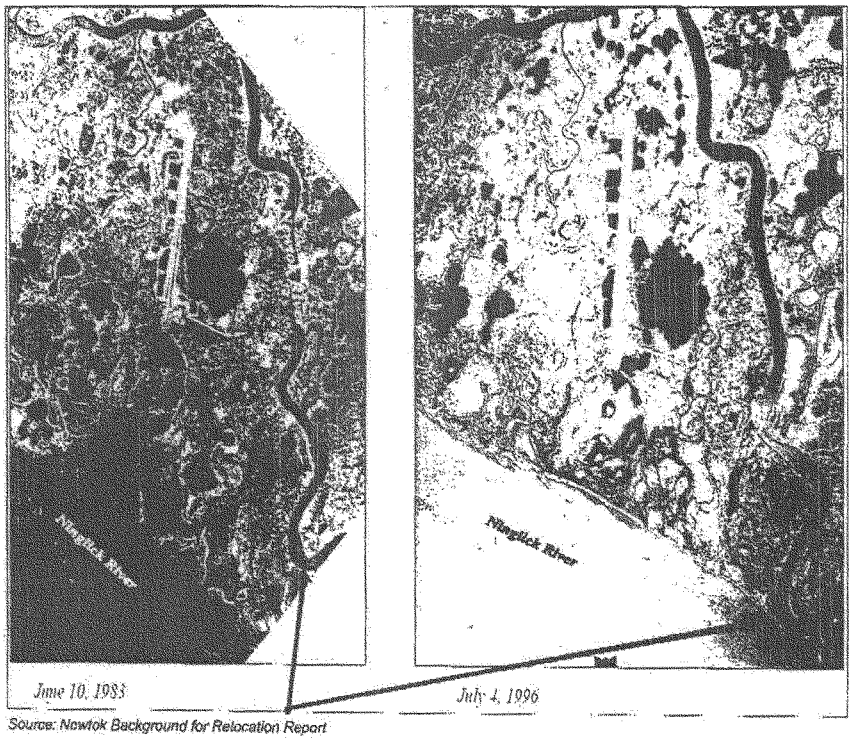
Early Erosion Assessment of Newtok

We have been dealing with our erosion problem for a long time. In 1983, we received a grant from the Alaska Legislature to assess the erosion problem and evaluate alternatives for erosion control to protect several miles of the Ninglick River bank.

As part of the ***Ninglick River Erosion Assessment***, historical bank erosion rates were evaluated from historical and current aerial photographs. The evaluation determined that between June 1957 and May 1983, the north bank of the Ninglick River had eroded at an average annual rate of 19 to 88 feet. It was determined that if the erosion could not be slowed, community structures would be endangered within 25 to 30 years (2008-2013).

The conclusion of the erosion assessment was that providing full protection to stop the erosion process over the entire length of the Ninglick River bank would be prohibitively expensive. Woodward Clyde concluded that ***"Relocating Newtok would likely be less expensive than trying to hold back the Ninglick River."***

The photos on the next page show the extent of erosion over a thirteen year period after the ***Ninglick River Erosion Assessment***. In the July 4, 1996 photo, the Ninglick River Bank has eroded up to the bend in the Newtok River.



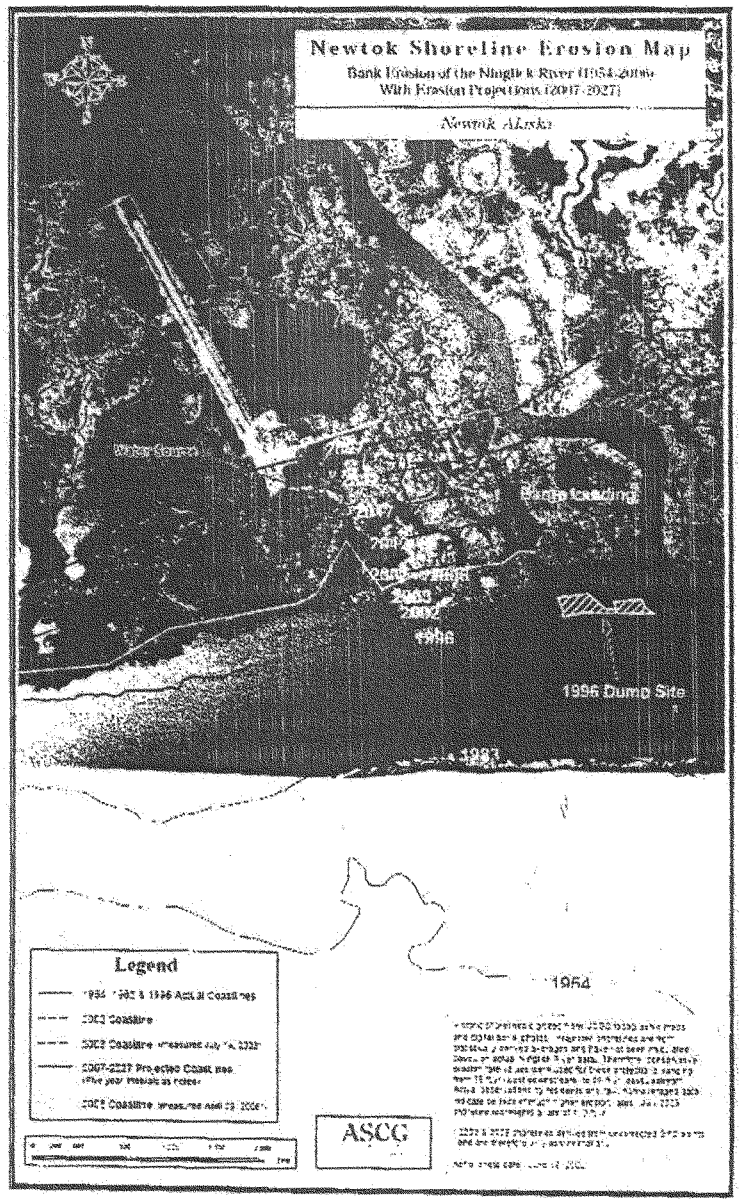
Source: Newtok Background for Relocation Report

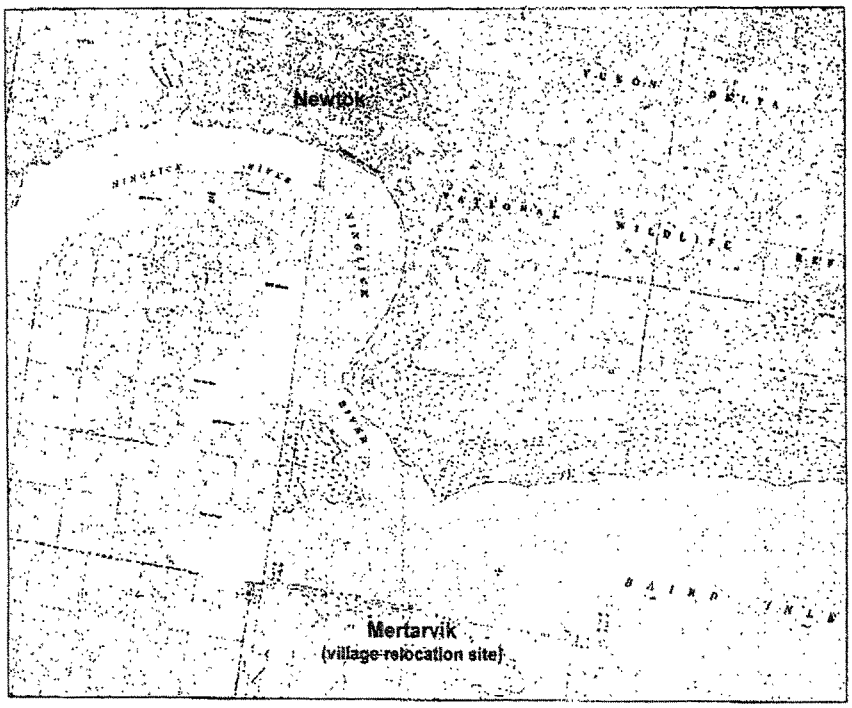
Our Work to Relocate

In 1994, the Newtok Traditional Council began to make plans to relocate. The Traditional Council analyzed six potential village relocation sites. The selected relocation site, located on the north end of Nelson Island, was within the Yukon Delta National Wildlife Refuge and under the management of the U.S. Fish and Wildlife Service (USFWS). The site, approximately nine miles southeast of Newtok, is called ***Mertarvik****, which in Yup'ik means "getting water from the spring". The map on the next page shows the locations of Newtok and Mertarvik.

The Erosion Worsens

For the relocation planning study, the contractor prepared a Shoreline Erosion Map based on historic shorelines digitized from USGS topographic maps and digital aerial photos. It was found that average rates of erosion along the Ninglick River varied from 36 feet to over 83 feet per year upstream. The average rate of erosion occurring directly in front of the village between 1954 and 2003 was measured to be 68 feet per year. The loss to erosion has been continuous from the base year of 1954 (see map, below).

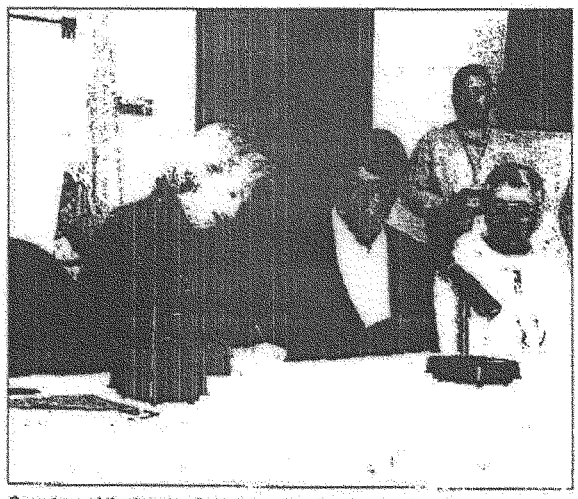




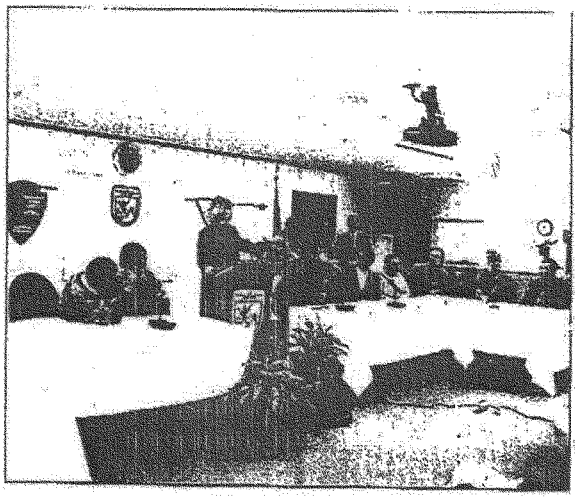
In 2000, the Newtok Traditional Council hired a contractor to plan for the village relocation. Three reports were prepared as a result of these early planning efforts:

- **Newtok Background for Relocation Report**: This report provided background documentation to government agencies in order to justify the efforts of the village's relocation to Nelson Island and to support requests for government assistance in this process.
- **Preliminary Geotechnical Overview:** The Corps of Engineers performed a site reconnaissance to visually evaluate the surface and subsurface conditions at Mertarvik. The study concluded that based on visual evaluation; there were no geotechnical site conditions that would preclude Mertarvik from use as the area for relocation of the village of Newtok.
- **Newtok Transportation Plan**: This includes a land use map and transportation plan for the proposed relocation site with prioritized roads, justifications, and estimated costs as a guide for future community development studies.

The Land Exchange to Acquire the Village Relocation Site, Mertarvik
In November, 1996, the Newtok Native Corporation passed a resolution authorizing the negotiation of a land exchange within the Yukon Delta National Wildlife Refuge with the U.S. Fish and Wildlife Service (USFWS). With the assistance of legal council, Newtok Native Corporation negotiated the terms of the land transfer and drafted federal legislation. On November 17, 2003, United States Public Law 108-129 was signed into law allowing for the Newtok Native Corporation to trade land for the village relocation site on Nelson Island (Mertarvik).



Secretary of the Interior Gale A. Norton signs the land exchange legislation as members of Newtok Native Corporation look on. *(Source: Landye Bennett Blumstein LLP)*

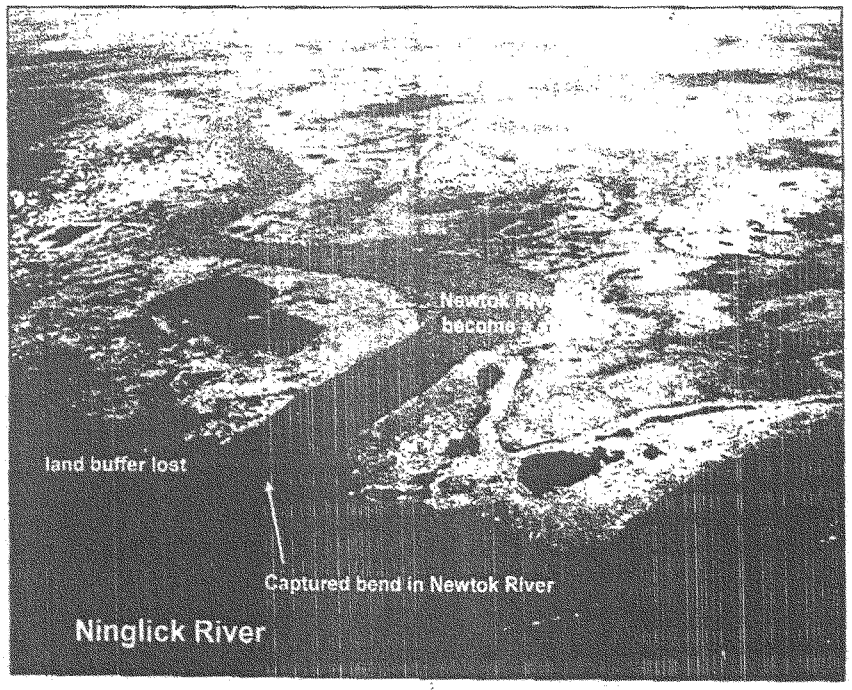


Secretary Norton speaks to the Newtok Native Corporation. *(Source. Landye Bennett Blumstein LLP)*

Progressive Erosion Brings New Problems:
Increased Flooding, Public Health Issues and Difficulties Delivering Fuel

Although my village has worked very hard to relocate, we have not been able to work fast enough to keep up with the erosion of the Ninglick River.

Erosion has removed the land buffer between the Ninglick and the Newtok Rivers. Now, there is a direct connection between the Ninglick River and the village. In the fall storm season, flood water can now surge through the Ninglick River, up the Newtok River and into the village.



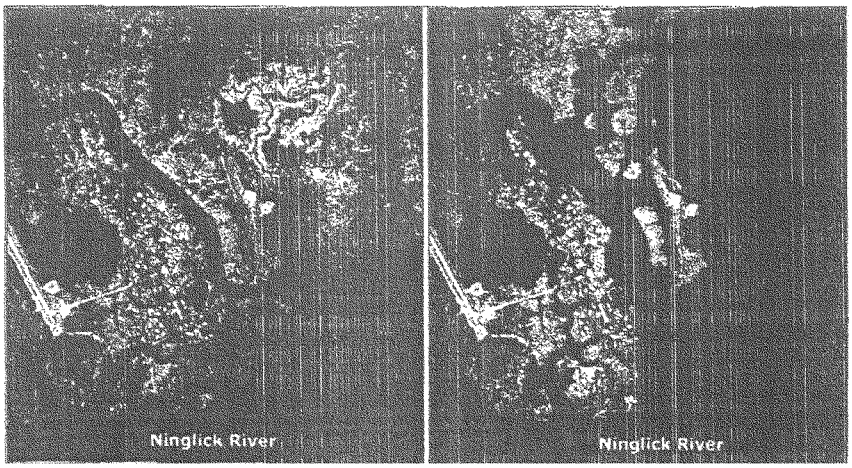
The land lost by erosion of the Ninglick River has caused siltation of the Newtok River, turning the river into a slough. The Newtok River used to be a busy traffic route to my village, providing easy access to residences and barge off-loading facilities. The encroachment of the Ninglick River has caused the Newtok River to become progressively shallower with built up silt, stopping the flow of the Newtok River. At low tide, the Newtok River is similar to a mud flat, making boat and barge navigation extremely difficult and limited.

Public Health Concerns

A team of public health professionals representing Alaska's State and Tribal organizations conducted a comprehensive assessment of environmental public health conditions in Newtok during the months of August and September 2006. The team found sanitation conditions in Newtok to be grossly inadequate for public health protection. The situation has been attributed to many problems, including high levels of community contamination, little potable water for drinking and hygiene/sanitation practices, and household crowding. The **Environmental Public Health Assessment: Newtok, Alaska** found that between 1994 and 2004, 29 percent of Newtok infants were hospitalized with Lower Respiratory Tract Infections (LRTI), including 20 percent for pneumonia, 18 percent for respiratory syncytial virus (RSV), and 11 percent for pneumonia RSV. These numbers are considered to be very high and could indicate the occurrence of water-washed disease (disease caused by lack of water, poor personal hygiene and lack of proper human waste disposal).

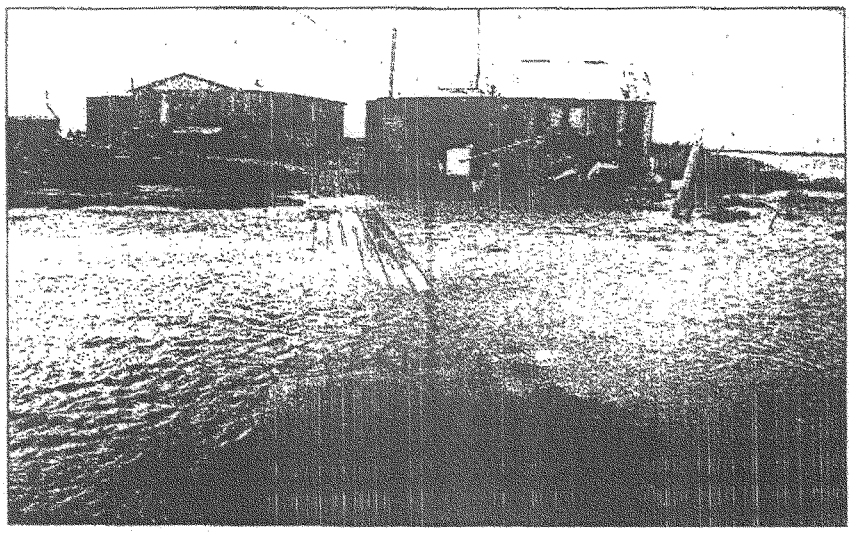
The erosion and flooding situation in our village has increased this problem. The Newtok River has long been used as the village's honey bucket disposal site. With the increased siltation of the river, disposed waste has no place to go. During storms, flood water now rushes up the Ninglick River unobstructed into the Newtok River, forcing the stagnant water of the Newtok River into the village. This has increased the public health threat to my community.

