SJR

25

Alaska State Legislature

Out of Session:
PO Box 531
Golovin, Alaska 99762
(907) 443-5599

In Session:
State Capitol, Suite 510
Juneau, Alaska 99801-1182
(800) 597-3707
(907) 465-3707
(907) 465-4821 Fax

SENATOR
DONALD C. OLSON

DISTRICT T

Alakanuk
Ambler
Anaktuvuk Pass
Atqasuk
Barrow
Brevig Mission
Browerville
Buckland
Chevak
Deering
Diomede
Elim
Emmonak
Gambell
Golovin
Hooper Bay
Kaktovik
Kiana
Kivalina
Kobuk
Kotlik
Kotzebue
Koyuk
Mountain Village
Noatak
Nome
Noorvik
Nuiqsut
Nunam Iqua
Pilot Station
Pitka's Point
Point Hope
Point Lay
Savoonga
Scammon Bay
Selawik
Shaktoolik
Shishmaref
Shungnak
St. Mary's
St. Michael
Stebbins
Teller
Unalakleet
Wainwright
Wales
White Mountain

Sponsor Statement

SJR 25, FLOODING AND EROSION CONTROL ASSISTANCE

SJR 25 is a resolution requesting the Army Corp of Engineers ease their cost and benefit analysis for projects in rural Alaska.

I have proposed this resolution in response to many concerns voiced by my constituents with regards to the erosion and flooding problems that plague western Alaska. Currently many of the villages in western Alaska are not receiving the assistance needed for the protection of life and property.

On November 8, 2003 a winter storm hit western Alaska. This storm caused considerable damage to Unalakleet, Shishmaref, and some of Nome's surrounding areas. While the Governor has declared a state of disaster because of this storm, the continued effects of erosion on the villages of Alaska are not going to be solved by emergency disaster

declarations. A more comprehensive, coordinated effort is required by the Army Corps of Engineers and other federal and state agencies.

I respectfully urge your support for this resolution to focus attention on this serious problem.

SHISHMAREF EROSION AND RELOCATION COALITION

Luci Eningowuk, Chairperson
P.O. Box 72100
Shishmaref, Alaska 99772
(907) 649-2289 Fax (907) 649-4461

Tony A. Weyiouanna, Sr. - Shishmaref Village Transportation Planner, tony@kawerak.org
Sophie Weyiouanna - Administrative Assistant

Alaska State Senate
Alaska House of Representatives
Juneau, Alaska

February 25, 2004

REF: Request for Assistance

Dear Senators and Representatives:

The Shishmaref Erosion and Relocation Coalition, made up of the three governing bodies of the community of Shishmaref, requests your assistance in seeking both funding and technical support. Our immediate goal is to seek assistance in providing erosion protection measures for the community. Our longer-term goal is to reestablish Shishmaref at a new mainland site. Our goal is to enhance our working relationship with the State government.

We request the State's assistance in the following:

Immediate Erosion Protection for Shishmaref - the U.S. Army Corps of Engineers has agreed to provide a Section 14, Emergency Shoreline Protection Project on the northern seaward side of our School's property. This project requires a $400,000 local match. We request one of the following solutions:

1. The State urges the Federal Government to make an exception to the requirement for the local match and fund the project as 100% Federal.
2. The State urges the Federal Government to consider the adjoining project being constructed jointly by Kawerak, Inc. and the Native Village of Shishmaref, using Bureau of Indian Affairs, Indian Reservation Roads program funds, to protect the community's main street and road to the airport, as the local match.

Or if neither of these are acceptable to the Federal government,

3. The State authorizes within its budget, the required local share.

A large majority of the community is unprotected and thus left vulnerable to even minor storms. We urge the State government to provide funding to place erosion protection measures in other areas of the community that are left unprotected. Kawerak Transportation Project heavy equipment is mobilized and ready. Reusable armor flex cement blocks and gabions are available from prior erosion measures. With a small amount of assistance, we could minimize expenses and provide protection to other areas in the community by reusing this material.

Relocation of the Community of Shishmaref to the nearby mainland – we seek support from the State to urge the federal government to initiate the following:

Supporting
Documentation

1. That Congress enact special measures to ensure that the Alaska villages qualify for and receive federal assistance for erosion protection and if needed relocation.
2. That Congress enact legislation that establishes Shishmaref, Alaska as a demonstration project for both erosion and relocation assistance, as a coordinated effort between the respective Federal Agencies: Federal Emergency Management Agency (FEMA), US. Army Corps of Engineers (Corps), and the Natural Resource Conservation Service (NRCS); and the Denali Commission. That FEMA be identified as the Agency responsible to head the coordination and identify other Federal agencies that need to be involved, as well as establishing a cooperative working relationship with the State of Alaska.
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    - Studies for the following that may fall within the responsibility of the State:
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Background:

The situation at Shishmaref is dire and requires immediate action. On an annual basis, until the protective winter ice arrives, we agonize that the next storm will be the one that wipes us out. The most recent storm event of November 21, 2003 caused significant beach erosion. We did not loose any homes this time, however, we, who live in Shishmaref, know that it is merely a matter of time.

We are concerned for the cohesion of our community. The community has expressed and reconfirmed its desire to retain community integrity; this intent was articulated through a community wide vote held on July 10th of 2002, showing overwhelming support to relocate the community. With the decision to relocate we passed an ordinance that requires that all new buildings or facilities be movable. We anticipate that once a new site is prepared, it will be a straightforward process to skid existing structures across the ice to the new community location.

Subsistence is a vital factor to our way of life and our ability to provide for ourselves; we believe that relocation to a site on the mainland near our current location is the optimum solution. In 2002, the USDA Natural Resource Conservation Service (NRCS) performed preliminary site evaluations at 5 locations on the mainland. In 2003,

they narrowed their review to two sites, Tin Creek and West Tin Creek. They delivered their report to the community on January 13, 2004, providing their recommendation for the Tin Creek site. The community discussed the report, and has endorsed the Tin Creek site for further studies.

The rate of erosion and the number of flooding events has accelerated. Even though the storms have been moderate in level; the damage is more severe in recent years. The community and Coalition would like to stress the immediacy of the problem and will continue to push for an expedited relocation. Below are challenges limiting our efforts.

No Federal Champion

The massive nature of relocating an entire community will require interagency cooperation and coordination as there is no one agency stepping forward to take the lead. We have reviewed the GAO report and encourage you to consider their recommendations. We strongly agree a coordinated effort to address issues caused by erosion and flooding of the threatened Alaska Native Villages is necessary. We believe the agency assigned to coordinate must be one that has proven itself to be proactive in addressing the needs of Alaska Native Villages.

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Statutes and Regulations Are Not Designed for Emergencies

The government's programs are designed to do cleanup after the emergency rather that put funds into prevention. We had time after time been told by both Federal and State Agencies that they cannot provide the assistance we need until a "Disaster Declaration" has been made. The declaration itself requires a dollar value for the damage. In our case, because no value is provided for the lost land, and we have been able to tug homes out of harms way at the last moment, we don't have enough dollar value loss to qualify.