The map below shows the extent of flooding that occurred in Newtok as a result of a fall storm that occurred on September 22, 2005. Residents indicated on aerial photos the extent of flooding around and within the village. The floodwaters completely surrounded the village, turning it into an island for several days.



Newtok Flood – September 22, 2005. *Source: Newtok Traditional Council and USACE*

Several houses were only connected to the village by boardwalks that were floating in the floodwater.

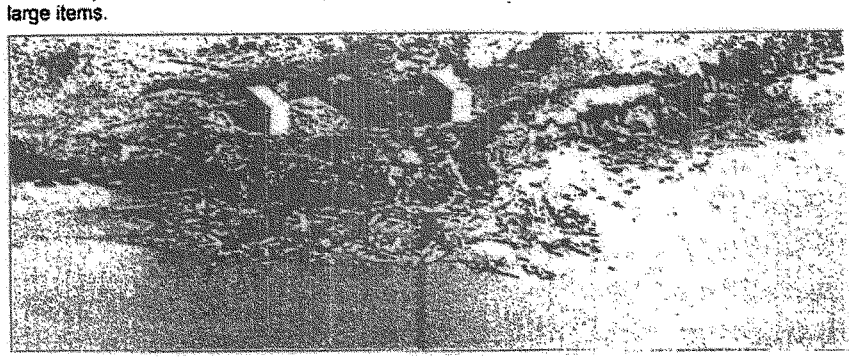


Source: Stanley Tom

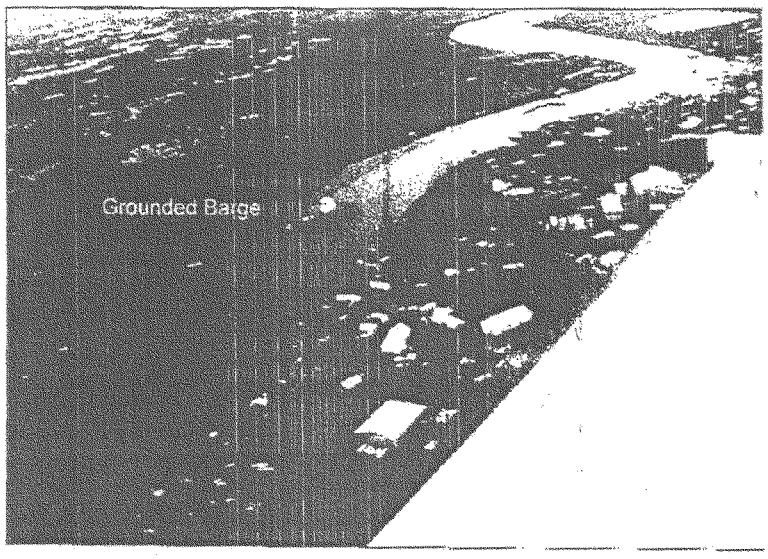
As a result of the September 2005 flood and another event that occurred in 2004, Newtok was included in two federal disaster declarations, ***DR-1571-AK (2004 Bering Sea Storm) and DR-1618-AK (2005 Fall Sea Storm).***

Difficulties Delivering Fuel

The village barge landing was lost to erosion of the Ninglick River in 2005 leaving the community with no cost-effective way to receive the delivery of construction materials or other large items.

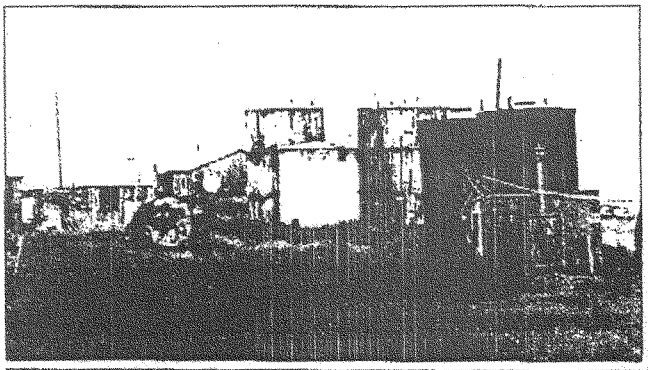


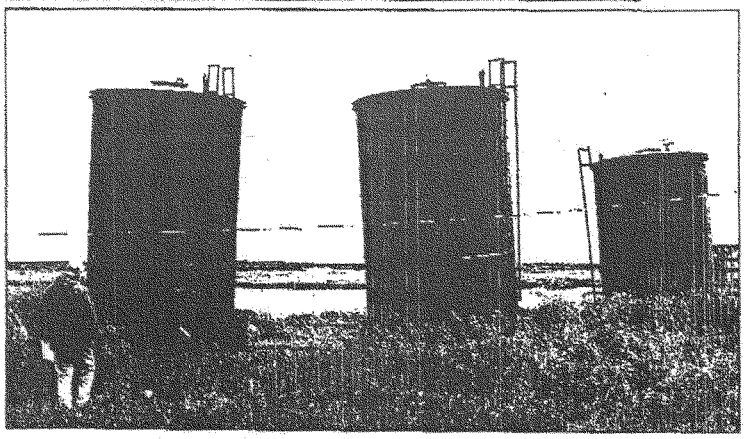
Barge deliveries to the village are now restricted to the Newtok River, however the altered hydrology of the Newtok River has severely limited when barge deliveries can be made. In August 2006, a fuel barge was grounded in the Newtok River for three days (below). Recently, fuel had to be flown into the village when delivery could not be made by barge.



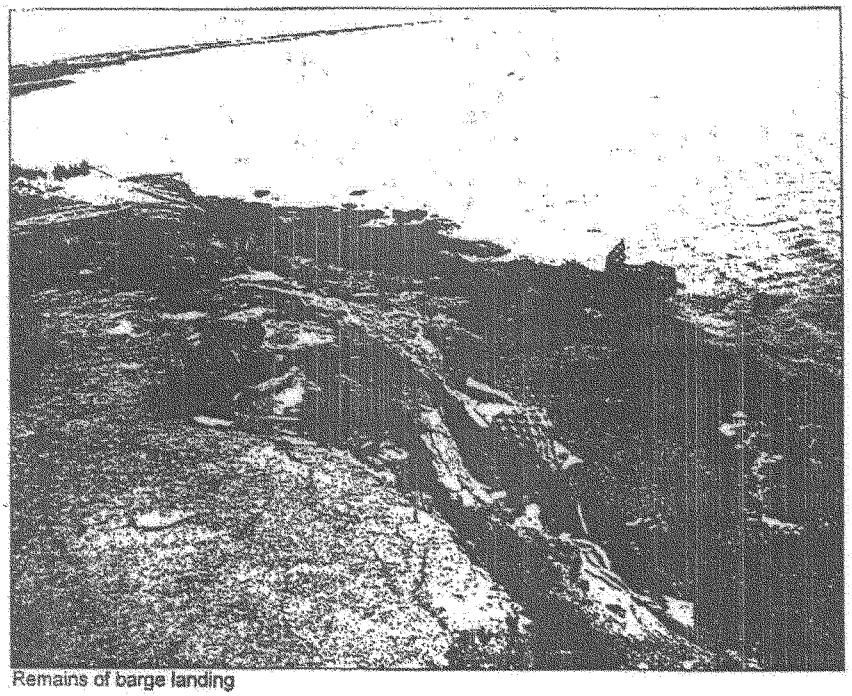
Additional Challenges: Deferred Community Maintenance and Investment
As a result of the conditions in my village, government funding entities have become reluctant to invest in critical infrastructure in Newtok. The concern is that new capital facilities might be lost to the Ninglick River advancing upon the village.

The deferment of new construction to replace old facilities creates hardships on the village.

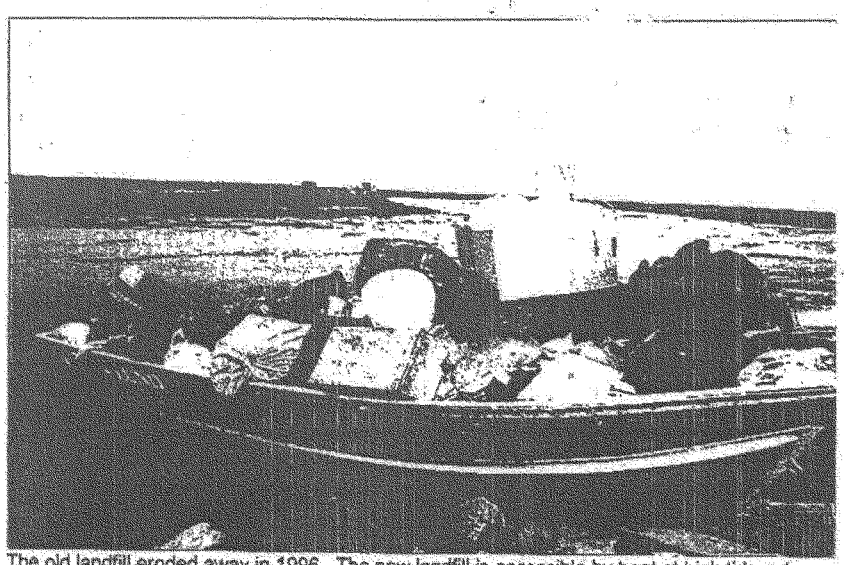




Aging and deteriorating fuel tanks



Remains of barge landing



The old landfill eroded away in 1996. The new landfill is accessible by boat at high tide only

What We are Now Doing: the Newtok Planning Group
In late spring 2006, representatives from State and Federal agencies and regional organizations began meeting to identify agency resources and to establish an overall strategy to assist with Newtok's relocation. The Newtok Traditional Council and Newtok Native Corporation are active members of the Newtok Planning Group. The Division of Community & Regional Affairs (DCRA) within the Department of Commerce, Community and Economic Development (DCCED) is facilitating this group.

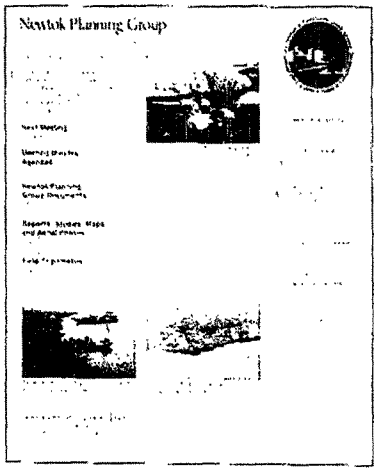
This effort has been dependant voluntary cooperation of participating agencies. No state or federal agency has the authority to serve as the lead coordinating agency for village relocation. The Newtok Planning Group has been making slow but steady progress, however the "patchwork" approach to funding may not address all our relocation needs.

The Newtok Planning Group is focusing on two primary efforts to assist us:

- Addressing the community's ***short-term needs*** at the existing village and critical infrastructure needs at the new village site.
- Addressing the community's ***long-term relocation planning needs*** through the development of a comprehensive relocation planning strategy, including overall project management.

Some of the ways in which the Newtok Planning Group has collaborated to date include:

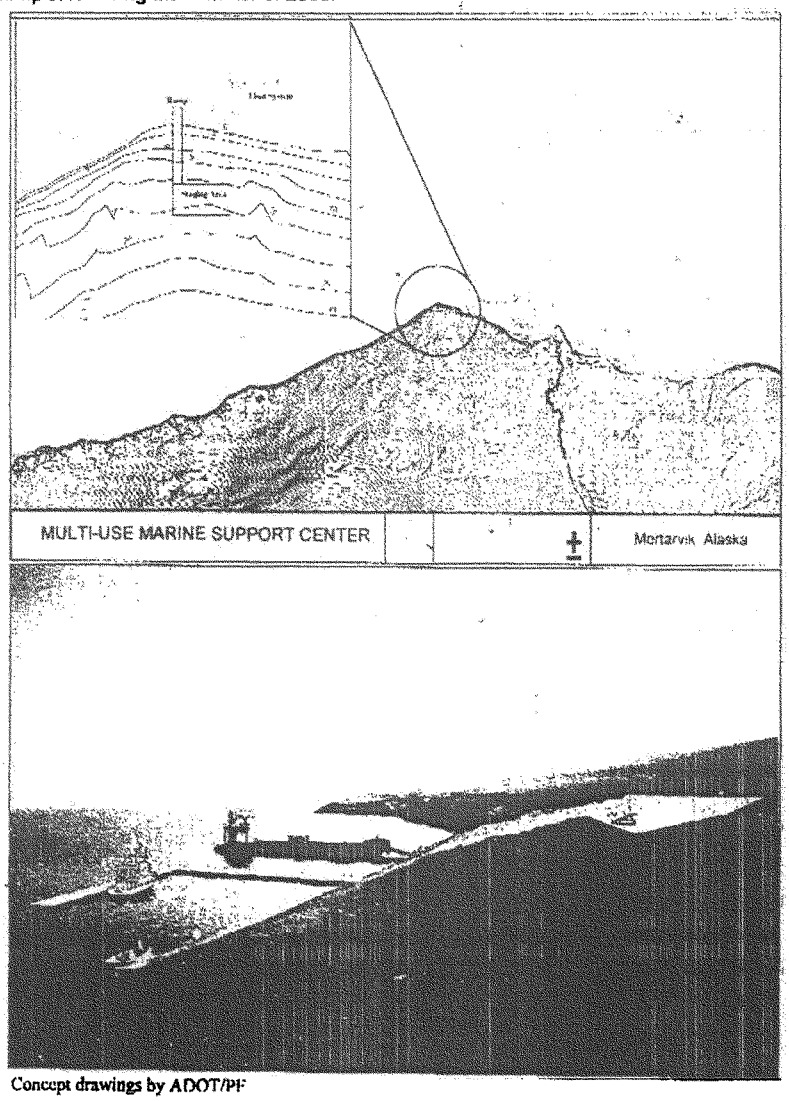
- Identification and assessment of the resources each agency can provide to Newtok in an effort to find areas of collaboration, potential cost sharing, gaps in funding, and to avoid potential conflicts in relocation activities.
- Development of a relocation planning schedule, to provide a framework for relocation efforts and to keep agencies informed of relocation activities
- Development of an RFP for a Strategic Management Plan for the comprehensive relocation effort.
- Creation of a website that serves as a clearinghouse for reports, studies and Newtok Planning Group (NPG) updates: http://www.commerce.state.ak.us/dca/planning/Newtok_Planning_Group_Webpage.htm



Recent products of the Newtok Planning Group's efforts include the following:

Funding for Barge Facility at New Village Site: The Department of Commerce, Community and Economic Development helped us with a grant application for Investment Assistance to the U.S. Department of Commerce, Economic Development Administration (EDA). This resulted in the $800,000 award for design and construction of a Multi-Use Marine Support Facility (barge

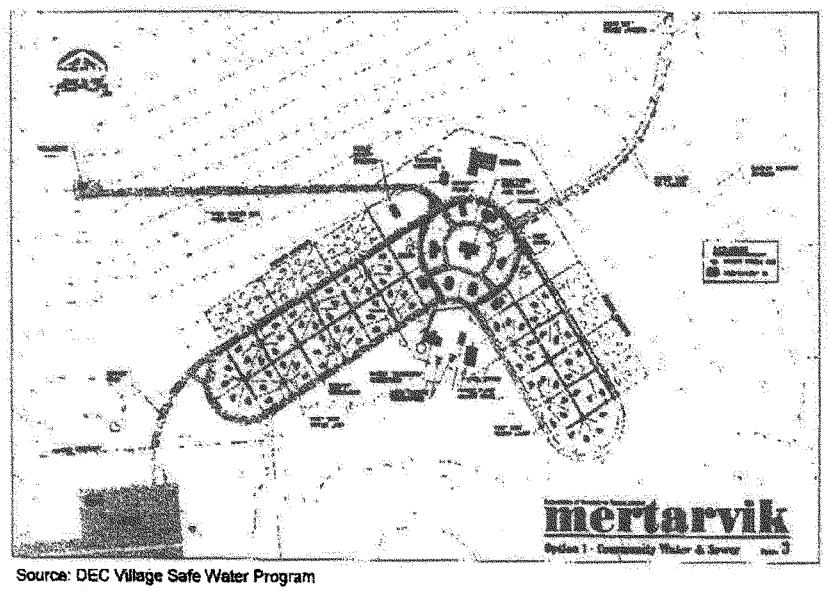
ramp, dock and staging area). The Alaska District Corps of Engineers and the Department of Transportation and Public Facilities (DOT/PF) provided assistance on the application. The DOT/PF is providing the $200,000 local match for the $1 million project. The barge landing is a critical first step in developing the new village site as the facility will provide for the delivery of equipment and construction materials to Mertarvik. Construction of the facility is expected to be completed during the summer of 2008.



Concept drawings by ADOT/PF

Funding for Community Planning at the New Village Site: the Department of Commerce, Community and Economic Development Division of Community & Regional Affairs (DCRA) provided technical assistance to the Newtok Traditional Council in its application for a Mini-Grant for the development of a community layout plan for the new village site. The Traditional Council was awarded a Mini-Grant (funded by Denali Commission and administered by DCRA) of $30,000 for development of a community layout plan for new village site. The community layout plan will guide the efficient and orderly development of Mertarvik.

Preliminary Layout of Water/Sewer Infrastructure: the Department of Environmental Conservation's Village Safe Water Program has developed preliminary community layouts identifying water/sewer infrastructure at the new village site. The alternative selected by the community is based on sustainable water and sewer systems. The piped sewer system would be operated by gravity flow and would not require lift stations to pipe sewage to the lagoon. The community planning effort funded by the Mini-Grant will be base on these water/sewer layouts.



Source: DEC Village Safe Water Program

Water Source Investigations: This spring, the Village Safe Water Program just completed investigations at Mertarvik to locate a source for the new village water supply.

Geotechnical Studies: This summer, the Corps of Engineers completed geotechnical drilling at the new village site. The DOT/PF recently received approval for a grant for geotechnical investigations for an airport at the new village site.

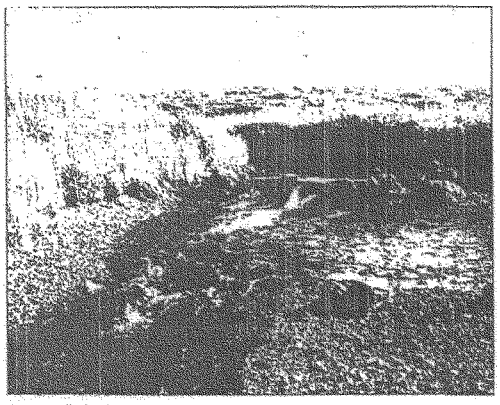
Fisheries Support Center: The Coastal Villages Region Fund plans to build a fisheries support center at Mertarvik in the future. The fishery support center will consist of an area for boat and net repair, office space, bunk space, and storage space for fishery operations in the community.

Mertarvik: Getting Water from the Spring

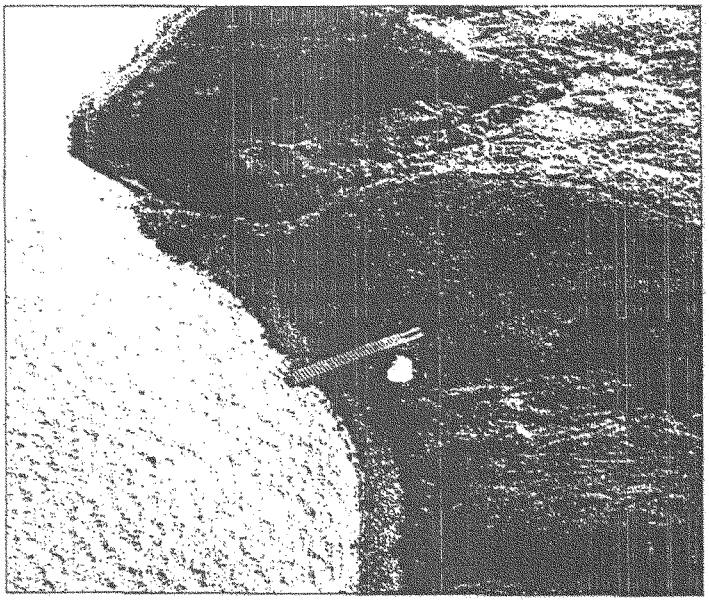
In 2006, Newtok residents were awarded three Bureau of Indian Affairs (BIA) Housing Improvement Program (HIP) homes to build at Mertarvik.

In preparation for the barge delivery, village residents built a temporary barge ramp for the delivery of the housing packages to Mertarvik.

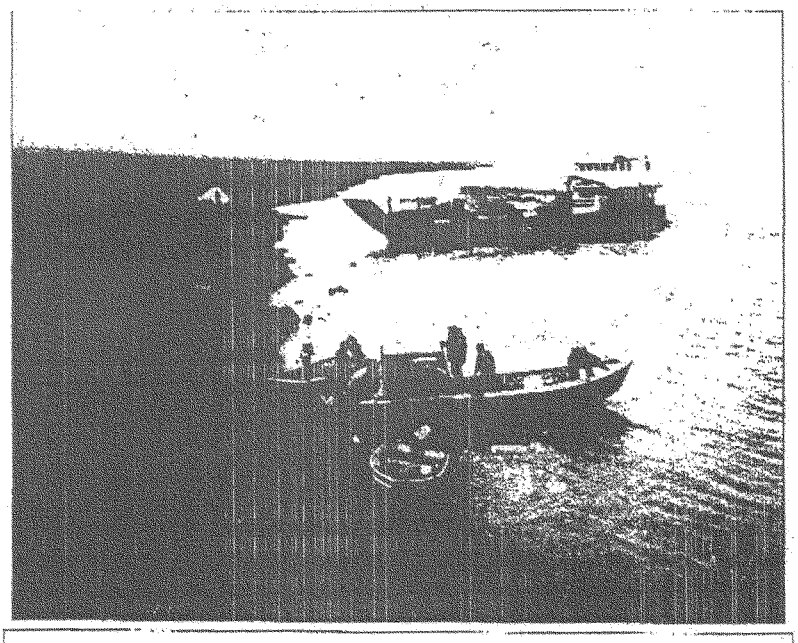
In September 2006, a barge company was able to deliver the homes to the new site with the help of village residents. A work party of Newtok residents met the landing craft at Mertarvik, disassembled the housing packages on the landing craft and carried the housing materials to shore. Construction of the three homes is nearly complete. The homes will be moved to the location of the new village once community planning and basic infrastructure is complete.

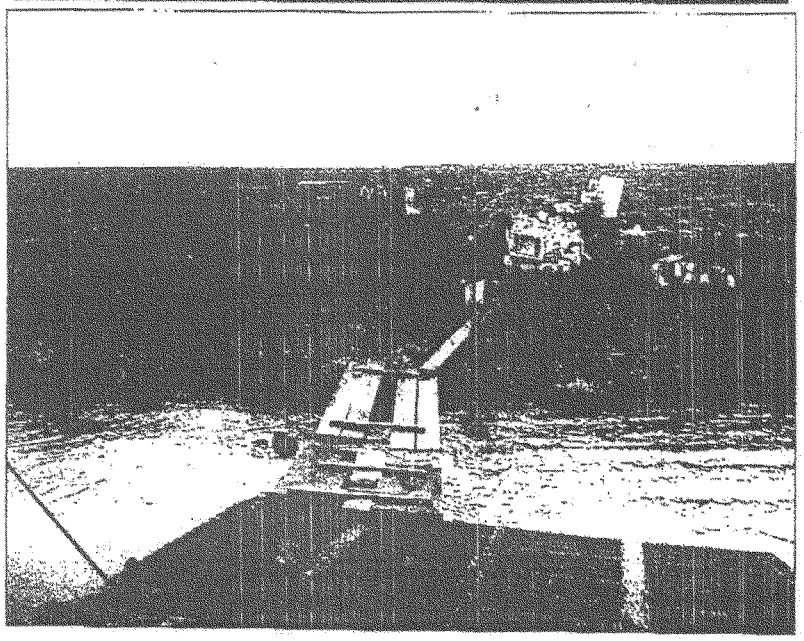


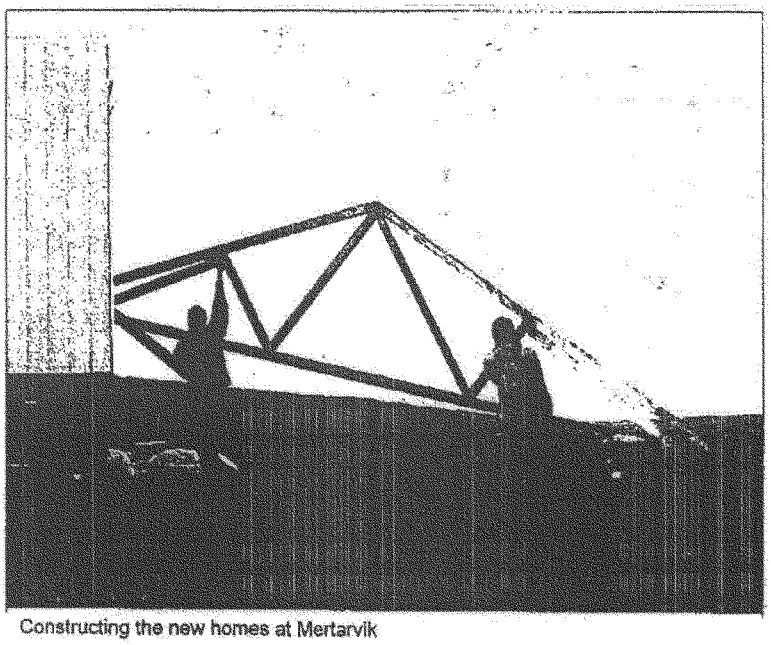
Mertarvik Spring



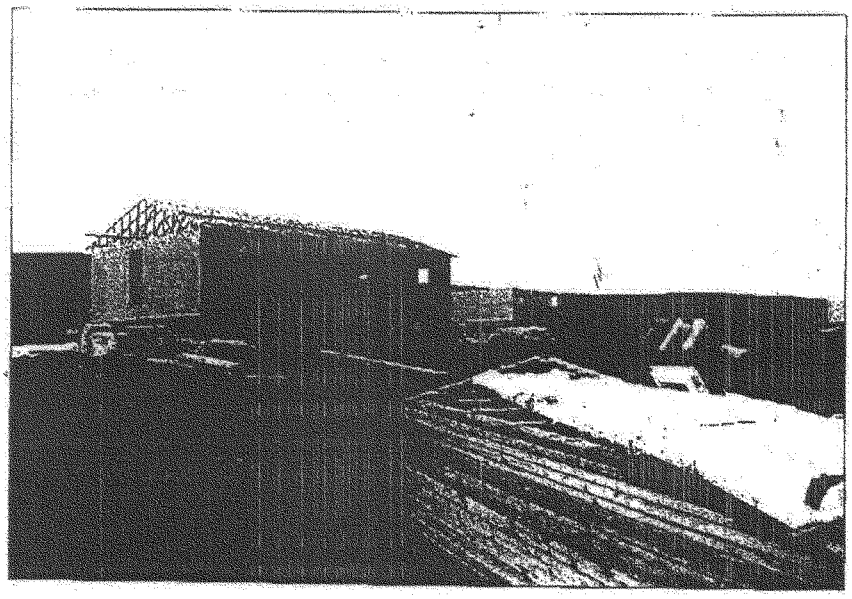
The barge ramp built by Newtok residents. Mertarvik spring flows near the top of the photo.







Constructing the new homes at Mertarvik



TESTIMONY OF
THE SHISHMAREF EROSION AND RELOCATION COALITION
BEFORE THE COMMITTEE ON
Homeland Security and Governmental Affairs
Sub Committee on Disaster Recovery
OF THE UNITED STATES SENATE
October 11, 2007
HEARING ON
"The State and Federal Response to Storm Damage and Erosion in Alaska's Coastal Villages"

Presented by Tony A. Weyiouanna Sr.
Kawerak Transportation Planner and Technical Staff Assistant to the Shishmaref Erosion and Relocation Coalition
P.O. Box 72100
Shishmaref, Alaska 99772
(907) 649-2289, Fax (907) 649-4461

The Shishmaref Erosion and Relocation Coalition would like to thank you for this opportunity to testify before you today. I am Tony A. Weyiouanna Sr. - Transportation Planner for Kawerak, Inc. providing staff assistance to the Coalition and a member of the Relocation Coalition. The Shishmaref Erosion and Relocation Coalition, made up of the governing bodies of the Native Village of Shishmaref (the federally recognized tribe), City of Shishmaref, and the Shishmaref Native Corporation. I have provided for you today a packet of additional information, photos and a video file of storm footage of the November 2003 storm in Shishmaref available for downloading at the Coalition's web site at http://www.shishmarefrelocation.com/index.html.

We value the working relationship that we have developed with Congressional and State Representatives, agencies and different non-profit organizations and look forward to the continued progress of relocating our community with your continued support. We understand that the complete relocation of our community to the mainland can take another 5-10 years if funding is appropriated.

Alaska Coastal Erosion and authorized under Section 117 of Division C, Public Law 108-447. This allows 100% Federal funding for the most cost effective solution that satisfies the requirements of the law, providing funds are available. Section 117 states, "*Notwithstanding any other provision of law, the Secretary of the Army is authorized to carry out, at full Federal expense, structural and non-structural projects for storm damage prevention and reduction, coastal erosion, and ice and glacial damage in Alaska, including relocation of affected communities and construction of replacement facilities.*"

I plan to address three main points that are important to the community of Shishmaref. They are: (I.) relocation of the community to the mainland; (II.) projects completed to date and effectiveness; and (III.) recommended projects to help move the relocation project forward.

I. The Shishmaref Erosion and Relocation Coalition honorably request your assistance in both funding and technical support from the State and federal government for the expedited relocation and beach front protection of our community. We also are asking the State of Alaska to assist our community in this project and will work with the State representatives to find ways to fund the relocation project for Shishmaref. We respectfully request **that the State of Alaska and Congress authorize and appropriate funds for the near term protection of our existing community while we prepare for a move and for relocation to a new site at Tin Creek under a pilot joint Federal-State-local coordinated project.**

II. We have completed the following projects regarding flooding and erosion, and the relocation project since 2001:

1. 2001 Formation of the Erosion and Relocation Coalition consisting of the City Council of Shishmaref, IRA council and of the Board of directors of Shishmaref Native Corporation to work on a solution to the ongoing beach erosion and to represent the community in all activities associated with the relocation to the mainland. This Coalition group is still being used today and has been beneficial to the project for the community.
2. 2001 Kawerak funded the Nayokpuk Stores' beach front protection project- 101' gabion project. $36,000.00, Project protected thee tanks until they were replaced by Alaska Village Electric Cooperative (AVEC) through funding from the Denali Commission.
3. 2001 USDA-NRCS started evaluation of 11 potential relocation sites identified by the Coalition. Project completed, two sites recommended by NRCS for relocation site consideration, Tin Creek and West Tin Creek, Tin Creek site ultimately selected on December 12, 2006 as the relocation site for the community.
4. 2001 A storm prompted Governor Tony Knowles to appropriate $110,000 to complete placing sand-filled gabions along the worst hit shoreline. Single-line gabions constructed- approximately 1200' feet of temporary protection. Held for only one storm.
5. 2002 Shishmaref completed Strategic relocation plan. State mitigation funds provided- $50,000.00. Kawerak Transportation also provided assistance. Plan still being used and in place; updating of plan to be made by the Coalition.
6. 2002 On July 10th Shishmaref voted to relocate to the mainland by a City of Shishmaref sponsored vote July 19, 2002, realizing that the relocation could take 15 to 20 years to accomplish. The Coalition is currently working towards relocation as decided by the vote based on community consensus.
7. 2002 October- Senator Stevens calls for GAO study of villages experiencing flooding and erosion. Delegation from Shishmaref testified at the hearing in Anchorage-June 2004. The Coalition requested that

Shishmaref be a community involved with the study and provided information to the GAO. We were happy that we were able to assist in this project.

8. 2002 AVEC/Denali Commission constructed replacement bulk fuel tanks for the Nayokpuk General store. The rest of the community bulk fuel tanks also need replacement.
9. 2002 USDA-NRCS recommended 5 potential sites for further studies.
10. 2003 USDA-NRCS Reconnaissance Study done" Shishmaref Site Analysis for Potential Emergency and Evacuation and Relocation sites. In this report, NRCS recommends, based on the team's evaluation that Shishmaref relocate to the Southwest site, West Nantuq, with Igloot being the second choice of the team.
11. 2003 GAO report to Congress completed December 2003. This report confirms that Alaskan villages are encountering flooding and erosion and 186 villages are affected by this. Shishmaref was identified as one of the top four communities most affected by flooding and erosion that need to be relocated to a safe place away from flooding and erosion. 18 of our 20 villages in the Bering Straits Region are being affected by flooding and erosion.
12. 2004 Army Corps of Engineers Partnership Program Project funded $1m for a Cost of Alternatives for the relocation of Shishmaref. This study includes the Cultural impacts and subsistence use by the residents of Shishmaref. Study completed. Options for the community include relocating to a nearby location on the mainland at a cost of $180m, staying in place- $110m, Collocating to Nome-$93m and collocating to Kotzebue- $141m. Of the four alternatives identified by the Army Corps of Engineers, the community stands by its' decision to relocate to Tin Creek nearby the existing site of Shishmaref to keep its' unique, 4000 year old Traditional lifestyle intact.
13. 2004 Army Corps of Engineers completed a Design Analysis for emergency shelters on the mainland for Shishmaref. The Coalition has requested for funding from Congress to construct these emergency shelters at the relocation site.
14. 2004 five sites researched by USDA-NRCS narrowed down to two sites- Tin Creek and West Tin Creek. Tin Creek site being the better of the two based on space availability and potential for having more options for infrastructure development.
15. 200' Kawerak rip rap seawall constructed along the west end of town funded through the BIA/IRR roads program at a cost of $2.2m.
16. 2005 Further construction of rip rap seawall by the City and the Army Corps of Engineers of Engineers. Legislative funding $2.45m and the federal funding $1.5m through the Army Corps of Engineers of Engineers Section 14 program.