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Chairperson

Enclosure: Packet

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Tony A. Weyiouanna, Sr. - Shishmaref Village Transportation Planner, tony@kawerak.org
Sophie Weyiouanna - Administrative Assistant

The Honorable Governor Frank Murkowski
Office of the Governor
P.O. Box 110001
Juneau, Alaska 99811-0001

February 25, 2004

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Luci Eningowuk
Chairperson

Enclosure: Packet

ALASKA STATE LEGISLATURE

SENATE COMMITTEE ON COMMUNITY & REGIONAL AFFAIRS

Senator Bert K. Stedman, Chair

Official Business

Senator Tom Wagoner, Vice-Chair
Senator Kim Elton
Senator Georgianna Lincoln
Senator Gary Stevens

State Capitol, Room 30
Juneau, AK 99801-1182
Phone: (907) 465-4989
Fax: (907) 465-3922

February 25, 2004
1:30 – 3:30 PM
Fahrenkamp 203

AGENDA

I. Call To Order

II. New Business

SJR 25 Federal Flooding & Erosion Control Assistance

Sponsor Testimony:
Senator Donny Olson, Dist T (D-Nome)
Invited Testimony:
Tony Weyiouanna
Public Testimony:

SB 328 National Forest Income Program

Sponsor Testimony:
Dick Coose, Staff Senator Stedman
Invited Testimony:
Bill Rolfzen, Div of Community Advocacy, Dept of Community & Economic Development
Public Testimony:

III. Adjourn

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2/06/04

To:
Senator Stedman
Senate Community and Regional Affairs

From:
Sen. Olson

Re: SJR 25 FLOODING AND EROSION CONTROL ASSISTANCE

I respectively request a hearing for SJR 25 on February 25th, 2004. There will be a delegation from the city of Shismaref visiting on this day. We are hoping to have them testify before your committee on the 25th. I have attached my sponsor statement. Please contact me if you need additional information.

Thank you for your attention to this request.

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THE
FOLLOWING
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ARE
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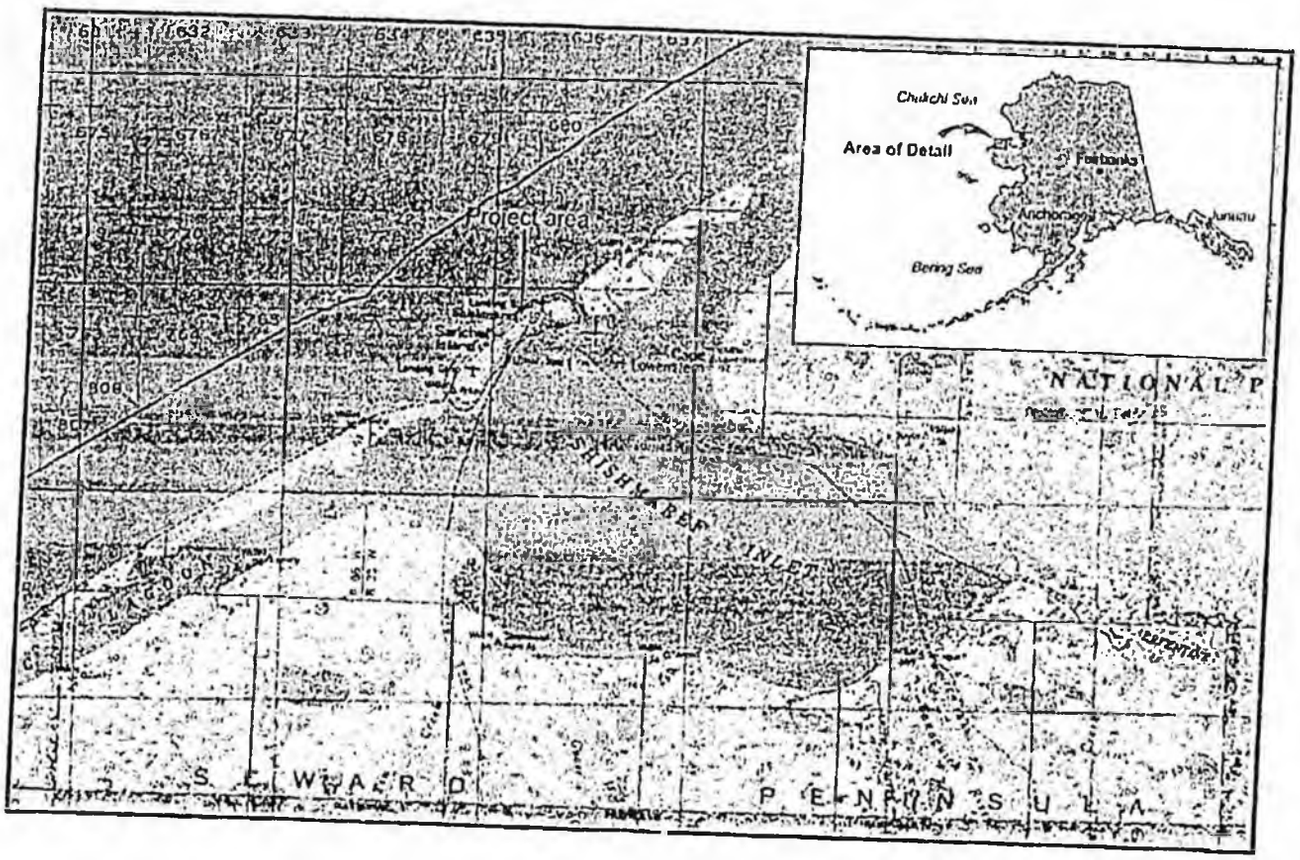
Enclosures


Project area
Area of Detail
Chukchi Sea
Fairbanks
Anchorage
Juneau
Bering Sea
Lowman
NATIONAL P
SEWARD
PENINSULA

SHISHMAREF EROSION AND RELOCATION COALITION

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Statutes and Regulations Are Not Designed for Emergencies

The government's programs are designed to do cleanup after the emergency rather that put funds into prevention. We had time after time been told by both Federal and State Agencies that they cannot provide the assistance we need until a "Disaster Declaration" has been made. The declaration itself requires a dollar value for the damage. In our case, because no value is provided for the lost land, and we have been able to tug homes out of harms way at the last moment, we don't have enough dollar value loss to qualify.

The situation facing Shishmaref should be categorized as an emergency, and that overly burdensome Federal regulations need to be eased. It is also a great concern to us, that many of the Federal requirements drive the estimated costs up and that the relocation could be accomplished at a significantly reduced cost should there be a loosening of regulations because of the emergency. The GAO report provides excellent recommendations to address these issues and should be adopted by Congress, however, our situation is urgent and we may not survive the full implementation of new Statutes, Regulations, and Policies. Because of this, we request that Shishmaref be identified as a demonstration project with maximum flexibility authorized, and used to help determine what changes to Statutes, Regulations, and Policies need be done overall.

We are providing a packet with additional information to help you understand and to share with others the situation in Shishmaref.

We, the people of Shishmaref, value our heritage and way of life; we are proud of who we are. We believe that any action, including inaction needs to take into consideration the human impacts. If we were not a true "community" the people of Shishmaref would long ago have drifted apart when faced with such complete devastation. Every year we watch as the ocean absorbs our island. We are connected to Kikigtaq (homeland of the people of Shishmaref), we ask for assistance in helping us to stay here.

Thank you for this opportunity to share with you our concerns. Please let us know if there is anything else that we can do to help you understand our situation.

Sincerely,

Luci Eningowuk

Luci Eningowuk
Chairperson

Enclosure: Packet

SHISHMAREF EROSION AND RELOCATION COALITION

Luci Eningowuk, Chairperson
P.O. Box 72100
Shishmaref, Alaska 99772
(907) 649-2289 Fax (907) 649-4461

Tony A. Weyiouanna, Sr. - Shishmaref Village Transportation Planner, tony@kawerak.org
Sophie Weyiouanna - Administrative Assistant

The Honorable Governor Frank Murkowski
Office of the Governor
P.O. Box 110001
Juneau, Alaska 99811-0001

February 25, 2004

REF: Request for Assistance

Dear Governor Murkowski:

The Shishmaref Erosion and Relocation Coalition, made up of the three governing bodies of the community of Shishmaref, requests your assistance in seeking both funding and technical support. Our immediate goal is to seek assistance in providing erosion protection measures for the community. Our longer-term goal is to reestablish Shishmaref at a new mainland site. Our goal is to enhance our working relationship with the State government.