17. USDA-NRCS completed depth sounding of port and gravel fill needs for Tin Creek. Report given to Coalition January 2006. Report is preliminary and needs further assessment.
18. 2005 Funding received by the Army Corps of Engineers of Engineers for the full design of beach front protection to be completed by the end of the year.
19. 2005 Funding received in the Transportation bill to start construction of the relocation road. - $4.25mm appropriated by Congress in SAFETEA-LU and $500,000.00 match requirement obtained through the State Legislature. The Reconnaissance study is to be started in the late fall 2007 by ADOT and Kawerak Inc., with an estimated $1.5m to be left over for construction. Once project construction starts, Kawerak, Inc. will consider partnering with ADOT to help with project funding.
20. 2006 Army Corps of Engineers completed "Section 117 Shoreline Erosion Protection, Shishmaref, Alaska Technical Report, Environmental Assessment and Finding of no Significant Impact" - An examination of erosion issues in Shishmaref (not you have the " in the right place?0. This report states that 3,400' of beach needs protection; if the rest of the beach is not protected similar to the BSSD project, the rest of the community will be jeopardized by the flooding and erosion. Based on aerial comparisons of photos, we are losing 8.9' of shoreline per year. Since 2001 we have been taking measurements and based on these actual measurements we are losing an average of 22.6' of shoreline per year. No findings of negative impacts were found and the Army Corps of Engineers recommend that we move forward with the proposed project to construct additional rock seawall in Shishmaref. The FY 2008 Presidents Budget contains $1 million for the Tribal Partnership nationwide, and nothing for the Alaska Coastal Erosion work. At Shishmaref, there is 700 additional feet of revetment that is designed and is ready for construction at a cost of $7.5 million. This work can be incremented into a $5 million base amount with $2.5 million in options. The estimated cost to complete the authorized shore revetment is $25 million (includes the FY 08 capability)
21. 2006 Army Corps of Engineers completed the examination of Erosion issues of the following villages- Bethel, Dillingham, Kaktovik, Kivilina, Newtok, Shishmaref and Unalakleet, the report is entitled "Alaska Village Erosion Technical Assistance Program". This report highlights the Army Corps of Engineers assistance they have provided to these communities listed through their Tribal Partnership Program. In this report they mentioned that Shishmaref needs help in constructing more revetments to protect the community from flooding and erosion and that the Army Corps of Engineers is ready to provide assistance to our community.
22. 2006 Construction of the City of Shishmaref HUD project constructing 297' of HESCO baskets funded by HUD ($500,000.00) and the City of Shishmaref (300,000.00) - $800,000.00 project. Project served

its purpose for a year and is currently being replaced with rip-rap by the Army Corps of Engineers project.

23. 2006 Public meeting in Shishmaref held. Coalition to have work sessions to consider the relocation sites for recommendation to the community for selection. Decision made by the community to ratify the Tin Creek location as the new relocation site during a public meeting on December 12, 2006.
24. 2007 $6,500,000.00 received by the Army Corps of Engineers for seawall construction for Shishmaref through the Army Corps of Engineers Section 117 program.
25. Started the Reconnaissance Study for the Gravel haul/ Relocation road. The new airport master plan development also is in process by ADOT. The wind study data collection for the new airport at Tin Creek is scheduled to get started this coming winter 2008. This project will gather two years of wind data to determine whether or not a cross wind runway is needed and the data collected can also be used to determine whether or not wind generation is feasible at the new site. The airport wind study is a part of the Airport Master Plan Development project for the new site of Shishmaref. The first community meeting was held here in Shishmaref on October 1, 2007 by ADOT and was the first step in the project.

III. Recommended projects to help move the relocation project forward:

1. That funding to the Shishmaref Erosion and Relocation Coalition for administrative capacity building, comprehensive relocation planning and technical assistance funding of our office here to ensure that the relocation of our community is completed in the most effective, efficient and suited for the traditional values of our community. We request funding in the amount of $950,818.00 for the first year funding and $1,100,000.00 per year until the relocation of our community is completed. Local coordination for the relocation project is essential; if we are to be successful. This is an extremely complicated venture and the people of Shishmaref need help planning for many more generations of our unique subsistence lifestyle. We have been established here for the past 4,000 years and have passed on our traditions and culture from generation to generation and are not about to give up our unique and inherent lifestyle that we continue to enjoy today.
2. Authorize and appropriate $30 million to the United States (Department of Transportation) as a project in the coming year's Appropriations budget for the construction of a 21 mile long road from Tin Creek to Ear Mountain, a rock and gravel source. The SAFETEA-LU bill passed by Congress in 2005 provided seed funding in the amount of $4.25m for the start of the construction of this road, but is only enough to get the reconnaissance study done for the road. Funds are desperately needed for the complete construction of this project. Currently, the Alaska Department of Transportation has started the process of the reconnaissance study for the road and has targeted the fall of 2008 for completion of this study. Kawerak Inc. For the Native Village of Shishmaref, identified in the Long Range

Transportation Plan to the Bureau of Indian Affairs Inventory of Roads Program (BIA-IRR) the need to construct this road and has been approved by the BIA-IRR program and is an eligible project to move to the construction phase once funding is provided to Kawerak, Inc.

3. Continued seawall funding to complete project, the Army Corps of Engineers has identified an additional $25m is needed to complete this project. The FY 2008 Presidents Budget contains $1 million for the Tribal Partnership nationwide, and nothing for the Alaska Coastal Erosion work. At Shishmaref, there is 700 additional feet of revetment that is designed and is ready for construction at a cost of $7.5 million. This work can be incremented into a $5 million base amount with $2.5 million in options. The estimated cost to complete the authorized shore revetment is $25 million (includes the FY 08 capability
4. Authorize and appropriate $5 million for the construction of emergency evacuation shelters on the mainland for the community of Shishmaref. Once again, The Army Corps of Engineers has provided a Design Analysis for the emergency shelters and are aware that constructing these shelters is vital for the safety of our community. An alternative design for smaller modules, which can be used as family housing, is included in the attachment summary.
5. That Congress authorizes the National Park Service to dedicate a public roadway easement for an access corridor across the Bering Land Bridge to provide access to Ear Mountain (gravel source) to the community of Shishmaref without the requirement of a land exchange with our local Native Corporation.
6. The Native Village of Shishmaref council is the legal remnant of the Native traditional government who are organized and recognized as a tribal government under the Indian Reorganization Act of 1934. The Native Village of Shishmaref is organized as a public non-profit recognized by the federal government. With programs ranging from education to housing, and natural resource management to economic development, with the assistance of Kawerak, Inc. our regional non-profit, The Native Village of Shishmaref also seeks to improve the Region's social, economic, educational, cultural and political conditions.
7. In addition, Kawerak Inc. is the Regional non-profit established to serve the Native Villages in the Bering Straits region and has the capability to compact the federal programs under 638 compacting and is an authorized participant with P.L. 102-477 programs.
8. We recommend that consideration be given to identifying, tasking and funding an appropriate entity (e.g. Denali Commission or the Corps of Engineers) to take the federal lead to provide leadership and additional assistance to communities in Alaska needing relocation and flooding assistance.
9. Lastly, we would like to thank Governor Sarah Palin her leadership in setting up the Climate Change Sub-Cabinet. We hope that this will help the

process in getting more assistance from the State of Alaska to communities like ours and others to get more constructive assistance in the future.

In conclusion, we understand that other communities are faced with the similar problems as we are here in Shishmaref and also are working to relocate their communities. Shishmaref has tasked the Shishmaref Erosion and Relocation Coalition to advocate for funding and coordination of the erosion and relocation project by forming the Coalition in 2001 and to move forward by consensus of the community. Since then, we have worked for the best possible solution for the community of Shishmaref and express our community's desire to move forward with the relocation project by presenting to you, our respected elected State and federal representatives our request for funding of the relocation project. We appreciate your support in working to reestablish Shishmaref to a site on the mainland safe from the dangers of being washed away and to exist as one people continuing to enjoy our unique subsistence lifestyle. We, as American people, deserve the attention and help of our fellow Americans.

Once again, I would like to thank you for giving me the opportunity to testify regarding our flooding, erosion and relocation projects in my home Shishmaref.

Beach Front Protection- Corps Section 117 request

Shishmaref's shoreline erosion is past the critical level. During the federally declared storm of October 18-20, 2004 Shishmaref lost as much as 52 linear feet from the edge of pre-storm bluff edge inland. Four homes were evacuated and the teacher's housing was severely undermined. The community's recently constructed 450' armor rock seawall did its job; however, those critical areas not protected, approximately 3000', have lost even more of the protective permafrost. This includes the road to the landfill and the bluff near the school, homes, tannery, and washeteria. Erosion of the bluff continues to march towards the community's airport. Our recommendation is to construct a low maintenance durable seawall that will provide protection to the critical areas so that the community will have the time required for an orderly move to the mainland. We believe this can be accomplished using either the existing designs developed by either Kawerak or the Corps. To accomplish what is needed for the community, the Corps needs to be given not only the authority to protect private as well as public property; we urge that the appropriation provide full federal funding. The only protection of our shoreline is the permafrost, and it is increasingly vulnerable to even minor, silent storms. We recognize that relocation will take several years and building infrastructure will continue for many years after that. Our expedited local plan for relocation anticipates relocation to occur by 2009 therefore, we need some form of intervention to buy time The problem is that we can only piecemeal our efforts by the limited funding available to the respective programs unless funding is mandated to address this problem such as funding through the Corps Section 117 Program with 100% federal funding. A seawall project is moving forward for construction this coming summer with funding from the following authority:

Shishmaref Erosion and Relocation Coalition Administrative Capacity Funds

Now that the community has identified a new community site, we are moving forward with relocation planning. Shishmaref does not have the administrative capacity to facilitate such a massive effort without additional funds and technical assistance. Kawerak, Inc. provides staff support and facilitation but is limited to the transportation components of the relocation. The community needs financial assistance to coordinate the successful move thus makes a request to fund this component of the project with the assistance of our Congressional delegation.

Gravel Access Road and Public Access Easement

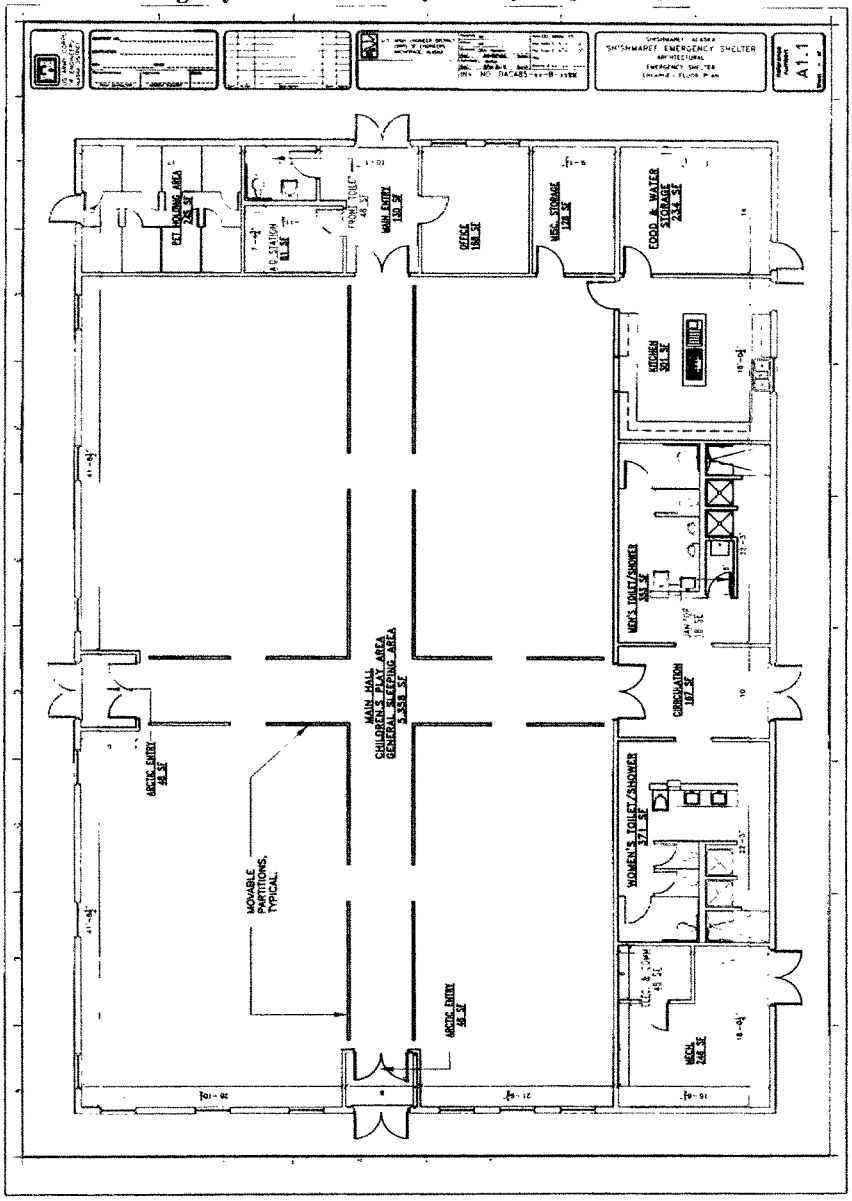
Ear Mountain, 26 miles south of Shishmaref, has been identified as a viable site to mine both armor rock and gravel. Future erosion protection and village relocation, as well as the development of this site are viewed as beneficial not only to the community but also to the region. Access to this site through the construction of a road is vital and timely. This proposed route will require an easement across the Bering Land Bridge Corridor from the National Park Service. The estimated cost for engineering and construction of the road is $36 million. One of the highest costs incurred in the construction of Shishmaref's armor rock projects to date has been the high cost of armor and filter rock that must be barged into the community from Nome. We believe that the development of this road will provide a significant economic benefit to the region as well as providing an alternate lower-cost source for rock and gravel. Kawerak Transportation in 2004 successfully added the relocation road and proposed roads to the BIA Roads inventory

program and will support the construction of this road once full funding is allocated. In 2005, an appropriation by Congress of $4.25m was awarded towards the construction of the relocation road, but is not sufficient to complete construction. We ask that the construction of the relocation road be fully funded for construction in the amount of $36m- Based on $2m per mile cost to construct in the rural areas of Alaska- Kawerak Transportation Program.

Emergency Evacuation Shelter

In the event of a severe storm at Shishmaref, there is no emergency facility for evacuation. The Corps has performed a design analysis for emergency shelters for Shishmaref. The design provides support for up to 100 people. Facilities include provisions for a kitchen, toilets and showers, a first aid room, communications room, offices, children's play and school areas, as well as storage for food, water, cots, blankets, and miscellaneous items. The estimated cost for these two facilities is $5 million. We request assistance to build two emergency evacuation buildings at Tin Creek Relocation Site. A structure that would be the command center and provide room for school, offices, clinic, and warehouse for emergency supplies is desperately needed. A massive evacuation of Shishmaref's population could not be absorbed long-term by the surrounding communities. We also request that the community be provided with a safe mode of marine transportation to move people from the island in the event that evacuation becomes necessary. We believe that a surplus military marine people mover would be the safest way to move members of the community during a storm event.

Emergency Shelter –Drawn by Armory Corps of Engineers



BERING STRAITS NATIVE CORPORATION

5 March 2003

Karen Sinnok, Chairperson
Shishmaref Erosion and Relocation Coalition
P.O. Box 72100
Shishmaref, Alaska 99772

Dear Ms. Sinnok,

Thank you for your letter of February 13, 2003 addressed to our Chairman, Henry Ivanoff, regarding your request for approval for possibly developing Ear Mountain as a gravel source.

We understand your community's desire to find a solution to the erosion problems on your island, so we heartily give you approval to pursue Ear Mountain as a gravel source. At this point, my approval as the President is sufficient for your needs. If the actual usage of Ear Mountain as a gravel source is imminent, then we would need to develop some type of an agreement to allow usage of Ear Mountain as a gravel source that would be approved by our Board of Directors.

You are on the right track to discuss access to Ear Mountain since you would need to cross National Park Service owned land you referenced. Their approval for crossing their lands is vital, so good luck.

With regards to your planning meeting, the month of April would be preferable to BSNC. Depending on the agenda topics, we might send someone to participate in your meeting.

Thank you for your interest in developing a portion of our property in our region. We wish you well in your coalition's efforts.

Sincerely,

Tim Towarak
President/CEO

Alaska Building Performance Specialists
John Woodward President
PO Box 3407, Homer AK 99603
Ph 800 301 5349
Fax 866 480 8162
E-mail panuktuk@yahoo.com

Outside Insulation Technique Home
Project Overview

Premature building degradation as a result of moisture problems and high operating costs resulting from inefficient designs, are pressing problems for both agencies and homeowners in Alaska, especially because of the rising costs of both energy and building materials. The Outside Insulation Technique was created to answer inherent deficiencies in conventional cold climate building construction.

The Architectural and Engineering for this OIT project were done at my request by Building Science Corp, the premier A & E Firm in America today, as a project home for US Department of Energy, Building America Program. There are several innovative features to this particular design that advance it beyond prior evolutions.

In conventional cold climate construction the thermal envelope that separates the conditioned heated space inside the home from the outside is composed of the air/vapor barrier, the insulation and the outside air barrier. To work properly this envelope has to be continuous, contiguous, and complete. It is easy to see that this is an impossible task when insulation is placed in cavities separated by framing members that go all the way through the envelope from the inside to the out.

Think of a sleeping bag outside in -20F. Replace 20% of the insulation with boards. You will be uncomfortable, and your body will have to make more heat to replace what is being lost through the inefficient shell. The problem is compounded if electrical wiring, electrical boxes, or heat supply and return are used to replace more of the insulation in the exterior framing, further reducing resistance to the flow of heat out of the building.

A more sinister problem occurs when holes are cut into the air/vapor barrier to allow access to plug-ins and switches. In a cold climate like Alaska, insulating only exterior cavities means the dew-point temperature is always located inside the structural part of the building in the heating season. Warm air leaking into cold cavities will condense the vapor moisture it holds into liquid water when that air comes in contact with a surface colder than the dew-point temperature.

If this bulk water is trapped against or between framing, or framing and sheathing in structural cavities, and accumulates beyond the safe moisture holding capacity of the wood, it causes framing members to rot resulting in structural failures.

In one piece conventional wall construction the same thing occurs at weather leaks of bulk moisture through the cladding and door and window penetrations.

Structural Insulated Panel systems can eliminate the thermal bridging problem, however they come with a substantial drawback; The insulation is still contained within the structural part of the building. Therefore, in the heating and swing seasons the dew-point temperature occurs within the structural part of the building. Common problems in panel buildings are rotted roofs, delaminated floors, and frost jacking causing structural failure of wall and roof systems.

As the wood and other organics rot in any building, chemicals and particles released from the manufactured products, and mold spores from the destructive molds consuming the home are released into the breathing zone of the occupants, resulting in respiratory disease.

Putting the insulation in cavities in the floor and walls means the thicker the insulation the more wood required to bed it. In attics, large amounts of insulation require an arctic heel on truss designs driving costs up. The whole premise of having an attic space outside the useable space of the home is to house the insulation. What a waste of expensive space.

In addition the whole attic is a cold intermediate zone located at the top of the structure. Picture a hot air balloon inside your home pushing against the ceiling to get out. Holes in the barrier between ceiling and attic allow warm air to rise into the attic where vapor condenses into liquid, is trapped and begins the process of decay.

Just the concept of allowing framing members to span from inside the thermal envelope to outside is bad. This condition known as thermal bridging has several drawbacks. Heat goes to cold, so a framing member exposed to cold temperatures at the outside of the structure and warm temperatures inside quickly carries heat out of the structure. This is apparent when walking down the street in cold temperatures in almost any neighborhood in Alaska. Soon you will see a home where all the framing is outlined on the outside of the building like it was drawn with a pencil. This is where the heat from the inside of the building is being pumped through the framing to the outside, melting away the thin layer of frost on the cladding.

On the inside of the home at these spots you may see telegraphing, or premature staining marking the thermal bridging. The staining is caused by aerosol particles which are constantly bombarded by air molecules at higher velocity on the warm side than on the cold side. As a consequence the particles are pushed toward the wall or other cold surface where they are finally deposited, the colder the surface, the higher the rate of dirt deposition.

When the surface temperature is sufficiently low, a water molecule striking the system remains stuck on it and condensation occurs.

Wherever moisture accumulates on organic materials and the system is not designed to dry, rot occurs. When rot occurs in building components, buildings become unhealthy places to live and work. If rot is allowed to progress in structural components, failure results.

For this system to work even moderately well, the insulation has to be installed perfectly, the air/vapor barrier has to be perfect, window and door installations have to be perfectly sealed and the seal must be maintained over the lifetime of the building. Most homes and light commercial construction built to these standards in a cold climate have a useful lifespan of less than 30 years, a high maintenance load, and provide moderate to poor service.

Now let's take a look at the Outside Insulation Technique. In this technique the thermal envelope of the building is moved outside the structural framing and sheathing. The most common insulation in use for this technique today is rigid foam of varying densities and properties; however this technique can be adapted for use with any insulation of choice.

As soon as the components of the thermal envelope are moved outside the structural part of the building, good things happen, in short:

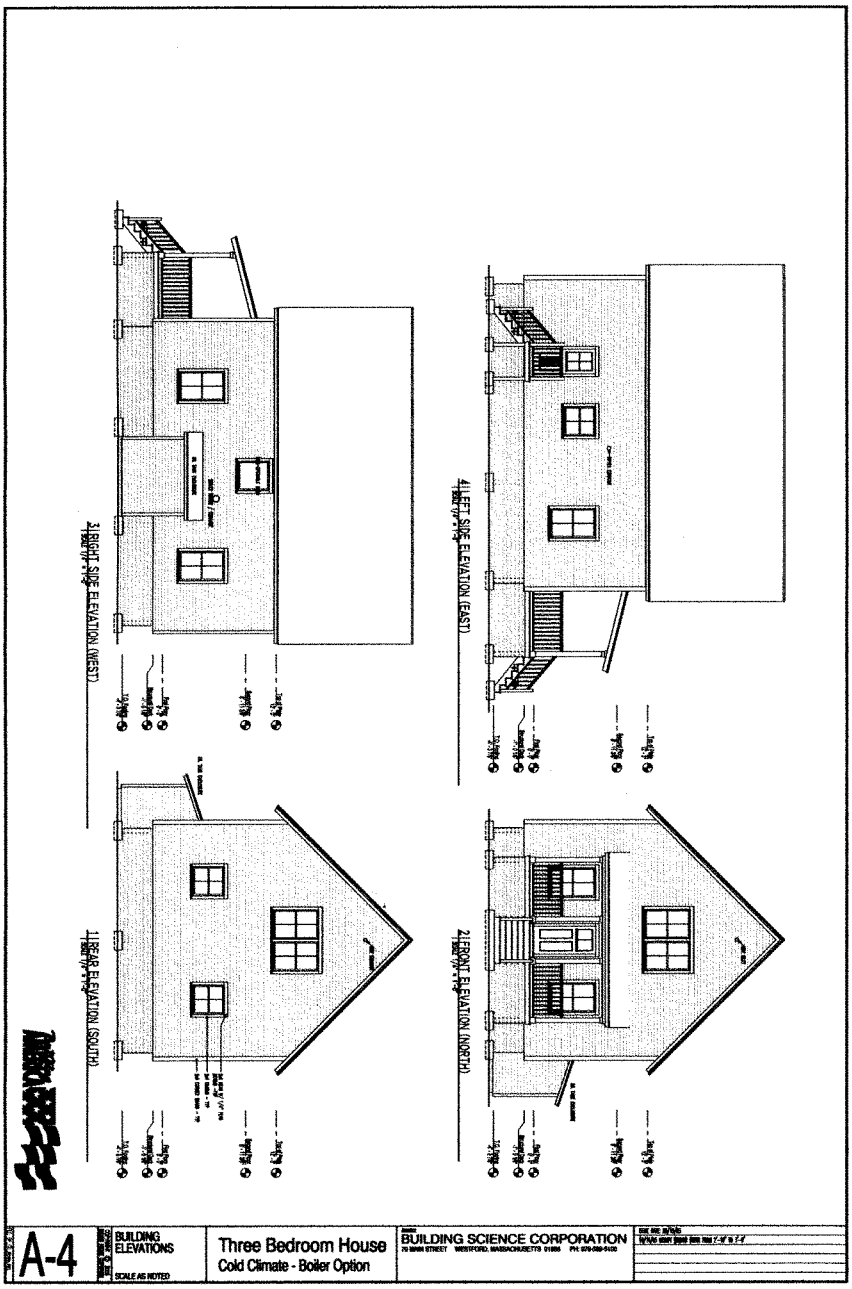
- The structural components of the building are now protected from moisture damage, and remain warm and dry over the lifespan of the building.
- Exterior wall cavities are now available for electrical wiring and boxes without displacing insulation, there is no competition for space.
- There is no interior air/vapor barrier to be damaged or detailed around penetrations such as electrical components.
- Structural framing does not have to increase in size to accommodate large amounts of insulation.
- The insulation can be installed continuously and much more easily on the outside of the building, eliminating cold spots and enhancing installation quality.
- A sealed cold attic is not necessary, the space is now inside the conditioned space of the home and can be used as loft area, or warm dry storage accessible from the inside without causing damage to moisture sensitive areas.
- Thermal bridging is eliminated, and defense against the elements is in depth exterior to the expensive house systems.

This design is a breakthrough in terms of dramatically increasing durability and energy efficiency without increasing costs. The project home is engineered to use approximately $200 of fuel per year at today's prices and cost a total of $127,000 to build in Hydaburg on Prince of Wales Island in early 2006. This project home is scheduled to be featured in Home Energy Magazine in the up coming Jan/Feb issue.

With a Triodetic Foundation, a thermal envelope engineered to the same energy target with added freight costs, costs are estimated at $207,000 for a housing program to build this home in the Bering Strait or Northwest Arctic Regions.

Sincerely,
John Woodward

Project Technical Advisor
Alaska Building Performance Specialists


1 REAR ELEVATION (SOUTH)
1/8" = 1'-0"
2 RIGHT SIDE ELEVATION (WEST)
1/8" = 1'-0"
3 FRONT ELEVATION (NORTH)
1/8" = 1'-0"
4 LEFT SIDE ELEVATION (EAST)
1/8" = 1'-0"
A-4
BUILDING ELEVATIONS
SCALE AS NOTED
Three Bedroom House
Cold Climate - Boiler Option
BUILDING SCIENCE CORPORATION

TRIODETIC

REALITY BY DESIGN

Triodetic Building Products Ltd
John Woodward – Alaska Representative
PO Box 3407, Homer AK 99603
Ph 888 824 5349
Fax 866 485 0084
E-mail jwoodward@triodetic.com

Triodetic MultiPoint Space Frame Foundations

Space Frames were originally developed to provide a strong lightweight frame for solar arrays in space. In the private sector, this technology is commonly used in construction of buildings with designs requiring curvatures, and of large stadium domes.
In 1985, Canada Mortgage and Housing Corporation contracted with Triodetic Building Products Ltd to utilize the space frame in the design of a foundation system that would resist differential settlement and major shifting problems in Northern Housing.

The pilot project took place in Rankin Inlet, North West Territories, Canada. This was a retrofit of an existing home with a failed foundation. The system worked as planned and after extensive monitoring of deflection in the frame, the project was declared a success.

Since that project in 1985, Canada Mortgage and Housing Corp has contracted hundreds of Triodetic Multipoint foundations for housing located on problem soils and permafrost based on the exceptional performance of this foundation system.

The foundation application of the space frame is a three dimensional truss that acts as a floating slab. This geodesic design works by providing a rigid framework of tubing which supports the structure and keeps the floor system in plane regardless of ground movement. In the event of a ground subsidence or erosion, the frame bridges over the low spot, and the building remains in plane. The load is transferred to the other bearing base plates and no damage is done. This condition can continue indefinitely, with no change in performance. In the event of a frost heave, the frozen soil will eventually fail around the base plate or plates, and the system will remain in plane. Again, the system is engineered for this condition.

By the late 1980's, foundation failures of post, pad, and beam, and piling foundation systems in Alaska had ruined many homes and businesses, prompted class action lawsuits, and alarmed many in the building community in Alaska. Myself, and other Building Science practitioners in Alaska, who were aware of the Triodetic success with their MultiPoint foundation system in Canada, worked with Canadian counterparts from Canada's R-2000 Program to bring the system to the attention of Alaska Housing Finance Corporation, eventually brokering a deal for a pilot project.

In 1994 Triodetic contracted with AHFC to provide three MultiPoint Foundations for a pilot residential housing project in Alaska. One frame in Bethel was for new home construction, and the other two were retrofits of existing homes with failed conventional foundations in Fairbanks and Hooper Bay. These frames were monitored by the AHFC Engineering Department and installed and performed as expected.

Based on these initial successes, in 1995 AHFC contracted for 34 more MultiPoint foundations for new housing located on discontinuous permafrost at

TRIODETIC

REALITY BY DESIGN

Beringvue Subd, in Nome. Ten years later AHFC had the homes re-leveled. No differential settlement, wracking or twisting of the structures was observed. The frames are performing as expected, and AHFC is very satisfied with the performance of all Triodetic frames they own.

Around 1994, the village of Allakaket suffered flooding from the Koyukuk River with many homes damaged or threatened. I contacted ADES and informed them that Triodetic space-frames could be cost effectively retrofitted under these homes, and the new homes could then be pulled up the hill on the new foundations without suffering damage.

This project was successfully concluded. Today there are many more MultiPoint foundations in Allakaket.

Based on this initial success Tony Weyiouanna of the Shishmaref Tribal Council contacted me to help plan and implement the Shishmaref Relocation Project. This was an emergency project funded by ADES and FEMA in the dead of winter in Shishmaref utilizing only hand tools and local equipment to save local homes threatened by the sea. Seven homes were raised and Triodetic foundations retrofitted under them. Giant skis engineered by Triodetic were bolted to the base plates and the homes were towed to their destinations with a small loader at a top speed of 22 mph, fully furnished, with all personal items and appliances inside. I stopped the biggest home (44' x 32' HUD) sideways on the Shishmaref airport road. Due to the crown in the road center only 8' of the skis supporting the foundation was bearing on the road surface. I measured the total deflection in the frame at ¾" in 44'. No wracking or twisting of the home was evident. The door and windows looked and functioned normally.

The Shishmaref Relocation Project averaged 3 days per home to lift the buildings, build the Triodetic foundations under them, & move them to final destination in the dead of winter with hand tools. This project was successfully concluded and valuable lessons were learned.

The Multipoint foundation is performing successfully in Shishmaref as well as in many other communities around Alaska. Clients in Alaska include the National Guard, Housing Authorities, FAA, USPS Post Offices, ANTHC clinics and washeterias, Teacher Housing, Head Start facilities, Community Buildings and many other homes and facilities. We have over 200 installations in Alaska, some of which have been in place for over 10 years.

I am the new representative for Triodetic Building Products Ltd. I am an Alaskan with a thorough understanding of the MultiPoint Foundation system. I have extensive experience with new and retrofit installations in Alaska. I will be distributing the space-frame system and providing customer service throughout Alaska.

Triodetic is highly recommended by CMHC and has won awards for excellence in design both nationally and internationally, including the 2006 AIA Honor Award for Architecture, and the 2007 AIA Rochester Design award.

Sincerely,
John Woodward

Triodetic Building Products Ltd.

US Army Corps
of Engineers
Alaska District

21 September 2007

INFORMATION PAPER

SUBJECT: Shishmaref, Alaska

1. Purpose: To provide information on the status of projects at Shishmaref.

2. Points of Major Interest and Facts.

a. Our major activity at present is a construction project funded under Alaska Coastal Erosion and authorized under Section 117 of Division C, Public Law 108-447. This allows 100% Federal funding for the most cost effective solution that satisfies the requirements of the law, providing funds are available. Section 117 states, "*Notwithstanding any other provision of law, the Secretary of the Army is authorized to carry out, at full Federal expense, structural and non-structural projects for storm damage prevention and reduction, coastal erosion, and ice and glacial damage in Alaska, including relocation of affected communities and construction of replacement facilities.*"

b. The present portion of the authorized work is a 625- foot length of rock revetment that will extend the existing revetments east. An 8(a) sole source contract was awarded to Arrigah JV, which is a subsidiary of Kawerak, Inc. on June 26, 2007 to perform the work by November 15, 2007. Contract cost is $6.6 million. Arrigah has mobilized to Shishmarf; site preparation work has started as well as stone quarrying and barging.

b. Prior work placed a 175 ft. revetment to protect the school quarters building under the Corps' Section 14 authority. This was cost-shared with the Bering Strait School District. Two other existing rock revetments have been placed, one by Kawerak, Inc. and one by the City of Shishmaref, both using force account labor. Last year a HESCO Bastion installation was positioned in the area that our present project is aligned. The Corps rock revetment is designed to cover the older HESCO Bastion project.

c. Environmental studies of the impacts of relocation as compared to collocation with an existing community were performed under the direction of Congress. The comparison indicated that the costs were within the range of comparison, but the Other Social Effects for collocating a subsistence community to another subsistence community were extremely costly. Funds for that work were depleted before the draft report was completed. Authority for performance of a feasibility study under Section 117 authority under Tribal Partnership (Section 203) has been received, pending receipt of funding. However the Tribal Partnership funding allocations to date have been insufficient to start this work.

d. The FY 2008 Presidents Budget contains $1 million for the Tribal Partnership nationwide, and nothing for the Alaska Coastal Erosion work. At Shishmaref, there is 700 additional feet of revetment that is designed and is ready for construction at a cost of $7.5 million. This work can be incremented into a $5 million base amount with $2.5 million in

options. The estimated cost to complete the authorized shore revetment is $25 million (includes the FY 08 capability).

e. David Williams (907) 753-5621 has been the Shishmaref project manager for many years, and Julie Anderson (907 753-5685 is managing this year's construction effort.

3. Congressional Interest. Senator Ted Stevens, Senator Lisa Murkowski and Congressman Don Young all have interest in the subject program.

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Shishmaref

LONG RANGE TRANSPORTATION PLAN

Indian Reservation Roads Program
Number: E04438-SHISHMAREF

Prepared For:

Shishmaref IRA Council
P.O. Box 72110
Shishmaref, Alaska 99772

In Cooperation With:

Kawerak Transportation Program
P.O. Box 948
Nome, Alaska 99762

Prepared By:

Rodney P. Kinney Associates, inc.
Consulting Engineers & Surveyors
16515 Centerfield Drive, Suite 101
Eagle River, Alaska 99577

March 2007

Shishmaref

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March 2007

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EXECUTIVE SUMMARY

On behalf of the Shishmaref IRA Council, Kawerak, Inc. hired Rodney P. Kinney Associates, Inc. (RPKA) to develop a Long Range Transportation Plan. The plan outlines transportation priorities within the community of Shishmaref and its surrounding boundaries, as well as the planning of using funding from Tribal Shares monies allocated by the Bureau of Indian Affairs (BIA) Indian Reservation Roads (IRR) Program.

Kawerak and RPKA collected data from site visits, the Shishmaref IRA Council, the City of Shishmaref, Bering Straits Native Corporation, and the general public. In a collaborative effort the affiliated groups evaluated the village road system, identified transportation needs, discussed alternatives, and prioritized projects. Once the transportation plan is completed it will be available to all organizations involved and the public.

Within the property owned by the City of Shishmaref, the Shishmaref IRA Council, U.S. Federal Lands (BLM), and the Bering Straits Regional Corporation there are approximately 34.8 miles of official BIA roads currently inventoried and 387.1 miles of existing and proposed roadways to be submitted as updated inventory for the village of Shishmaref. Both accepted and updated inventory routes can be reviewed in the Community Roadway Maps in Section 4.2.

The Shishmaref IRA Council analyzed their future transportation goals and prioritized which projects would benefit the community. A prioritized list of long term transportation road projects is listed below:

1. Constructing community streets within Shishmaref's proposed village relocation site (including access route to proposed boat harbor) with the appropriate surface material and dust control additive (a total estimate of $86 million dollars).
2. Constructing proposed subsistence and economic routes listed as updated inventory in Section 4.1 of this report (a total estimate of $1.5 billion dollars).
3. Construct a barge landing and boat harbor facility at the new townsite location (an estimated $7 million dollar project).
4. Provide route staking, navigational upgrades, and signage to inventory routes to improve safety during winter travel, prevent disorientation, and aid in rescue operations (an estimated $100,000 per mile of road to be staked).

The Shishmaref IRA Council and the City developed an updated list of inventory roads that the community feels are needed over the next twenty years. These routes are a necessity for connecting communities, allowing residents access to their lands and resources for economic growth, cultural development, subsistence activities, and most of all enhancing public safety. The updated inventory list can be viewed in Section 4.1.

Development and upgrades to Shishmaref's roads will subsequently increase cultural heritage, improve sustainable economic opportunities, increase employment and self-sufficiency, and encourage collaboration of efforts in various projects and programs. Overall, the goal is to improve the cultural, economic, and social well-being of the community.