We request the State's assistance in the following:

Immediate Erosion Protection for Shishmaref - the U.S. Army Corps of Engineers has agreed to provide a Section 14, Emergency Shoreline Protection Project on the northern seaward side of our School's property. This project requires a $400,000 local match. We request one of the following solutions:

1. The State urges the Federal Government to make an exception to the requirement for the local match and fund the project as 100% Federal.
2. The State urges the Federal Government to consider the adjoining project being constructed jointly by Kawerak, Inc. and the Native Village of Shishmaref, using Bureau of Indian Affairs, Indian Reservation Roads program funds, to protect the community's main street and road to the airport, as the local match.

Or if neither of these are acceptable to the Federal government,

3. The State authorizes within its budget, the required local share.

A large majority of the community is unprotected and thus left vulnerable to even minor storms. We urge the State government to provide funding to place erosion protection measures in other areas of the community that are left unprotected. Kawerak Transportation Project heavy equipment is mobilized and ready. Reusable armor flex cement blocks and gabions are available from prior erosion measures. With a small

amount of assistance, we could minimize expenses and provide protection to other areas in the community by reusing this material.

Relocation of the Community of Shishmaref to the nearby mainland – we seek support from the State to urge the federal government to initiate the following:

1. That Congress enact special measures to ensure that the Alaska villages qualify for and receive federal assistance for erosion protection and if needed relocation.
2. That Congress enact legislation that establishes Shishmaref, Alaska as a demonstration project for both erosion and relocation assistance, as a coordinated effort between the respective Federal Agencies: Federal Emergency Management Agency (FEMA), US. Army Corps of Engineers (Corps), and the Natural Resource Conservation Service (NRCS); and the Denali Commission. That FEMA be identified as the Agency responsible to head the coordination and identify other Federal agencies that need to be involved, as well as establishing a cooperative working relationship with the State of Alaska.
3. We seek support from the State's respective Departments to provide technical and funding assistance for the establishment of a new community.
    - Studies for the following that may fall within the responsibility of the State:
    - Wind studies for a new airport
    - Assistance with community infrastructure
    - Water
    - Sewer
    - Landfill
    - Utilities
    - Etc.
4. We seek support from the State for the construction of an emergency evacuation shelter at the Tin Creek site on the mainland. A building large enough to provide space as a temporary school and provide for other critical functions during an emergency situation.

Background:

The situation at Shishmaref is dire and requires immediate action. On an annual basis, until the protective winter ice arrives, we agonize that the next storm will be the one that wipes us out. The most recent storm event of November 21, 2003 caused significant beach erosion. We did not loose any homes this time, however, we, who live in Shishmaref, know that it is merely a matter of time.

We are concerned for the cohesion of our community. The community has expressed and reconfirmed its desire to retain community integrity; this intent was articulated through a community wide vote held on July 10th of 2002, showing overwhelming support to relocate the community. With the decision to relocate we passed an ordinance that requires that all new buildings or facilities be movable. We anticipate that once a new site is prepared, it will be a straightforward process to skid existing structures across the ice to the new community location.

Subsistence is a vital factor to our way of life and our ability to provide for ourselves; we believe that relocation to a site on the mainland near our current location is the optimum solution. In 2002, the USDA Natural Resource Conservation Service (NRCS) performed preliminary site evaluations at 5 locations on the mainland. In 2003, they narrowed their review to two sites, Tin Creek and West Tin Creek. They delivered their report to the community on January 13, 2004, providing their recommendation for the Tin Creek site. The community discussed the report, and has endorsed the Tin Creek site for further studies.

The rate of erosion and the number of flooding events has accelerated. Even though the storms have been moderate in level; the damage is more severe in recent years. The community and Coalition would like to stress the immediacy of the problem and will continue to push for an expedited relocation. Below are challenges limiting our efforts.

No Federal Champion

The massive nature of relocating an entire community will require interagency cooperation and coordination as there is no one agency stepping forward to take the lead. We have reviewed the GAO report and encourage you to consider their recommendations. We strongly agree a coordinated effort to address issues caused by erosion and flooding of the threatened Alaska Native Villages is necessary. We believe the agency assigned to coordinate must be one that has proven itself to be proactive in addressing the needs of Alaska Native Villages.

Limited Local Capacity

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.

Limited Ability For Massive Evacuation

There is no infrastructure at the new site. We request assistance to build an emergency evacuation building at Tin Creak 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.

No Viable Bluff Protection in Place

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. We have requested a Corps of Engineers Section 14, Emergency Protection Project for the section of shoreline in front of our school. The

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Chairperson

Enclosure: Packet

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Luci Eningowuk, Chairperson
P.O. Box 72100
Shishmaref, Alaska 99772
(907) 649-2289 Fax (907) 649-4461

■

Tony A. Weyiouanna, Sr. - Shishmaref Village Transportation Planner, tony@kawerak.org
Sophie Weyiouanna - Administrative Assistant

Information Packet Contents

PowerPoint Presentation
Shishmaref Measurements 11-25-03
Kawerak Transportation Seawall Project Update
US Corp of Engineers Section 14 School Property Seawall Project Update
Evacuation Plan
NRCS Relocation Site Report
Relocation Strategic Plan
Copy of City Ordinance-Establishing a Land Use Regulations
City of Shishmaref, Resolution 04-04

SHISHMAREF EROSION AND RELOCATION COALITION
Serving the Community for a Better Future

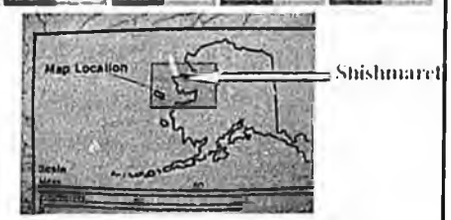
Relocation and Erosion Concerns
Shishmaref, AK

Shishmaref Erosion and Relocation Coalition is made up of the three local governing entities

- Native Village of Shishmaref
- City of Shishmaref
- Shishmaref Native Corporation

Kawerak, Inc., the Regional Non-Profit facilitates the coalition and provides some staff support.

Shishmaref is located on a barrier Island



- Communities within the Region: Shishmaref, Wales, Diomede, Brevig Mission, Teller/Mary's Igloo, Nome Eskimo/Solomon/King Island/Council, White Mountain, Elim, Koyuk, Golovin, Shaktoolik, Unalakleet, St. Michael, Stebbins, Gambell, Savoonga

Life in Shishmaref

Getting around town

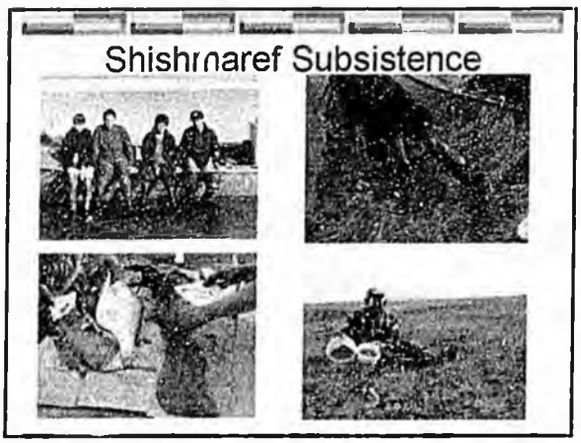
Access to Shishmaref is by small aircraft