INTRODUCTION

Information was collected from tribal staff, the public, the City, and Council members to assess transportation goals for the community of Shishmaref. The data was analyzed and is presented in this transportation plan. Before finalization, the Long Range Transportation Plan was made available to the public for review and comment on February 1, 2007. A copy of the notice is included in Appendix C.

The goal of this transportation plan is to ensure that the improvements and development of roads allow convenient and safe movement throughout Shishmaref's road system. This in turn will provide improved access to subsistence areas, which increases economic and cultural growth. The focus of this report is to identify important transportation routes and prioritize future transportation goals. General information and summarized village history are included to provide context and a brief overview. For more in-depth information about Shishmaref, please visit Kawerak and Bering Straits tribal website at www.kawerak.org/tribalHomePages/index.html.

1.0 GENERAL DESCRIPTION

1.1 Location

Shishmaref is located on Sarichef Island, in the Chukchi Sea, just north of the Bering Straits. It lies at approximately 66.256670° North Latitude and -166.07194° West Longitude (Section 23, T010N, R035W, Kateel River Meridian). Sarichef Island is a barrier island approximately 2.5 miles long and 0.5 miles wide. Shishmaref is five miles from the mainland, 126 miles north of Nome and 100 miles southwest of Kotzebue. The village is surrounded by the 2.6 million-acre Bering Land Bridge National Preserve, which is part of the Beringian National Heritage Park. The nearest hub communities are Nome and Kotzebue. The community is located in the Cape Nome Recording District. For village location see the Road Inventory Maps in Section 4.2 (Figure 1).

1.2 Background

The original Eskimo name for the island is "Kigiktaq." In 1816, Lt. Otto Von Kotzebue named the inlet "Shishmaref," after a member of his crew. Excavations at "Keekiktuk" by archaeologists around 1821 provided evidence of Eskimo habitation from several centuries ago. Shishmaref has an excellent harbor, and around 1900 it became a supply center for gold mining activities to the south. The village was named after the Inlet and a post office was established in 1901. The City government was incorporated in 1969. During October 1997, a severe storm eroded over 30 feet of the north shore, requiring 14 homes and the National Guard Armory to be relocated. Five additional homes were relocated in 2002. Other storms continued to erode the shoreline an average of 3 to 5 feet per year on the north shore. In July 2002, residents voted to relocate the community.

Shishmaref's population is largely Inupiaq Eskimo. The 2005 population of the community totaled 581 (State Demographer), consisting of 94.5% Alaska Native or part Native.

1.3 Infrastructure

The following sections in this report provide a brief overview of the village infrastructure. For more in-depth information about Shishmaref, please visit Kawerak and Bering Straits tribal website at www.kawerak.org/tribalHomePages/index.html.

1.3.1 Transportation

Shishmaref is accessible by air and sea, but its primary link to the rest of Alaska is by air. A State-owned 5,000-foot long by 70-foot wide paved runway is available. Charter and freight services are available from Nome. Most people own boats for trips to the mainland. Other forms of travel to the mainland include snowmachines during the winter months and small boats during the summer months. Travel within the village is either on foot, on snowmachines, or on four-wheel all terrain vehicles. There are a few trucks in the village owned by airline agents, the school, the stores, and private individuals. A dirt/gravel road, which was built by the State of Alaska Department of Transportation and Public Facilities (ADOT&PF), leads from the village to the dump and sewage lagoon. Shishmaref has an excellent natural boat harbor.

1.3.2 Facilities and Utilities

Water is derived from a catch basin on the east side of the island that collects rainwater and snowmelt. It is treated and stored in a tank for both community and washeteria use. In the winter, drinking water is also obtained from ice chopped from ponds on the mainland located on both the east and west sides of the inlet, 5 to 7 miles from Sarichef Island. Other summer water sources include rainwater collected from the roofs, and hauling water from the Serpentine River. Shishmaref is undergoing major improvements with the construction of a flush/haul system and household plumbing. Systems in 40 homes have been completed, and approximately 50 homes remain to be served. The new system provides water delivery, but the un-serviced homes continue to haul water. The city hauls honeybuckets and the new flush tanks. The school, clinic, Friendship Center, city hall and fire hall are connected to a sewage lagoon. There is one very old landfill on the east side of Sarichef Island, and an old landfill north of the current landfill that is currently being washed out to sea.

The Alaska Village Electric Cooperative, Inc. (AVEC) is the primary source of electricity in Shishmaref. Mulkuk Telephone Company/Tel Alaska provides phone service within the state, while multiple entities provide long-distance service. The majority of homes rely on oil burning stoves for heat. Some homes use propane gas as a primary heat source.

Local facilities provided in Shishmaref include a landfill, Washeteria, City Hall, store, Post Office, Armory Building, trading post, tannery, and elementary school, high school, and clinic.

1.3.3 Schools and Health Care

The school is attended by 170 students (K-12) and assisted by 15 teachers. Head start is operated by Kawerak. Distance delivery-post-secondary education is offered by Northwest Campus-UAF. There is also the Star Schools Program, the Kawerak Adult Basic Education, Employment, and Training Learning Center, the Shishmaref Learning Center, teen center, and the Nellie Weyiouanna Library.

Shishmaref is classified as an isolated village. It is found in EMS Region 5A in the Norton Sound Region. The clinic is a qualified Emergency Care Center. The community clinic and health aid provide health care in the village. Emergency services have coastal and air, and access.

1.3.4 Economy

The Shishmaref economy is based on subsistence supplemented by part-time wage earnings. Two residents hold a commercial fishing permit. Jobs throughout the year are limited. The village location was settled because of the access to the ocean and the mainland for hunting and gathering. Two reindeer herds are owned locally. However, very little of the reindeer remain in the herds due to the return of the Western Arctic caribou to the area. Hides are tanned at a local tannery owned by the Shishmaref IRA. The sale or importation of alcohol is banned in the village.

Residents maintain a subsistence lifestyle. Important staple foods include seal, walrus, polar bear, caribou, reindeer, waterfowls, fish, and rabbit. Eggs and berries are also gathered and seal oil is used for storing greens, roots, and meat as well as being a nutritional staple in the Native diet.

Many residents sell artwork crafted from the subsistence resources. Ivory tusks and teeth are used by the local artists who carve the ivory into figurines, sculptures, tools, and jewelry. Seal and rabbit skins are used to make hats, mittens, parkas and slippers.

1.3.5 Housing

Housing in the community consists of 148 housing units, primarily of wood frame construction. There are six unoccupied housing units in the village, with four of the vacant homes used seasonally.

1.4 Soils and Topography

Sarichef Island is composed of beach sand which is subject to erosion by wind and by wind driven tides and waves. Subsurface drainage is good in the elevated areas and very poor in the organic-covered lowlands. The organic mat ranges from 1/2 to 3 feet thick, typically thicker in low-lying bogs. Lowlands, usually closed depressions are only 3 to 4 feet above sea level, and are filled with water or ice during most of the year. Sand dunes form local high knolls and are about 15 to 20 feet above sea level. Sarichef Island is underlain by permafrost, with an active layer ranging from 1 to 5 feet below the surface. Local groundwater perched above the permafrost is found throughout the active layer.

Erosion and flooding are very serious problems in Shishmaref. The Army Corps of Engineers rates flood potential as high for most of the island with wind-driven waves creating the greatest hazard. In 1973, seas rose 10 to 15 feet, the highest level village elders could remember. Most of the village was flooded and many buildings were damaged or destroyed. Erosion was severe, and the community was left even more exposed to any future storms. Some emergency protection structures were constructed and helped to slow erosion during another severe storm in November 1974. The erosion problem is caused by storm-driven waves beating against the sandy island shore. Sarichef Island's stability is believed to be a function of its underlying permafrost. Changes in the depth of frost, when coupled with onshore storms, can result in rapid localized erosion.

1.5 Climate

Shishmaref is located in the transitional climate zone experiencing Maritime influences during the summer when the sea is ice-free and continental influences during the winter. Summers can be foggy, with average temperatures ranging from 47° to 54° Fahrenheit; winter temperatures average -12° to 2° Fahrenheit. Average annual precipitation is about 8 inches, including 33 inches of snow. The Chukchi Sea is frozen November through mid-June.

2.0 REGULATION AND MASTER PLANNING OF TRANSPORTATION IMPROVEMENTS

2.1 Regulation of Transportation Improvements

Under state law, organized boroughs have authority for planning, platting, and land use regulation within their boundaries, or may delegate authority to incorporated communities. Because Shishmaref is in an unorganized borough (Nome Census Area), the City of Shishmaref has the authority to regulate development within the city limits. All projects completed outside of Shishmaref are under the authority of the Federal, State or private land owner.

Land use requirements for specific road projects will vary depending on the project location. As applicable, road improvements are subject to federal and state regulations, community requirements, and private landowner approvals.

2.2 Long Range Transportation Planning

The Shishmaref IRA Council analyzed their future transportation goals and prioritized which projects would benefit the community. A prioritized list of long term transportation road projects is shown below:

1. Constructing community streets within Shishmaref's proposed village relocation site (including access route to proposed boat harbor) with the appropriate surface material and dust control additive (a total estimate of $86 million dollars).
2. Constructing proposed subsistence and economic routes listed as updated inventory in Section 4.1 of this report (a total estimate of $1.5 billion dollars).

3. Construct a barge landing and boat harbor facility at the new townsite location (an estimated $7 million dollar project).
4. Provide route staking, navigational upgrades, and signage to inventory routes to improve safety during winter travel, prevent disorientation, and aid in rescue operations (an estimated $100,000 per mile of road to be staked).

The Shishmaref IRA Council developed an updated list of inventory roads that the community feels are needed over the next twenty years and beyond. These routes are necessary for the residents to access their lands and resources for economic and cultural development, subsistence gathering stability, and to enhance surrounding public safety. Some of the traditional routes that were established along coastal shores are threatened by erosion and storm destruction. It is proposed that these historical routes be constructed as new roads and placed inland so that subsistence, economic, and cultural areas can still be accessed when the traditional routes become damaged beyond use. The complete inventory list can be viewed in Section 4.1.

The subsistence lifestyle causes residents to travel outside the city to seek the resources they need. The areas important for subsistence needs can be many miles from the town itself. The routes listed in Section 4.2 are scattered throughout the Bering Straits Region and were established as subsistence routes used by the tribe during their migration to their current location. These traditional routes were used then and are still needed today for hunting and gathering. Constructing these routes will allow the community of Shishmaref to continue their subsistence life style. These roads will provide access to hunting and fishing locations, as well as traditional berry-picking and resource gathering areas. Providing the tribe with access to these destinations allows them to preserve their cultural way of life and increase their economic prosperity. All of the proposed growth and improvement projects that the people of Shishmaref envision for their future are in some way connected to transportation. Constructing road systems will benefit the village by improving the cultural, economic, and social well-being of the community.

Understanding the enormous role that resources, in particular subsistence, play in the lifestyle and culture of Alaskan Natives clearly makes the need for improved transportation a necessity. If the tribe's traditional routes are not constructed then economic and future opportunities that benefit the whole community are lost. In Alaska, the State's perspective on subsistence refers to the practice of taking fish, wildlife or other natural resources for one's sustenance; either for food, shelter or other personal or family needs. In reality, in the native culture subsistence is much more than that, it is part of who the Native Alaskans are; one does not exist without the other.

Marine facilities and navigational improvements are also unique transportation needs within rural Alaska. Due to the limited road system, aircraft and boats are transportation vessels that are common in this region. Barges carry annual supplies, construction material for most village projects, and fuel to the village. In the summer boats provide transportation to neighboring villages, lightering services, and access to subsistence resources. Improving and constructing marine facilities such as docks, boat harbors, ports, barge landings, and breakwater structures is an important part of transportation in the villages. The Figures in Section 4.2 have proposed locations for future marine facilities within the village.

Navigational improvements such as navigational beacons and personal locater beacons (PLBs) will increase safety during both winter and summer travel. Some villages have voiced the need for devices such as these to aid in rescues and provide location markers. Beacons placed in towers or shelters bordering the coast can provide direction when travelers become disorientated or lost during whiteout conditions. PLB programs can be established at community hubs that would rent out individual PLB units and require users to file a travel plan. If a traveler is then lost or stranded the PLB could be activated and assist rescue teams with the travelers location. These improvements to the unique transportation needs in Alaska provide opportunities and increases public safety.

Winter transportation in the Bering Straits Region primarily consists of snowmachine travel over packed snow. This supports the mobility needs of village residents by providing the following: access to hunting and subsistence areas; a major transportation link between villages that enable people to visit relatives, friends, attend social gatherings, and transport goods; and access to Nome, the commercial and economic hub of the region. However, these routes often traverse through treacherous landscapes that offer little or no points of reference during bad weather. Ideally roads could be constructed that would be used throughout the year. However, it will take time to achieve this goal, and village residents expressed the need for temporary routes to be marked until permanent roads can be constructed at engineered locations. Villages identified tripod spacing requirements to be between 100-500 feet depending on the route location.

3.0 EXISTING TRANSPORTATION SYSTEM

Shishmaref is not accessible by any road system and is isolated from any community hubs. Aircraft is the only mode of transportation to Shishmaref that can be used throughout the year. Boats provide access in the summer and winter travel is possible with snowmachines. The community has a system of roads within its own townsite, most of which were constructed by either the BIA or the ADOT&PF. The village is surrounded by a network of unimproved subsistence and economic routes that lead to cabins, hot springs, seasonal camps, and subsistence areas. If constructed these roads would provide access to neighboring villages such as Wales and Mary's Igloo, as well as improve traditional subsistence and recreational activities.

3.1 Community Roadway System

3.1.1 Community Roadway Map

There are approximately 421.9 miles of existing and proposed roads within Shishmaref's inventory boundary. Accepted and updated inventory routes can be viewed in the Community Roadway Maps in Section 4.2 (Figures 1-3). A list of accepted inventoried routes for Shishmaref can be found in Appendix B.

3.2 Right-of-Way and Road Ownership

The existing roadways within the city limits are owned by the City of Shishmaref. The ADOT&PF owns the roadways that lead to the airport. The proposed roadways outside of the village may cross federal, state or private lands. In accordance with 25 CFR Part 170.443 all new roadways will be open to the public once built. The Shishmaref IRA Council, under 25 CFR Part 170, is considered a public authority and intends to own and maintain public access for any proposed roadways that are constructed.

3.2.1 Geometric Elements

The average width of the road system in town is 14 feet. The roads were predominantly constructed with little engineered alignment design and are too narrow to meet local traffic needs. The existing unimproved subsistence routes vary in width, but have an average travel way width of 10 feet.

3.2.2 Utilities

Within the village power and phone lines are overhead. The subsistence and economic routes within the inventory boundary are generally void of underground or overhead utilities. Construction upgrades for these routes would be convenient due to the absence of existing utilities.

3.3 Existing Structural Characteristics

3.3.1 Surfacing and Subbase Material

The roads serving the community were constructed as a gravel surface and are characterized as being in fair to poor condition. Earth roads around the community are rutted and full of potholes because they are not maintained. The unimproved subsistence and economic routes have no engineered alignment or designated corridor.

It was proposed that the streets within the city limits of the proposed relocated townsite be constructed with the appropriate surface material to an adequate width. The subsistence and economic routes would see less traffic than community routes and it is recommended that they be constructed with a crushed gravel surface.

A major issue regarding road upgrades, specifically within the city limits, is dust control. Safety and health concerns for residents and pedestrians of all ages have increased due to the excessive dust from the roadways. The village would like to see a dust suppressant incorporated into any constructed roads within the community.

3.3.2 Drainage

Subsurface drainage is good in the elevated areas and very poor in the organic-covered lowlands at the present townsite. Drainage provisions for roads in Shishmaref include both ditches and culverts.

It is recommended that drainage for proposed routes and upgraded subsistence routes be sustained by culverts and ditches placed at definite locations to maintain positive drainage throughout the community, in addition to replacing damaged or crushed culverts.

3.3.3 Bridges

Construction of bridges may be needed at the proposed relocation site. There are two locations that are being considered for bridges and after preliminary investigations both appear to need water crossings. Other areas needing bridges within the inventory boundary would be identified during the corridor identification process.

3.4 User Characteristics

3.4.1 Trip Generators

Principal trip generators within the city are believed to be the airport, stores, post office, school, clinic, and community buildings. It is assumed that the same community facilities will generate similar traffic patterns at the relocated village site. Current routes used outside of the present village site will not change when the village is relocated. If constructed, trip generators outside of the city limits would include travel on newly constructed routes to neighboring villages such as Wales and Mary's Igloo. Subsistence and economic routes scattered around the community are used throughout the year.

Design standards for roads are based on the amount of traffic use experienced over a full day, or the Average Daily Traffic (ADT). The design parameters of a road are established based on the type, speed, and amount of traffic that a particular route generates. The ADT has not been counted for the updated routes. A future update will provide traffic counts for Shishmaref's inventory.

3.5 Agencies Responsible For Maintenance

The City of Shishmaref assumed responsibility for road maintenance within its municipal boundaries. The ADOT&PF maintains the roadways that lead to the airport. The Shishmaref IRA Council as a public authority will maintain any proposed roads that are constructed under the IRR program. The new highway bill (SAFETEA-LU) authorized a percentage of IRR dollars for maintenance. The Shishmaref IRA Council will utilize up to 25% of its annual construction funds for maintenance on the proposed roadways they construct.

3.6 Construction Material Sources

Sand is used for fill during the construction of HUD homes construction. A gravel source is located 12 miles west of Shishmaref but produces poor quality material. The community may also have access to a gravel source located on Ear Mountain.

4.0 ROADWAY FACILITY NEEDS

Transportation Needs Assessment
An assessment of Shishmaref's transportation needs is based on the long range transportation goals listed in Section 2.2, the overall transportation goals listed in the comprehensive plan in Section 2.3, and general safety concerns. Priority status for each route is based on existing levels of services, proposed land use, economic and cultural development, subsistence activities, tourism, recreation, housing, commercial development, and health benefits. Section 4.1 provides a list of the updated inventory to be submitted, while Section 4.2 has figures that give the location and route identification of the updated inventory and current official BIA routes.

Roads included in the 2007 inventory submittal are classified as one of the following road types. (1) Existing City Roads: existing roads within the city boundary that are established but in need of upgrades and improvements. (2) Existing State Roads: existing roads within the designated right-of-way owned by the State of Alaska. Roads under this classification usually include state highways and roads providing access to village runways and aprons. (3) Proposed Roads: proposed economic development and subsistence routes, including routes connecting neighboring villages and the relocation site. Proposed routes providing access to future facilities and development within the townsite would also fall into this classification. Route classification will be used in the coding process for entering updated inventory into the BIA IRR system.

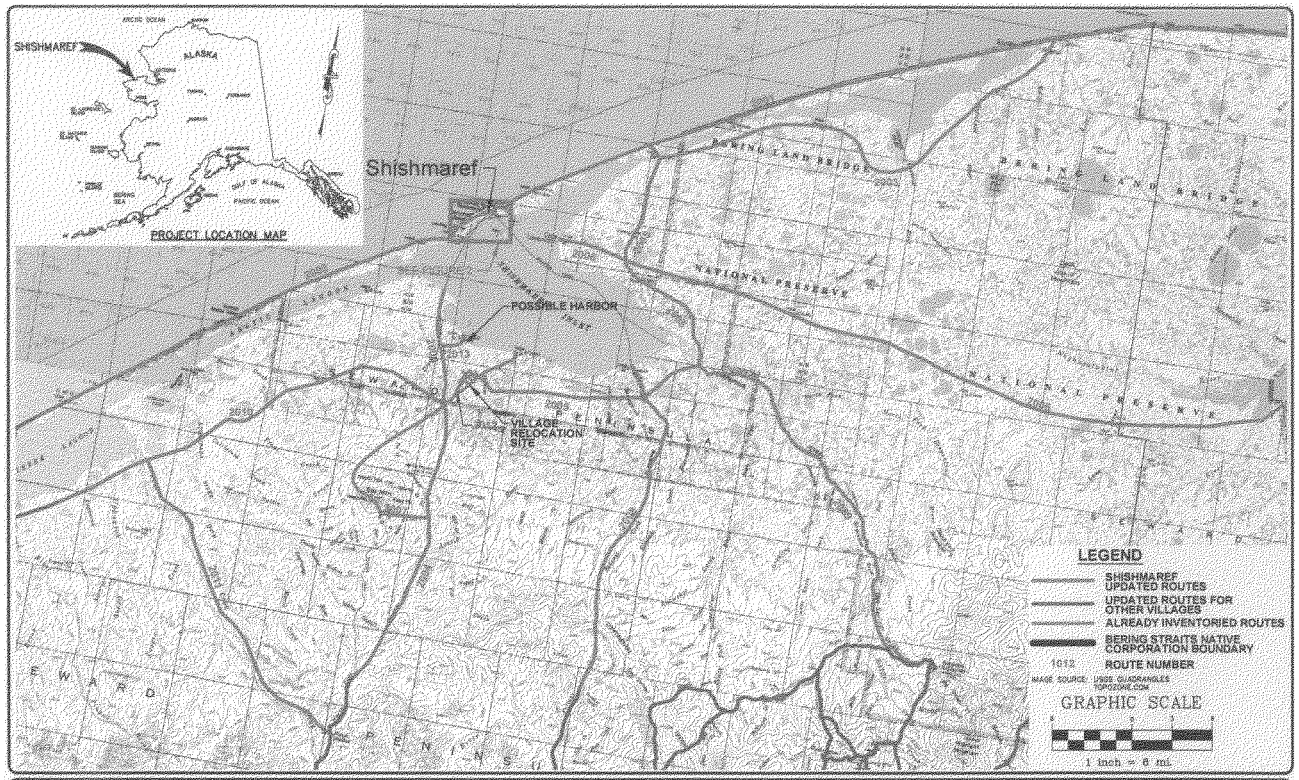
4.1 2007 Updated Road Inventory List

Shishmaref Updated Inventory

Shishmaref, Alaska – E04438

	Route Number	Section Number	Route Name	Length (miles)
1	2001	10	Road to Esperburg	63.3
2	2002	10	SHI2002	36.5
3	2003	10	Inlet Bypass	35.6
4	2004	10	SHI2004	31.1
5	2005	10	SHI2005	37.3
6	2006	10	Lane River Road	56.9
7	2007	10	SHI2007	6.1
8	2008	10	SHI2008	27.0
9	2009	10	SHI2009	32.3
10	2010	10	New Nuluk River Road	32.4
11	2011	10	SHI2011	25.8
12	2012	10	SHI2012	0.7
13	2013	10	SHI2013	2.1

4.2 Road Inventory Maps



Rodney P. Kinney Associates, Inc. Consulting Engineers & Surveyors	KAWERAK TRANSPORTATION P.O. BOX 948 NOME, ALASKA 99762	SHISHMAREF IRA COUNCIL P.O. BOX 72110 SHISHMAREF, ALASKA 99772	LONG RANGE TRANSPORTATION PLAN UPDATED INVENTORY ROUTES SHISHMAREF, ALASKA	COMMUNITY ROADWAY MAPS	FIGURE 1

Rodney P. Kinney Associates, Inc. Consulting Engineers & Surveyors	KAWERAK TRANSPORTATION P.O. BOX 948 NOME, ALASKA 99762	SHISHMAREF IRA COUNCIL P.O. BOX 72110 SHISHMAREF, ALASKA 99772	LONG RANGE TRANSPORTATION PLAN UPDATED INVENTORY ROUTES SHISHMAREF, ALASKA	COMMUNITY ROADWAY MAPS	FIGURE 2

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Appendix A:

ADOPTING RESOLUTION

NATIVE VILLAGE OF SHISHMAREF
P.O. BOX 72110
SHISHMAREF, ALASKA 99772-2110
PH. (907) 649-3821/2082
FAX (907) 649-2104

Resolution No. 07-01

A RESOLUTION OF THE SHISHMAREF IRA COUNCIL, ALASKA, TO ADOPT THE LONG RANGE TRANSPORTATION PLAN

WHEREAS, the Native Village of Shishmaref is a federally recognized tribe, hereinafter Tribe; and

WHEREAS, the Shishmaref IRA Council is the governing body of the Tribe; and

WHEREAS, the Tribe qualifies for services and benefits under the Indian Reservation Roads (IRR) programs; and

WHEREAS, Shishmaref IRA Council developed a Long Range Transportation Plan for submittal to the BIA as required in 25 CFR 170; and

NOW, THEREFORE, BE IT RESOLVED, that this action by Shishmaref IRA Council is part of its long-range transportation planning, and that this resolution serves to adopt the Shishmaref IRA Council, Long-Range Transportation Plan, dated March 2007.

CERTIFICATION

This certifies that the foregoing resolution of the Native Village of Shishmaref was adopted by the Shishmaref IRA Council. The Council is made up of 7 members with a quorum of 6 established. The foregoing resolution was adopted on this 19th day of February, 2007, by a vote of 6 in favor, 0 opposed, and 0 abstaining.

ATTEST

IRA President: Luci Eningowuk

IRA Secretary: Karla Nayokpuk

NATIVE VILLAGE OF SHISHMAREF
P.O. BOX 72110
SHISHMAREF, ALASKA 99772-2110
PH. (907) 649-3821/2082
FAX (907) 649-2104

Resolution No. 07-02

A RESOLUTION OF THE SHISHMAREF IRA COUNCIL, ALASKA, TO REQUEST BIA TO ADD ROUTES TO THE IRR INVENTORY.

WHEREAS, the Native Village of Shishmaref is a federally recognized tribe, hereinafter Tribe; and

WHEREAS, the Shishmaref IRA Council is the governing body of the Tribe; and

WHEREAS, the Tribe qualifies for services and benefits under the Indian Reservation Roads (IRR) Program; and

WHEREAS, the Tribe determined the area to be included for consideration in determining its priority for projects which is encompassed by our traditional and cultural use areas and connection to adjacent communities; and

WHEREAS, the Tribe identified the project routes, shown in attached Native Village of Shishmaref Approved Inventory Catalog as a transportation project priority; and

WHEREAS, the Tribe requests the action of BIA to add into the IRR Inventory as a construction need, the specific routes identified in the Native Village Shishmaref Approved Inventory Catalog; and

NOW, THEREFORE, BE IT RESOLVED, The Shishmaref IRA Council is convinced that it is in the best interest of the Native Village of Shishmaref that the Shishmaref IRA Council request the BIA to add the project routes identified in the Native Village Shishmaref Approved Inventory Catalog to the IRR Inventory as a construction need of the Native Village of Shishmaref.

CERTIFICATION

This certifies that the foregoing resolution of the Native Village of Shishmaref was adopted by the Shishmaref IRA Council. The Council is made up of 7 members with a quorum of 6 established. The foregoing resolution was adopted on this 19th day of February, 2007, by a vote of 6 in favor, 0 opposed, and 0 abstaining.

ATTEST

IRA President: Luci Eningowuk

IRA Secretary: Karla Nayokpuk

Native Village of Shishmaref
Inventory Catalog

Route	Section	Route Name	POB Latitude	POB Longitude	POE Latitude	POE Longitude	Length	Ownership	Construction Need
2001	10	Road to Esperburg	66.2563° N	166.0590° W	66.5900° N	163.9817° W	63.3	2	4
2002	10	SHI2002	65.9403° N	167.1570° W	66.2436° N	166.1145° W	36.5	2	4
2003	10	Inlet Bypass	66.3449° N	165.6479° W	66.5460° N	164.6513° W	35.6	2	4
2004	10	SHI2004	66.1609° N	166.1532° W	65.7297° N	166.2027° W	31.1	2	4
2005	10	SHI2005	66.3569° N	165.6861° W	66.0703° N	166.0000° W	37.3	2	4
2006	10	Lane River Road	66.2386° N	165.8733° W	66.1880° N	163.9008° W	56.9	2	4
2007	10	SHI2007	65.9153° N	166.0830° W	65.9305° N	166.2794° W	6.1	2	4
2008	10	SHI2008	66.1169° N	165.6260° W	65.7612° N	165.6135° W	27.0	2	4
2009	10	SHI2009	65.8513° N	164.7388° W	66.1298° N	165.4504° W	32.3	2	4
2010	10	New Nuluk River Road	65.8557° N	167.0541° W	66.0391° N	166.0961° W	32.4	2	4
2011	10	SHI2011	65.9201° N	166.8423° W	65.6647° N	166.2341° W	25.8	2	4
2012	10	SHI2012	66.0510° N	166.0712° W	66.0614° N	166.0672° W	0.7	2	4
2013	10	SHI2013	66.1021° N	166.1357° W	66.1157° N	166.0812° W	2.1	2	4

Appendix B:

EXISTING (ACCEPTED) IRR INVENTORY

Indian Reservation Roads Program
Inventory Data Sheet (ver2)
FY 2007 Inventory

For construction costs use the Greenbook Report

Filter Criteria: E | 2007 | 04 | 438

Italicized fields are direct update data and bold fields are derived data

Location ID	E04438	E04438	E04438	E04438	E04438	E04438	E04438	E04438	E04438	E04438
Region	Alaska	Alaska	Alaska	Alaska	Alaska	Alaska	Alaska	Alaska	Alaska	Alaska
Agency	Nome	Nome	Nome	Nome	Nome	Nome	Nome	Nome	Nome	Nome
Reservation	Shishmar	Shishmar	Shishmar	Shishmar	Shishmar	Shishmar	Shishmar	Shishmar	Shishmar	Shishmar
Road Name		Main Str	Airport	City Hal	Ear Moun	Ear Moun	Ear Moun	Main Str	First Av	New Main
Route Number	1002	1003	1004	1005	1006	1006	1006	1007	1008	1009
Section Number	10	10	10	10	10	20	30	10	10	10
10-Class Code	4	3	3	3	4	4	4	3	3	3
15-Length of Section (mi) [999.9]	1.2	0.6	0.5	0.1	5.5		18.0	0.3	0.1	2.3
18-Bridge Number [A15]						3A1E				
19-Bridge Condition						5				
20-Bridge Length (ft) [9999]						25				
32-County [999]	*180*	*180*	*180*	*180*	*180*	*180*	*180*	*180*	*180*	*180*
33-Congressional District [99]	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*
7-State	02 - AK	02 - AK	02 - AK	02 - AK	02 - AK	02 - AK	02 - AK	02 - AK	02 - AK	02 - AK
8-Ownership	2	4	4	4	2	2	2	4	2	2
12-Construction Need Code	2	2	2	2	2	2	2	2	2	2
11-Terrain Code	2	1	1		1		1	1	1	1
25-Roadbed Condition Code	1	2	2	2	0		0	2	2	0
24-SCI (20 times the old PCI value)	0	0	0	0				0	0	
16-Surface Width (ft) [999]	22	20	20	20	20		20	20	16	32
13-Surface Type	9	1	1	1	0		0	1	1	0
9-Federal Aid Code		1	1	1	1		1	1	1	1
28-ROW Status	0	1	1	1	1	1	1	1	1	1
29-ROW Width (ft) [999]	0	0	0	0	0	0	0	0	0	0
BIA Share (%)	100	100	100	100	100	100	100	100	100	100
30-Additional Incidental Percent										
17-Shoulder Width (Enter 0 for no s	0	0	0	0	0		0	0	0	0
14-Shoulder Type										
22-Existing ADT [9999999]		143	87	317				82	56	
21-ADT Year [9999]		2003	2003	2003	2004		2004	2003	2003	
23-% Trucks [99]	25	2	9	2	0		0	2	1	
34-Owner Route Number [AAAAA]	SMAF2	10033	10044	10055	10066		10066	10077	10088	10099
ROADWAY WIDTH	**22**	**20**	**20**	**20**	**20**		**20**	**20**	**16**	**32**
TTAM Future ADT	**74**	**212**	**129**	**471**	**74**		**74**	**122**	**98**	**37**
TTAM ADS Number	**11**	**18**	**18**	**18**	**18**		**18**	**18**	**18**	**18**
TTAM Future Surface Type	**G**	**G**	**G**	**P**	**G**		**G**	**G**	**G**	**E**
35-Drainage Condition	*0*	*0*	*0*	*0*				*0*	*0*	
36-Shoulder Condition	*0*	*0*	*0*	*0*				*0*	*0*	
37/38 # RR XING/RR XING TYPE	*0 / -*	*0 / -*	*0 / -*	*- / -*	*0 / -*		*0 / -*	*0 / -*	*0 / -*	*0 / -*
39-ROW Utility Code	*0*	*2*	*2*	*2*	*0*	*0*	*0*	*3*	*0*	*0*
40-ROW Cost ($1000/mi) [99]	*0*									
26-Level Of Maintenance	*1*	*2*	*1*	*1*				*1*	*1*	
27-Snow Ice Control		*3*	*3*	*0*				*0*	*3*	
41-Begin Latitude (deg) [decimal]										
42-End Latitude (deg) [decimal]										
43-Begin Longitude (deg) [decimal										
44-End Longitude (deg) [decimal]										
45-Atlas Map Number [99]	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*
46-50 Grade/Sight/Curve/Stop/Safi	7 5 0 0 0	0 0 0 0 0	0 0 0 0 0	7 5 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0
51-Road Category	*S*	*A*	*A*	*A*	*A*		*A*	*A*	*A*	
52-Year of Construction Change [5										
Update Year	**2004**	**2004**	**2004**	**2005**	**2004**	**2004**	**2004**	**2004**	**2004**	**2004**
Status	**OFFICIAL**	**OFFICIAL**	**OFFICIAL**	**OFFICIAL**	**OFFICIAL**	**OFFICIAL**	**OFFICIAL**	**OFFICIAL**	**OFFICIAL**	**OFFICIAL**

23-FEB-07

Indian Reservation Roads Program
Inventory Data Sheet (ver2)
FY 2007 Inventory

For construction costs use the Greenbook Report

Filter Criteria: E | 2007 | 04 | 438

Italicized fields are direct update data and bold fields are derived data

Location ID	E04438	E04438	E04438	E04438	E04438	E04438	E04438	E04438	E04438	E04438
Region	Alaska	Alaska	Alaska	Alaska	Alaska	Alaska	Alaska	Alaska	Alaska	Alaska
Agency	Nome	Nome	Nome	Nome	Nome	Nome	Nome	Nome	Nome	Nome
Reservation	Shishmar	Shishmar	Shishmar	Shishmar	Shishmar	Shishmar	Shishmar	Shishmar	Shishmar	Shishmar
Road Name	Tin Creek	West 1st	West 2nd	West 3rd	Midtown	East 1st	Goose La	East 2nd	Port Lan	New Airp
Route Number	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019
Section Number	10	10	10	10	10	10	10	10	10	10
10-Class Code	3	3	3	3	3	3	3	3	3	5
15-Length of Section (mi) [999.9]	1.0	0.3	0.5	0.8	0.7	0.7	0.5	0.2	3.0	0.5
18-Bridge Number [A15]										
19-Bridge Condition										
20-Bridge Length (ft) [9999]										
32-County [999]	*180*	*180*	*180*	*180*	*180*	*180*	*180*	*180*	*180*	*180*
33-Congressional District [99]	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*	*01*
7-State	02 - AK	02 - AK	02 - AK	02 - AK	02 - AK	02 - AK	02 - AK	02 - AK	02 - AK	02 - AK
8-Ownership	2	2	2	2	2	2	2	2	2	4
12-Construction Need Code	2	2	2	2	2	2	2	2	2	2
11-Terrain Code	1	1	1	1	1	1	1	1	1	1
25-Roadbed Condition Code	0	0	0	0	0	0	0	0	0	0
24-SCI (20 times the old PCI value)	0	0	0	0						0
16-Surface Width (ft) [999]	32	32	32	32	32	32	32	32	32	20
13-Surface Type	0	0	0	0	0	0	0	0	0	0
9-Federal Aid Code	1	1	1	1	1	1	1	1	1	1
26-ROW Status	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*	*1*
29-ROW Width (ft) [999]	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
BIA Share (%)	100	100	100	100	100	100	100	100	100	100
30-Additional Incidental Percent										
17-Shoulder Width (Enter 0 for no s	0	0	0	0	0	0	0	0	0	0
14-Shoulder Type										
22-Existing ADT [9999999]										
21-ADT Year [9999]										
23-% Trucks [99]										
34-Owner Route Number [AAAAA]	10100	10111	10122	10133	10144	10155	10166	10177	10188	
ROADWAY WIDTH	**32**	**32**	**32**	**32**	**32**	**32**	**32**	**32**	**32**	**20**
TTAM Future ADT	**37**	**37**	**37**	**37**	**37**	**37**	**37**	**37**	**37**	**74**
TTAM ADS Number	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**16**	**13**
TTAM Future Surface Type	**E**	**E**	**E**	**E**	**E**	**E**	**E**	**E**	**E**	**G**
35-Drainage Condition	*0*	*0*	*0*	*0*						
36-Shoulder Condition	*0*	*0*	*0*	*0*						
37/38 # RR XING/RR XING TYPE	*0 / -*	*0 / -*	*0 / -*	*0 / -*	*0 / -*	*0 / -*	*0 / -*	*0 / -*	*- / -*	*- / -*
39-ROW Utility Code	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
40-ROW Cost ($1000/mi) [99]										
25-Level Of Maintenance	*3*	*3*	*2*	*3*						
27-Snow Ice Control	*3*	*3*	*3*	*3*						
41-Begin Latitude (deg) [decimal]										
42-End Latitude (deg) [decimal]										
43-Begin Longitude (deg) [decimal										
44-End Longitude (deg) [decimal]										
45-Atlas Map Number [99]	*01*	*01*	*01*	*01*						*01*
46-50 Grade/Sight/Curve/Stop/Safe	*9 9 9 9 9*	*9 9 9 9 9*	*9 9 9 9 9*	*9 9 9 9 9*	*9 9 9 9 9*	*9 9 9 9 9*	*9 9 9 9 9*	*9 9 9 9 9*	*9 9 9 9 9*	*9 9 9 9 9*
51-Road Category				*A*						
52-Year of Construction Change (S										
Update Year	**2004**	**2004**	**2004**	**2005**	**2004**	**2005**	**2004**	**2004**	**2006**	**2006**
Status	**OFFICIAL**	**OFFICIAL**	**OFFICIAL**	**OFFICIAL**	**OFFICIAL**	**OFFICIAL**	**OFFICIAL**	**OFFICIAL**	**IN-PROCESS**	**OFFICIAL**

23-FEB-07

Indian Reservation Roads Program
Inventory Data Sheet (ver2)
FY 2007 Inventory

For construction costs use the Greenbook Report

Filter Criteria

E	2007	04	438

Italicized fields are direct update data and bold fields are derived data.