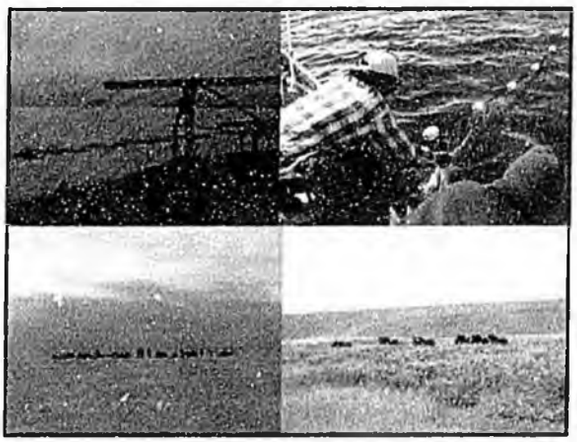
Summer transportation

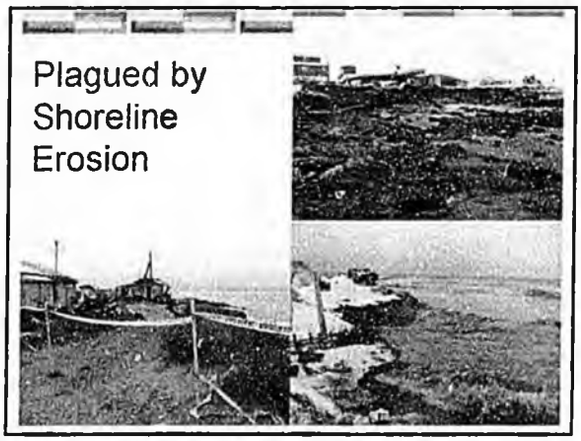
Reindeer in the corral

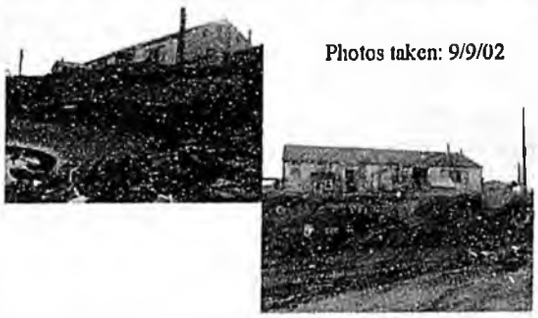
Subsistence

The community is highly dependant on its' Cultural and Traditional Heritage. Subsisting off the land and sea is a vital component to the daily consumption of natural foods harvested in Shishmaref. This is passed on from generation to generation. The preservation of our unique culture is vital to the continued existence of our community as one family.









Photos taken: 9/9/02

Bluff is all sand, only thing holding it together is perma frost

Bluff failure - 2002

10-08-02 Storm

Erosion rate. These 2 photos were taken 2 hours apart (Note: the ATV tracks in the road and the 55 gallon barrel). This road no longer exists and the homes have been relocated to the other side of the island

November 21, 2003 Storm

Road between town and the landfill

(The lights on the right are the airstrip)

Shishmaref
Measurements 11-25-03

Flooding near the Shishmaref Tannery– November 2003

Community efforts during the November 2003storm
-evacuating threatened homes (Teacher's quarters, Kokeok's home and several others were evacuated)
-pulling back boats

The community has voted to relocate to the mainland. Site selected for further studies is Tin Creek.

Agencies Providing or Offering Assistance

- Natural Resource Conservation Service
- U.S. Army Corps of Engineers
- AK Division of Emergency Services
- FEMA
- AK Community and Economic Development
- Innovative Readiness Training
- Housing Authority – HUD
- Denali Commission

Requests for State Assistance

- Shoreline Erosion Protection
- Relocation Preparation and Planning

Erosion Protection School Property

- 3 options for Corps Section 14 Project local match
  - Request the Federal Govt. to waive the local match for Section 14 Project, or
  - Urge Corps to Consider Kawerak Transportation Project as the local match, or
  - State authorizes funds to provide local match

- Kawerak Transportation Project
  - Rip Rap Seawall to Protect main road
  - Equipment Mobilized
  - Construction to begin March '04

Erosion Protection Other Areas

- Assistance to provide protection for other areas with nothing in place.
  - Kawerak Project equipment already mobilized
  - Local material reusable armorflex cement blocks and gabions available from previously constructed and failed seawalls.

Relocation

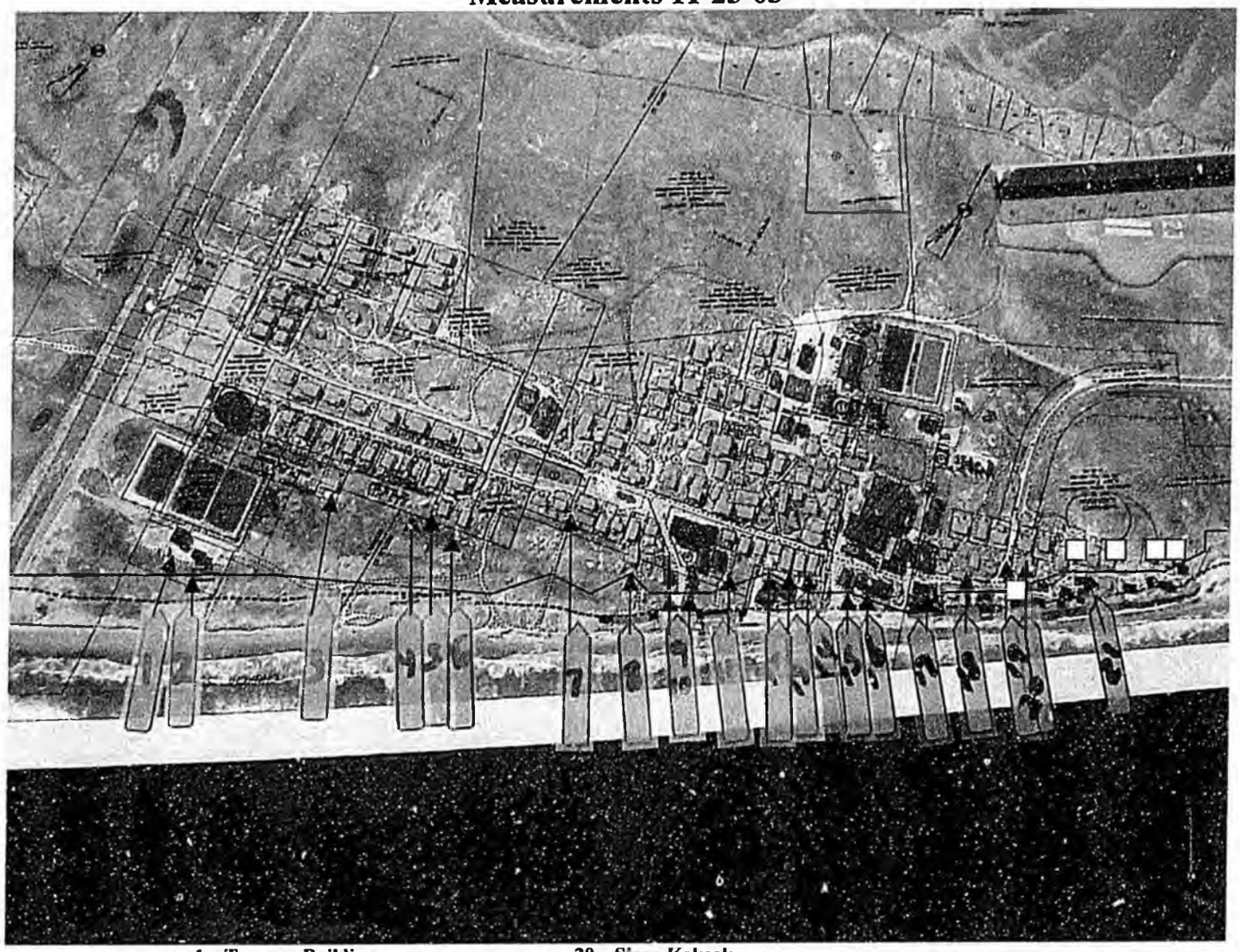
- Request for the Federal Govt. to enact special measures to ensure Alaska villages qualify for and receive federal assistance for erosion protection and relocation
  - Coordinated effort between Federal and State Agencies
  - FEMA to be the agency to take the lead
- Request for the Federal Govt. to enact legislation that establishes Shishmaref as a Demonstration Project for both erosion and relocation assistance

Relocation

- Request that various state agencies are fully involved and engaged in establishing a new community
  - Full Cooperation and Coordination with Federal agencies and local entities
- Support from State's respective Depts. To provide technical and funding assistance for the establishment of the new community

Shishmaref, we are worth saving

Shishmaref
Measurements 11-25-03



1 – Tannery Building
2 – Cottage Building
3 – Charlene Ningealook
4 – Alfred Pootoogooluk
5 – Archie Kiyutelluk
6 – Jim/Janet Barr
7 – Alvin Pootoogooluk Sr.
8 – Bill Jones
9 – East – Bulk Tank
10 – West – Bulk Tank
11 – Margie Ningealook
12 – Winfred Obruk
13 – Nora Kuzuguk
14 – Jenny Kuzuguk
15 – Red School
16 – Blue School
17 – Native Store Warehouse
18 – Lloyd Kiyutelluk
19 – Shelton Kokeok
20 – Signa Kokeok
21 – Nathan Weyiouanna

Current estimated beach line ——
Measurement edge to building ——→
Homes moved 2002 □

Shishmaref
Erosion
Measurements
2001-2002

			Distance from Edge			Date		Date	
		Location	Fall 2001	1-Jul-02	Loss	11-Nov-03	loss	25-Nov-03	loss
	Tannery								
1		Tannery Bldg	124	122.5	1.5	118	4.5	118	0
2		Cottage Industry	64	61	3	57	4	57	0
3	Houses	Charlene Ningealook	300	300	0	258	42	255	3
4		Alfred Pootoogooluk	205	205	0	201	4	200	1
5		Archie Kiyutelluk	200	200	0	188	12	167	21
6		Jim/Janet Barr	190	190	0	144	46	142	2
7		Alvin Pootoogooluk Sr.	195	195	0	195	0	190	5
8		Bill Jones	90	90	0	72	18	66	6
9	Bulk Tanks	East	65	65	0	57	8	31	26
10		West	69	69	0	61	8	25	36
11	Houses	Margie Ningealook	105	104	1	86	18	48	38
12		Winfred Obruk	105	94	11	67	27	48	19
13		Nora Kuzuguk	100	89	11	67	22	58	9
14		Jenny Kuzuguk	100	89	11	75	14	66	9
15		Red School	72	66	6	42	24	20	22
16		Blue School	47.5	38	9.5	17	21	10	7
17	Native Store	Warehouse	50	50	0		50		0
18	Houses	Lloyd Kiyutelluk	66	66	0	61	5	57	4
19		Shelton Kokeok	55	55	0	32	23	31	1
20		Signa Kokeok	117	117	0	91	26	90	1
21		Nathan Weyiouanna	65.5	65.5	0	13	53	5	8
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KAWERAK, INC. ○ P.O. Box 948 ○ Nome, AK 99762

TEL: (907) 443-5231 • FAX: (907) 443-4452

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January 15, 2004

Luci Eningowuk, Chairperson
Shishmaref Erosion and Relocation Coalition
P.O. Box 72100
Shishmaref, AK 99772

Re: Seawall Project Update

Dear Luci:

The Seawall project was fully mobilized by September 2003. The project was shut down early because of our inability to dig in the beach, due to a "running sand" condition. The test holes that we dug, shortly filled with water and sloughing sand. To build the project, we must be able to dig a toe trench to a depth of approximately 5 feet. The trench will have geotextile fabric placed into it, then filter rock, and finally topped with heavy armor rock to form the project toe or foundation. We will re-start the project early this upcoming spring while the beach is still frozen and prior to the loss of the protective pack ice. We elected to start the project in the spring rather than in December because of the short daylight conditions, and colder temperatures likely to be encountered in December and January versus April and May.

We will be coming out in February to re-survey the bluff due to changes caused by the significant erosion from the October and November storms. If we find that too much bluff has been lost, it may require a revision of the right-of-way documents, a requirement imposed by the Bureau of Indian Affairs (BIA). We have consistently asked that the BIA relax some of their requirements, not only because of the emergency nature of your situation, but the dynamic changes of your shoreline. They have been hesitant to make any exceptions without a disaster declaration.

In regard to the efforts of the Corps of Engineers, in an effort to expedite their process, we have provided them all information regarding the shoreline survey, our archaeological report, and our design. If funding is secured to build onto the east end of our seawall, I am concerned that they will run into the same problems that we have regarding the establishment of the toe. I believe they will be able to mobilize this summer, but it will be very difficult for them to work in the beach until after the beach is frozen.

Our project, once complete will provide a buffer of time for a small portion of the community. The seawall is not a permanent solution. All the experts that we worked with in the development of the project, including the U.S. Army Corps of Engineers had indicated that they believe the community needs to move.

Sincerely

Julianne Baltar

Julianne Baltar,
Director. Kawerak Transportation Program

Civil Works Branch

Public Notice

Alaska District
U.S. Army Corps of Engineers

Date FEB - 9 2004 Identification No. ER 04-06
Please refer to the identification number when replying.

ENVIRONMENTAL ASSESSMENT AND
UNSIGNED FINDING OF NO SIGNIFICANT IMPACT

SHORELINE EROSION PROTECTION
SHISHMAREF, ALASKA

To All Interested Parties:

The U.S. Army Corps of Engineers, Alaska District, has completed an environmental assessment (EA) under the National Environmental Protection Act (NEPA) for erosion protection at Shishmaref, Alaska. Erosion of the shoreline fronting the community of Shishmaref is threatening public structures, roads, utilities, fuel tanks, and the sewage lagoon. The proposed rock revetment would protect the shoreline fronting the school property.

The proposed revetment would be constructed along 230 feet of shoreline and consist of three layers of rock of different gradations and one layer of filter fabric on the bluff. The revetment would rise to a crest height of +12 feet mean low lower water (MLLW) and extend to an excavated toe at –5 feet MLLW. Sand excavated from the toe would be placed in the intertidal zone. The northeast end of the revetment would tie into a similar revetment currently being constructed by the Bureau of Indian Affairs.

Under optimal conditions, the rock revetment would slow erosion of the bluff in front of the school property, which is part of a school reserve owned by the State of Alaska Department of Education and Early Development and managed by the Bering Straits School District. Construction of the revetment is expected to cause only temporary disturbance to fish and invertebrates in the area.

The EA is enclosed for your review and comments. Please submit comments regarding the proposed action no later than 30 days from the date of this public notice. No public meeting is scheduled. If you believe a public meeting is needed, please explain in writing why a meeting is necessary and mail it to the address below during the 30-day review period. The FONSI will be signed upon review of comments received and resolution of significant objections. Please send comments to:

U.S. Army Engineer District, Alaska
ATTN: CEPOA-EN-CW-ER (Grover)
P.O. Box 6898
Elmendorf AFB, AK 99506-6898

The Alaska District, U.S. Army Corps of Engineers is also applying for State certification from the Alaska Department of Environmental Conservation under Section 401 of the Clean Water Act of 1977 (PL 95-217) that the discharge from the Corps project as described would comply with the Clean Water Act, the Alaska Water Quality Standards, and other applicable State laws. Any person desiring to comment on the project with respect to water quality certification may submit written comments within 30 days of this public notice to:

Department of Environmental Conservation
WQM/401 Certification
555 Cordova Street
Anchorage, AK 99501-2617
Telephone (907) 269-7564
FAX (907) 269-7508

Please contact Ms. Margan Grover of the Environmental Resources Section for more information by calling (907) 753-5670, by fax at (907) 753-2625, or e-mail at margan.a.grover@poa02.usace.army.mil.