Location ID	E04438
Region	Alaska
Agency	Native
Reservation	Shishmar
Road Name	Airport
Route Number	1020
Section Number	10
10-Class Code	10
15-Length of Section (mi) [999.9]	1.0
18-Bridge Number [A15]	
19-Bridge Condition	
20-Bridge Length (ft) [9999]	
32-County [999]	*180*
33-Congressional District [99]	*01*
7-State	02 - AK
8-Ownership	4
12-Construction Need Code	2
11-Terrain Code	
25-Rounded Condition Code	
24-SCI (20 times the old PCI value)	
16-Surface Width (ft) [999]	22
13-Surface Type	6
8-Federal Aid Code	
29-ROW Status	
29-ROW Width (ft) [999]	
BIA Share (%)	
30-Additional Incidental Percent	
17-Shoulder Width (Enter 0 for no s	
14-Shoulder Type	
22-Existing ADT [9999999]	
21-ADT Year [9999]	
23-% Trucks [99]	
34-Owner Route Number [AAAAA]	
ROADWAY WIDTH	22
TTAM Future ADT	
TTAM ADS Number	
TTAM Future Surface Type	
35-Drainage Condition	
36-Shoulder Condition	
37/38 # RR XING/RR XING TYPE	- / -
39-ROW Utility Code	
40-ROW Cost ($1000/mi) [99]	
26-Level Of Maintenance	
27-Snow Ice Control	
41-Begin Latitude (deg) [decimal]	
42-End Latitude (deg) [decimal]	
43-Begin Longitude (deg) [decimal	
44-End Longitude (deg) [decimal]	
45-Atlas Map Number [99]	*01*
48-50 Grade/Sight/Curve/Stop/Safe	
51-Road Category	
52-Year of Construction Change [9	
Update Year	**2005**
Status	**OFFICIAL**

23-FEB-07

Appendix C:

MEETING NOTES
&
PUBLIC NOTICE FOR
LONG RANGE TRANSPORTATION PLAN

•More Legals

PUBLIC NOTICE
BREVIG MISSION

On behalf of Brevig Mission Traditional Council, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak Inc Transportation Department in Nome and the Brevig Mission Traditional Council office. Written comments may be submitted by February 27, 2007, to Kawerak, Inc. Transportation Department at P.O. Box 948, Nome Alaska 99762. For more information call J Sean McKnight at 907 443 4337

COMMON

On behalf of Council Traditional Council,

continued on page 14

continued from page 13

Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak, Inc. Transportation Department in Nome and the Council Traditional Council office. Written comments may be submitted by February 27, 2007, to Kawerak Inc. Transportation Department at P.O. Box 948 Nome Alaska 99762. For more information call J. Sean McKnight at 907 443 4337

DIOMEDE

On behalf of The Native Village of Diomede, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak, Inc. Transportation Department in Nome and The Native Village of Diomede office. Written comments may be submitted by February 27 2007 to Kawerak, Inc. Transportation Department at P.O. Box 948 Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

ELIM

On behalf of the Elim IRA Council, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak, Inc. Transportation Department in Nome and the Elim IRA Council office. Written comments may be submitted by February 27, 2007, to Kawerak, Inc. Transportation Department at, P.O. Box 948, Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

GAMBELL

On behalf of the Native Village of Gambell, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak, Inc. Transportation Department in Nome and the Native Village of Gambell office. Written comments may be submitted by February 27, 2007, to Kawerak, Inc. Transportation Department at P.O. Box 948, Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

GOLOVIN

On behalf of the Chinik Eskimo Community, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak Inc. Transportation Department in Nome and the Chinik Eskimo Community office. Written comments may be submitted by February 27, 2007, to Kawerak, Inc. Transportation Department at P.O. Box 948 Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

KING ISLAND

On behalf of the King Island Native Community, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak, Inc. Transportation Department in Nome and the King Island Native Community office. Written comments may be submitted by February 27, 2007, to Kawerak, Inc. Transportation Department at P.O. Box 948, Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

KOYUK

On behalf of the Koyuk IRA Council, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak, Inc. Transportation Department in Nome and the Koyuk IRA Council office. Written comments may be submitted by February 27, 2007, to Kawerak, Inc. Transportation Department at P.O. Box 948, Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

MARY'S IGLOO

On behalf of the Mary's Igloo Traditional Council, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak, Inc. Transportation Department in Nome and the Mary's Igloo Traditional Council office. Written comments may be submitted by February 27, 2007, to Kawerak, Inc. Transportation Department at P.O. Box 948, Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

SAVOONGA

The Native Village of Savoonga completed a draft Long Range Transportation Plan. This plan is available for review at the Savoonga Tribal Council office. Written comments may be submitted by February 27, 2007, to the Native Village of Savoonga Tribal Council at P.O. Box 120, Savoonga, Alaska 99769. For more information call Brian Pridemon at 907-654-2332

SHAKTOOLIK

On behalf of the Shaktoolik IRA Council, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak, Inc. Transportation Department in Nome and the Shaktoolik IRA Council office. Written comments may be submitted by February 27, 2007, to Kawerak, Inc. Transportation Department at P.O. Box 948, Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

SHISHMAREF

On behalf of the Shishmaref IRA Council, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak, Inc. Transportation Department in Nome and the Shishmaref IRA Council office. Written comments may be submitted by February 27, 2007, to Kawerak, Inc. Transportation Department at P.O. Box 948, Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

SOLOMON

On behalf of the Solomon Traditional Council, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak, Inc. Transportation Department in Nome and the Solomon Traditional Council office. Written comments may be submitted by February 27, 2007, to Kawerak, Inc. Transportation Department at P.O. Box 948, Nome Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

ST MICHAEL

On behalf of the St. Michael IRA Council, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak, Inc. Transportation Department in Nome and the St. Michael IRA Council office. Written comments may be submitted by February 27, 2007, to Kawerak, Inc. Transportation Department at, P.O. Box 948, Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

STEBBINS

On behalf of the Stebbins Community Council, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak, Inc. Transportation Department in Nome and the Stebbins Community Council office. Written comments may be submitted by February 27, 2007, to Kawerak, Inc. Transportation Department at P.O. Box 948, Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337.

TELLER

On behalf of the Teller Traditional Council, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak Inc Transportation Department in Nome and The Teller Traditional Council office. Written comments may be submitted by February 27, 2007 to Kawerak Inc Transportation Department at P.O. Box 948, Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

UNALAKLEET

On behalf of Unalakleet IRA Council, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak Inc Transportation Department in Nome and the Unalakleet IRA Council office. Written comments may be submitted by February 27, 2007 to Kawerak Inc Transportation Department at P.O. Box 948, Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

WALES

On behalf of Wales IRA Council, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak Inc Transportation Department in Nome and the Wales IRA Council office. Written comments may be submitted by February 27, 2007, to Kawerak Inc Transportation Department at P.O. Box 948, Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

WHITE MOUNTAIN

On behalf of White Mountain IRA Council, Kawerak Transportation completed a draft Long Range Transportation Plan. This plan is available for review at the Kawerak Inc Transportation Department in Nome and the White Mountain IRA Council office. Written comments may be submitted by February 27, 2007 to Kawerak Inc Transportation Department at P.O. Box 948, Nome, Alaska 99762. For more information call J. Sean McKnight at 907-443-4337

Publisher's Affidavit

UNITED STATES OF AMERICA,

State Of Alaska

Second Division

SS:

Diana Haecker, being first duly sworn on oath deposes and says:

That I am and was at all times herein this affidavit mentioned, admin asst of THE NOME NUGGET, a newspaper of general circulation and published weekly at Nome, Second Division, State of Alaska, that the Draft Transp Plan

a printed copy of which is hereto annexed, was published in said paper once and every week for one (1) successive and consecutive weeks in the issues of the following dates:

February 1, 2007

D Haecker

SUBSCRIBED and SWORN to before me this 1st day of February, 2007

NOTARY PUBLIC in and for the State of Alaska.

My commission expires 02/07/08

Nancy L M Guiro

TESTIMONY OF
THE VILLAGE OF UNALAKLEET
BEFORE THE COMMITTEE ON HOMELAND SECURITY AND
GOVERNMENTAL AFFAIRS
AD HOC SUBCOMITTEE ON DISASTER RECOVERY
OCTOER 11,2007

THE STATE AND FEDERAL RESPONSE TO STORM DAMAGE AND
EROSION IN ALASKA'S COASTAL VILLAGES

PRESENTED BY STEVE IVANOFF
KAWERAK.TRANSPORTATION PLANNER
P.O. BOX 266
UNALAKLEET, AK. 99684
(907) 624-3299/3093
Fax (907) 624-3095
trans.unk@kawerak.org

Welcome to our great State of Alaska. I am Steve Ivanoff from Unalakleet and will be speaking to you today as a representative of the eastern Norton Sound, an area that has felt the effects of increasing fall storm intensity.

Thank you for this opportunity to testify on the flood and erosion problems we have along the western Alaskan coast. All of the villages in our Bering Straits region are situated along the coast with a handful experiencing erosion in and around the communities.

Introduction – Background (informational)

Unalakleet is 393 air miles west of Anchorage on the easternmost part of Norton Sound. This location was selected to provide quick and easy access to the many subsistence activities that this area has to offer. It sits on a sand-spit between the Unalakleet River and the Norton Sound. This settlement has been estimated to be in existence for over 2000 years. The population is approaching 800 with an Alaska Native population of approximately 85%, Inupiat and Yupik Eskimos, and Athabascan Indians. It is classified as a regional sub-hub, serving mail and freighting services for itself and four other villages. The Bering Straits

School District central offices are located in Unalakleet serving 15 villages in the Norton Sound region, and a sub-regional clinic that provides medical services for Unalakleet residents and four other villages. Commercial fishing in our region struggled for a decade but is making a substantial recovery. Unalakleet has also become a service providing community. A 6,000 foot runway was constructed in the 60's as our village was a host to hundreds of Air Force service men for a couple of decades having an Air Force base 5 miles northeast of the village. A White Alice site was also stationed 10 miles to the east, along with a Federal Aviation Administration facility, housing a number of workers and their families. These facilities were all shut down with the end of the cold war and modern technology.

FLOODING – The Norton Sound area went 29 years without a flood from 1974 until 2003, we then had 3 in a row having disaster declarations in 2003,2004, and 2005. The next village 38 miles north of us, Shaktoolik, becomes an island during these floods with no means of evacuation. They have a population of roughly 250 residents and are all on watch during these floods, hoping for the tide to reverse before the ocean consumes them. Our floods occur during the late evening, early morning hours when it is dark and dangerous to navigate any type of boats. They need an evacuation road, as their airport too is flood prone.

EROSION – Erosion in our community has occurred in several sections within the city boundaries. The greatest erosion occurs at the mouth of the river, additional erosion occurs along the beach. In 2000, a gabion wall erosion protection project was constructed beginning inside the mouth of the river, runs around the mouth and traverses northerly along the ocean beach. This 1400-foot project was funded by NRCS in the amount of $1 million. The gabion wall is shown in the attached photos. The timing of the wall couldn't have come at a better time protecting a church, a fish processing plant, a store, a hotel and restaurant, the Post Office, teacher housing, school district storage fuel tanks, a small engines repair shop, and several homes. This southern section of town is

the heart of the village and would have seen substantial damage without the wall. We felt the gabion wall would have a five-year life span and give us enough time to work towards a permanent fix. The wire coating is coming off and is now rusting and quickly deteriorating. Repair work must be done following each storm and back fill replaced.

The Corps of Engineers are in the final stages of a design for a riprap wall that would put armor rock along the full length of the gabion wall. We have had several public meetings reviewing the design and are very pleased with the recommendation. The riprap wall was the most feasible option over a 50-year period having the lowest maintenance cost. Once the design is complete we will seek funding for this project and are hoping for your assistance.

The State DOT is also completing an erosion design for a riprap wall along the beach adjacent to the DOT property and airport. This project is along the northern end of the community. It is scheduled to go out to bid this coming winter with construction expected to start next season. The State DOT is also in the process of elevating the evacuation road and will complete this project next summer. A section of this road would be completely submerged in the peak of the storms so some of our residents requested that poles be installed so they would know where the road is as they exit on their vehicles during a storm.

Our community water source is located 5 miles north of the village and the piping runs on the side of the roads along the beach. Erosion threatens this line along several sections of pipe so the Village Safe Water is working on a design to construct a new line along the hillside, well away from the beach. This project is expected to start within 2 years.

In Unalakleet we are fortunate to have hills a short distance away that we are now migrating into. More of our residents are now building homes in these hills, even if it means packing their water because it offers a long-term safe area.

Several of the homes have wells and septic systems. We do need to build access roads to speed up the process to encourage more development in these hills. The riprap wall will protect the heart of our village as it protects our structures that are needed to function until we can make the transition into the hillside.

Shaktoolik was a village situated 8 miles east of the village until the Bureau of Indian Affairs built a school near the beach forcing the residents to migrate to what is now called the old site. Following the flood of 1974 the village moved 2 miles further north to higher ground where it is now located. The natural barrier that had protected them for nearly 30 years has eroded from the 3 floods and is no longer sufficient to provide for their safety.

St. Michael, 54 miles south of Unalakleet, has also had erosion and may need to move several homes in the near future. Fortunately for them, higher ground is a short distance away.

There are funds available for reactive measures but not nearly enough for proactive measures. In the news we hear about the funds of the Gravina Bridge being in limbo. I recommend we funnel these and direct other necessary funds towards floods and erosion, how can anyone argue with providing safety for our residents that are in harms way.

A number of Alaska Native Villages that are either coastal communities or situated along rivers or streams continue to experience significant loss of land and property, and significant threat to life. These events are increasing not only in number but also in severity. Some of these villages do not have the internal capacity and funds to handle the additional burden of interacting with the various state and federal agencies.

I believe the state needs to get more involved and send their administrators to the most affected communities to see first hand the dire situations we face. The State DOT has made some improvements for roads and airport protection but I feel the state needs to get more involved with our erosion problems along residential areas. One problem I have with the DOT matrix system is that it does not give enough merit to life and safety flood issues. This should be above and beyond all other needs. The projects, such as an evacuation road in Shaktoolik, does not score well under their system. Yes, they are small in population but our federal government can take some credit for putting them in harms way with forced relocation of the 1930's.

I have served on the Denali Transportation Committee since it was formed two years ago and am very pleased with their work. We had the committee travel to our villages this spring that gave them an understanding about the threats that we have to live with. For them to walk along the massive piles of Yukon logs that are washed up against the homes in Shaktoolik was definitely and eye opener. We are also pleased with the Emissions Bill in Congress that could direct assistance for this in the future and would be willing to speak in support of it.

The state and federal agencies need to assess the flood and erosions in the communities that have immediate needs. We support the GAO recommendation that a federal agency be appointed to lead a workgroup consisting of various federal and state agencies to address the flood and erosion issues in rural Alaska. We also recommend that rural Alaskans be on the workgroup to make recommendations to Congress and the state of Alaska to streamline the process so that projects can be constructed sooner rather than later. We, in our region, know the communities in dire situations and are available to make recommendations for site visits and assessments. This workgroup could be within the Denali Commission and led by the Corps of Engineers because of their expertise and understanding of the issues at hand.

We appreciate our Washington delegation and their staff making trips our to problematic areas. We now need to get the state administrators to educate themselves in this area. Do we have an obligation to provide for the safety and protection of our people living under these conditions? They have fallen victim to circumstances that no one saw coming so quickly. Just as we heard of the warnings prior to the hurricane in New Orleans, this is a warning we are giving. In conclusion, I invite you all to visit our area and see the threats we face. I promise we will make it a pleasant trip for you and one that would be very worthwhile.

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