Guy R. McConnell
Chief, Environmental Resources Section

Enclosure

RESIDENTS OF SHISHMAREF, ARE YOU READY FOR A FLOOD??

Summer can't last forever. Soon the weather will be cooler, the birds will be flying south. And, YOU'LL BE IN THE WORST DANGER OF FLOODING ALL YEAR.

WHAT TO DO

- Listen for current flood information on radio and TV. You can check breakup reports on the Internet at either the Division of Emergency Services web site www.ak-prepared.com
- Contact your city office at 907-649-4781/3781 or insurance agent to find out if flood insurance is available in your community.
- Remember that flooding is serious. Make sure your children and pets are safe. Keep them away from culverts and floodwaters and don't leave pets in areas that might be flooded.
- Take measures to protect homes and personal property. Locate problem areas and MOVE PROPERTY TO HIGH GROUND IF NECESSARY (snow machines, chain saws, ATV's, commercial fishing gear, etc.).
- Monitor septic systems, wells and fuel tanks. Make sure valves are shut so tanks won't spill if floodwaters move them.
- Electricity will be shut down if the power plant floods. Be prepared to do without electricity.
- Be ready to be isolated for several days if your airport floods.
- Stock up on food and water.
- Keep a battery-powered radio and good batteries available.
- The Shishmaref Lutheran Church and the Shishmaref High School is your community shelter is and be prepared to move into one of them if necessary.

Disaster Services - Disaster Supplies Kit

Disasters happen anytime and anywhere. And when disaster strikes, you may not have much time to respond. A fuel spill or hazardous material could mean evacuation. A

winter storm could confine your family at home. An earthquake, flood, or any other disaster could cut water, electricity, and telephones-for days.

After a disaster, local officials and relief workers will be on the scene, but they cannot reach everyone immediately. You could get help in hours, or it may take days. Would your family be prepared to cope with the emergency until help arrives?

Your family will cope best by preparing for disaster before it strikes. One way to prepare is by assembling a Disaster Supplies Kit. Once disaster hits, you won't have time to shop or search for supplies. But if you've gathered supplies in advance, your family can endure an evacuation or home confinement.

Prepare Your Kit

- Review the checklist below.
- Gather the supplies that are listed. You may need them if your family is confined at home.
- Place the supplies you'd most likely need for an evacuation in an easy-to-carry container. These supplies are listed with an asterisk ().
- There are six basics you should stock for your home: water, food, first aid supplies, clothing and bedding, tools and emergency supplies, and special items. Keep the items that you would most likely need during an evacuation in an easy-to carry container--suggested items are marked with an asterisk ().

Possible Containers Include-

- A large, covered trash container,
- A camping backpack,
- A duffle bag.

Water

- Store water in plastic containers such as soft drink bottles. Avoid using containers that will decompose or break, such as milk or glass bottles. A normally active person needs to drink at least two quarts of water each day. Hot environments and intense physical activity can double that amount. Children, nursing mothers, and ill people will need more water.
- Store one gallon of water per person per day *with a minimum of a one week supply and more if possible.*
- Keep at least a three-day supply of water per person (two quarts for drinking, two quarts for each person in your household for food preparation/sanitation).

Food

- Store at least a three-day supply of non-perishable food. Select foods that require no refrigeration, preparation or cooking, and little or no water. If you must heat

food, pack a can of sterno. Select food items that are compact and lightweight. Include a selection of thee following foods in your Disaster Supplies Kit:

- Ready-to-eat canned meats, fruits, and vegetables

First Aid Kit

Assemble a first aid kit for your home and one for each boat. A first aid kit should include:

- Sterile adhesive bandages in assorted sizes
- Assorted sizes of safety pins
- Cleansing agent/soap
- Latex gloves (2 pairs)
- Sunscreen
- 2-inch sterile gauze pads (4-6)
- 4-inch sterile gauze pads (4-6)
- Triangular bandages (3)
- Non-prescription drugs
- 2-inch sterile roller bandages (3 rolls)
- 3-inch sterile roller bandages (3 rolls)
- Scissors
- Tweezers
- Needle
- Moistened towelettes
- Antiseptic
- Thermometer
- Tongue blades (2)
- Tube of petroleum jelly or other lubricant

Non-Prescription Drugs

- Aspirin or non-aspirin pain reliever
- Anti-diarrhea medication
- Antacid (for stomach upset)
- Syrup of Ipecac (use to induce vomiting if advised by the Poison Control Center)
  Poison Control Center Phone Number (1-800-222-1222)
- Laxative
- Activated charcoal (use if advised by the Poison Control Center)
  Poison Control Center Number (1800-222-1222)

Tools and Supplies

- Mess kits, or paper cups, plates, and plastic utensils

- Emergency preparedness manual
- Battery-operated radio and extra batteries
- Flashlight and extra batteries
- Cash or traveler's checks, change
- Non-electric can opener, utility knife
- Fire extinguisher: small canister ABC type
- Tube tent
- Pliers
- Tape
- Compass
- Matches in a waterproof container
- Aluminum foil
- Plastic storage containers
- Signal flare
- Paper, pencil
- Needles, thread
- Medicine dropper
- Shut-off wrench, to turn off household gas and water
- Whistle
- Plastic sheeting
- Map of the area (for locating shelters)

Sanitation

- Toilet paper, towelettes
- Soap, liquid detergent
- Feminine supplies
- Personal hygiene items
- Plastic garbage bags, ties (for personal sanitation uses)
- Plastic bucket with tight lid
- Disinfectant
- Household chlorine bleach

Clothing and Bedding

- Include at least one complete change of clothing and footwear per person.
- Sturdy shoes or work boots
- Rain gear
- Blankets or sleeping bags
- Hat and gloves
- Thermal underwear
- Sunglasses

Special Items

- Remember family members with special requirements, such as infants and elderly or disabled persons

For Baby

- Formula
- Diapers
- Bottles
- Powdered milk
- Medications
- *All Prescription Medication*

For Adults

- Heart and high blood pressure medication
- Insulin
- Prescription drugs
- Denture needs
- Contact lenses and supplies
- Extra eye glasses
- *All Prescription Medication*

Entertainment

- Games and books

Important Family Documents

- Keep these records in a waterproof, portable container:
  - Will, insurance policies, contracts deeds, stocks and bonds
  - Passports, social security numbers, immunization records
  - Bank account numbers
  - Credit card account numbers and companies
  - *Photo's*
- Inventory of valuable household goods, important telephone numbers
- Family records (birth, marriage, death certificates)
- Store your kit in a convenient place known to all family members. Keep a smaller version of the Disaster Supplies Kit in your boat.
- Keep items in airtight plastic bags. Change your stored water supply every six months so it stays fresh. Replace your stored food every six months. Re-think your kit and family needs at least once a year. Replace batteries, update clothes, etc.
- Ask your physician or pharmacist about storing prescription medications.

SHISHMAREF

EMERGENCY PREPAREDNESS PLAN

WHAT TO DO IN THE EVENT OF A SEVERE STORM

If a forecast of an approaching storm is received over commercial or marine radio or by direct radio/telephone. it may be necessary to move people from the endangered area of the village to a more substantial structure on higher ground in the event of a severe storm. The buildings to be used are the Shishmaref Lutheran Church and the Shishmaref High School.

Decision to Evacuate

A. The Mayor or his designee working with guidance provided by the Shishmaref Emergency Services (SES), *VPSO and in coordination with the* Division of Emergency Services (DES) will determine the prudent time to begin activation of the evacuation plan.

B. *Once informed of an evacuation notice, DES will initiate its emergency measures.*

C. Shishmaref Emergency Services (SES) and local VPSO will Coordinate, Alert, and Notification of residents of the evacuation.

1. The Mayor working with guidance provided by the SES and VPSO will determine when it is safe for residents to move back to their homes.

CONTACTS

A. National Weather Service

Weather service notifies the VPSO (Thomas Nayokpuk) and provide radio announcement to the public. Also Statewide weather on ARCS.
Alaska Division of Emergency Services (DES) **(800)-478-2337**
(907) 428-7100
VPSO Office Phone Number wk. 907-649-3411 Hm. 907-649-2274
Fax 907-649-2181
Kotzebue weather service 907-442-3231

- City of Shishmaref Mayor- 907-649-3781
- IRA President- 907-649-3821
- Coalition/ Kawerak Transportation Program- 907-649-2289/2290
- Church- 907-649-3321
- SES President- 907-649-2160
- School Principal- 907-649-3021

B. DES - maintains a 24-hour *capability within the* State Emergency Coordination Center (SECC) and is prepared to coordinate efforts for

possible evacuation due to any natural or man made emergency. **Call DES if any concern exists regarding a possible evacuation.**

C. Alaska State Troopers (AST) Nome Post 1-800-443-2835 (24 hours)
(After hours Nome Police Dept. Dispatch)
Nome Police Department Dispatch 1-800-764-5525 (24 hours)
American Red Cross (Fairbanks Chapter) 1-907-451-8267 (24 hours)
Alaska Division of Emergency Services 1-800-478-2337 (24 hours)

D. Shishmaref Emergency Services (SES) Phone **(907) 649-2160/2162 fax 649-2161**
SES provides services for search and rescue, EMS, and are available 24 hours a day.
Stanley Tocktoo Hm. 907-649-8594, Fred Davis hm. 907-649-4451

E. Village Public Safety Officer (Thomas Nayokpuk) **907-649-3411** (will change answering machine to provide home phone number for after hour emergencies)
Thomas Nayokpuk 907-649-2274 hm./ Fax 907-649-2181
Loren Geary 907-649-2293

F. Search and rescue, fire, law enforcement, EMS and EMT and first responder. Direct link to State Troopers. 1-800-443-2835

G. AVEC **1-800-478-1818**
Need to be contacted to turn off or disconnect power
Local operator Winfred Obruk **907-649-3091**

H. Fire Department/Police department- VPSO **907-649-3411**

I. Health Aides- Medical services and contacts for medivacs
Health Clinic **907-649-3311/2127 fax 907-649-2083**
Melissa Johnson – hm. 907-649-2142
Judy Eningowuk - hm. 907-649-5773
Darlene Olanna hm. 907-649-3099
Frieda Eningowuk 907-649-2261
Melinda Nayokpuk 907-649-3651
Wanda Schultze
Lori Hadley
Pearl Davis- CTC

EVACUATION:

Sea waves condition may develop which threatens the island, or actually cover up, a part or all of the island, or fire, or ground water contamination may also be among the hazards to cause the need for evacuation. Such a situation poses a grave threat to life and property; therefore, it is essential that provisions be made to evacuate the population to nearby safe areas on the mainland or to established evacuation centers in Nome or Kotzebue.

ORGANIZATIONS AND RESPONSIBILITIES

A. The **Mayor** working with guidance provided by the Shishmaref Emergency Services and *in coordination with* DES, will make a decision when to evacuate the community SES and DES will determine the prudent time to begin activation of the evacuation plan.).
Mayor Curtis Nayokpuk hm 907-649-3651
City office- 907-649-3781/4811 fax 649-2131

Work on local evacuations etc....

B. The following will fall under DES coordination:

1. Discuss ability to evacuate

2. AST (evacuation, search and rescue)

3. Army National Guard (ARNG) and USCG (equipment and transportation support for evacuation)
ARNG Battalion Headquarters- Nome 907-443-5282
Shishmaref Headquarters- 649-3891

C. The following will fall under Local Government coordination

1. Shishmaref Lutheran Church and Shishmaref School (sheltering evacuees)/Contact the American Red Cross.

2. Local corporation officials are responsible for assisting in the dissemination of information to local residents.

- *Shishmaref Native Corporation, President Percy Nayokpuk- 907-649-3751, hm 907-649-3181 wk 907-649-3191, Karen Sinnok Vice President, wk. 907-649-3741 hm 907-649-4211*

The person(s) and alternates to be in charge of each shelter are as follows: High School – **Principal Joe Braach**, Alternate: **John Hersrud, Assistant Principal**. Church: **Pastor Tim Oslovich**, Alternate: **President Vincent Tocktoo Sr.**

PROCEDURES:

1) Orders to occupy the shelters will be given by the **Mayor.**

2) Shishmaref Emergency Services (SES) and the local Law enforcement Authorities will act as the evacuation coordinators as assigned by the Mayor or his designee.
3) The Mayor may request authority through the Division of Emergency Services to use food supplies of the State Operated School to help feed the shelter occupants. Also, he may request authorization from the American Red Cross to obtain supplementary items from local stores.
4) Persons moving to the shelters will be told to take bedding, personal items, special medicines, and as much food and water as possible.
5) The person(s) in charge of the shelters will organize teams to help operate the shelters.
6) A representative from the American Red Cross will go to Shishmaref to help operate shelters if travel is possible.
7) After the danger has passed, the Mayor will determine when it is safe for the residents to return to their homes. SES will do a safety check on electric, gas, oil, and stoves/heaters for each home affected by the evacuation.
8) Prior to leaving the shelter the occupants will assist in clean up of the shelter.
9) The shelter managers will keep a record of food items consumed from the stocks of the State Operated School or obtained from local stores for feeding of shelter occupants. Such record will support later replacement by the American Red Cross or may be authorize by the State or Federal Agencies for reimbursement.

PROCEDURES:

A) EVACUATION BY BOAT:

1) During a storm, evacuation by boat may not be possible because of turbulent waters in the lagoon, and the inability to forecast how severe a storm may become. However, if the following conditions exist, evacuation by boat may be considered:

    a) A 24-hour advanced warning is received that an extremely severe storm is approaching and;
    b) Wave conditions in the lagoon will permit boat operations.

2) The decision to relocate by boat will be announced by the Mayor.

3) The relocation area is the East Nunatuq area, five miles southeast of Shishmaref.

4) Families should take as much of their emergency equipment with them as is possible.

5) The most experienced boat operators will be assigned to supervise the lagoon crossing.

6) The Mayor or his designee will be in charge of the relocation site.

B) EVACUATION BY AIR:

1) Evacuation by air will be a last resort. Normally aircraft operations will be hampered or be impossible during the height of a storm. This condition will not, however, preclude the Mayor from requesting evacuation, if in his opinion, he believes it is necessary to save lives.

2) The Mayor will forward a request for evacuation to the Division of Emergency Services Representative or to the Governor's Representative. This request will be transmitted to the Division of Emergency Services in Anchorage by the local agencies.

3) The Division of Emergency Services will coordinate air transportation requirements with the Adjutant General or the Alaskan Air Command.

4) The Mayor of Shishmaref, will be kept advised of the status of his request and the expected arrival time of aircraft at Shishmaref. (Note: it must be recognized that several hours may elapse from the time of the request until aircraft arrive at Shishmaref because of the flight time at Anchorage Elmendorf Air Force Base, which is the normal location at aircraft suitable to carry out an evacuation).

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
510 L Street, Suite 270
Anchorage, AK 99501

Luci Eningowuk, Chair
Shishmaref Erosion and Relocation Coalition

January, 2004

Attached please find the report: *Site Comparison of Tin Creek and West Tin Creek for Potential Emergency Evacuation and Permanent Relocation Sites*. This report summarizes the second year of field work by NRCS and is a companion to our first report: *Shishmaref Site Analysis for Potential Emergency Evacuation and Permanent Relocation Sites*. The findings of the comparison between Tin Creek and West Tin Creek Hills are:

1. Both sites are similar in geology, soils and vegetation.
2. Both sites are underlain by ice-rich silt that will need to be considered in any design.
3. Tin Creek is a larger site. It is more spread out, and thus more costly to completely build-out with infrastructure. Tin Creek is farther from the ocean. It has slightly steeper slopes. There would need to be a bridge across Goose Creek to reach the ocean.
4. Tin Creek Hills is very compact. Per house, there would be less feet of electrical cable or water line compared to Tin Creek. Tin Creek Hills is closer to the ocean. There would need to be a bridge across Tin Creek to reach the ocean.
5. Both sites have water available. Water is available from the creeks and possibly from groundwater at both sites. There are bigger lakes closer to Tin Creek.
6. Both sites have a location for a sewage lagoon. It will need to be lined. There is a possibility of using local wetlands for secondary treatment in the summer.
7. Both sites have a possible access route to Ear Mountain. Tin Creek has the most obvious route.
8. Both sites will need special considerations as to where a landfill should be located, and how it should be constructed. If the road to Ear Mountain provides access to some upland sites, perhaps this will expand the landfill location alternatives.

Although there is no clearly superior site, NRCS feels the added area of the Tin Creek site makes it more desirable. During design and construction, areas that need to be avoided will be discovered. A larger site will allow for more planning alternatives, as well as room for the Village to expand. The Tin Creek site is in a better location for road layout and construction.

NRCS plans to complete more field work in the summer of 2004. NRCS is committed to a long-term partnership with Shishmaref as they continue their efforts to relocate.

Sincerely,

Robert W. Sampson, P.E.
State Conservation Engineer

Site Comparison of Tin Creek and West Tin Creek Hills for Potential Emergency Evacuation and Permanent Relocation Sites

completed by:

The Natural Resources Conservation Service

in cooperation with:

The Shishmaref Erosion and Relocation Coalition

NRCS

January, 2004

General

Shishmaref is located on Sarichef Island in the Chukchi Sea, about 120 miles North of Nome, Alaska. The island has experienced severe erosion that is threatening the village infrastructure and safety. Natural Resources Conservation Service (NRCS) is assisting the village to evaluate relocation sites. NRCS conducted an analysis and ranking of six probable relocation sites (NRCS, 2003). After several public meetings and effort by the Shishmaref Erosion and Relocation Coalition (SERC) two sites were identified for further analysis, Tin Creek and West Tin Creek Hills (see Figure 1).

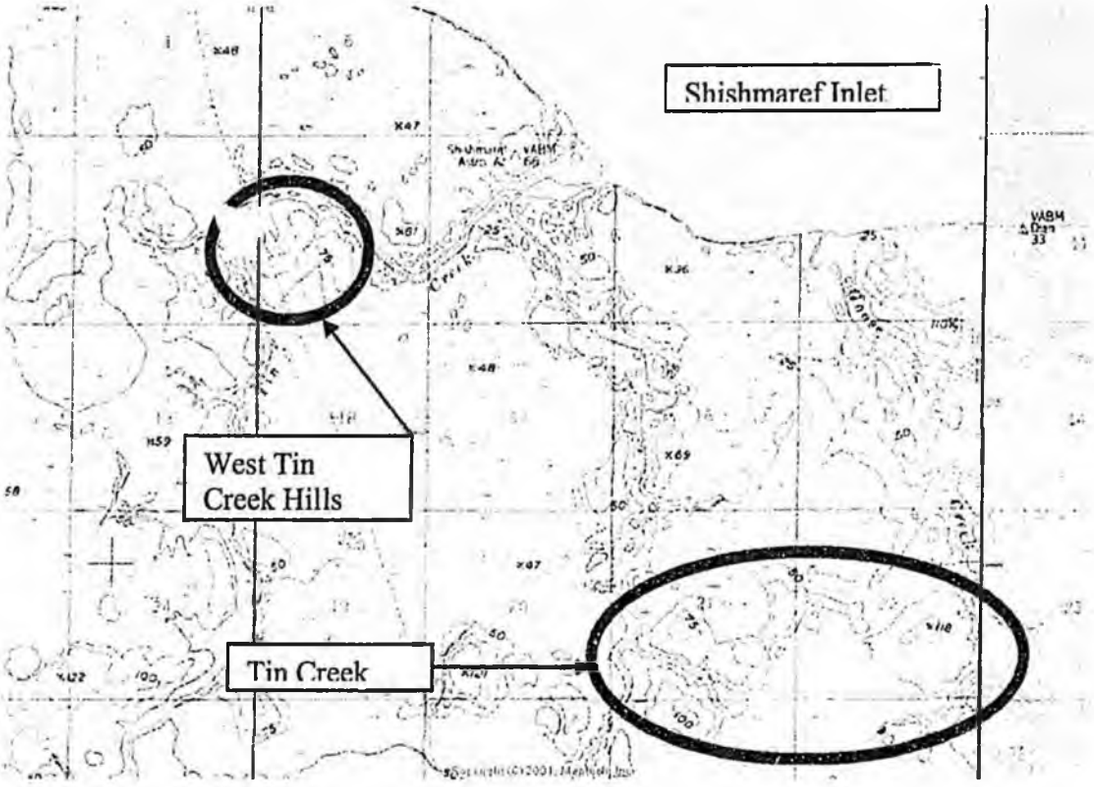

Figure 1 – Location of two relocation sites where further comparison was completed. Sections shown are in R35W, T8N.

The West Tin Creek Hills site is about 10 miles from present-day Shishmaref. The Tin Creek site is about 12 miles from the village.

Methods

A multidisciplinary team consisting of five people specializing in geology, vegetation, hydrology, engineering and planning spent four days hiking around the two relocation sites, as well as examining possible locations for infrastructure such as water supplies, access roads, and building materials.

Elevation data were collected with a survey-grade GPS unit. These data will provide a digital elevation model after completion of data collection next summer.

All conclusions in this report are based on professional judgment and discussion among the team members. The conclusions are intended to assist the community in narrowing their relocation efforts to a single site.

Comparison of Physical Geography
Both sites have very similar geography. Each site is inland, rather than the current coastal community. Each site is gently rolling and hilly, compared to the relatively flat island where the village is currently located.

Climate
Both sites will have similar climate. Overall, precipitation amounts and patterns should be similar to the current village location. There may be slightly less wind at the new locations. Temperature patterns will be similar, although diurnal fluctuations (high temperature during the day and low temperature during the night) may be slightly greater.

Geology and Soils
Both sites are on a similar geologic formation, and have similar soils. A 6 to 12 inch layer of vegetative mat is underlain by 10 to 16 inches of gray silt. This silt is underlain by permafrost composed of silt and a high amount of ice. Soil characteristics do not vary greatly on different slopes or different aspects. A detailed geologic report is included as Appendix A.

Vegetation
Vegetation is very similar between the two sites. A detailed vegetation inventory is included as Appendix B.

Human Aspects
The Tin Creek site is farther from Shishmaref Inlet (2 miles) than the West Tin Creek Hills site (1 mile). Each of the sites can be reached by small boat, Tin Creek Hills via the main stem of creek and Tin Creek via a very small eastern tributary. Because of concerns about streambank erosion, no boat access from the creek is recommended. A road will be needed from the new village site to the sea. This road will require that more miles be traveled on motorized vehicles than at the current site.

Air travel will require a new runway. There are several lowland locations where an airport could be located. These locations are a similar distance from the village sites compared to the current airport location. One advantage of the new sites is room to build a crosswind runway. This is unfeasible at the present airstrip location.

Land ownership patterns around the proposed relocation sites are shown in Figure 2.

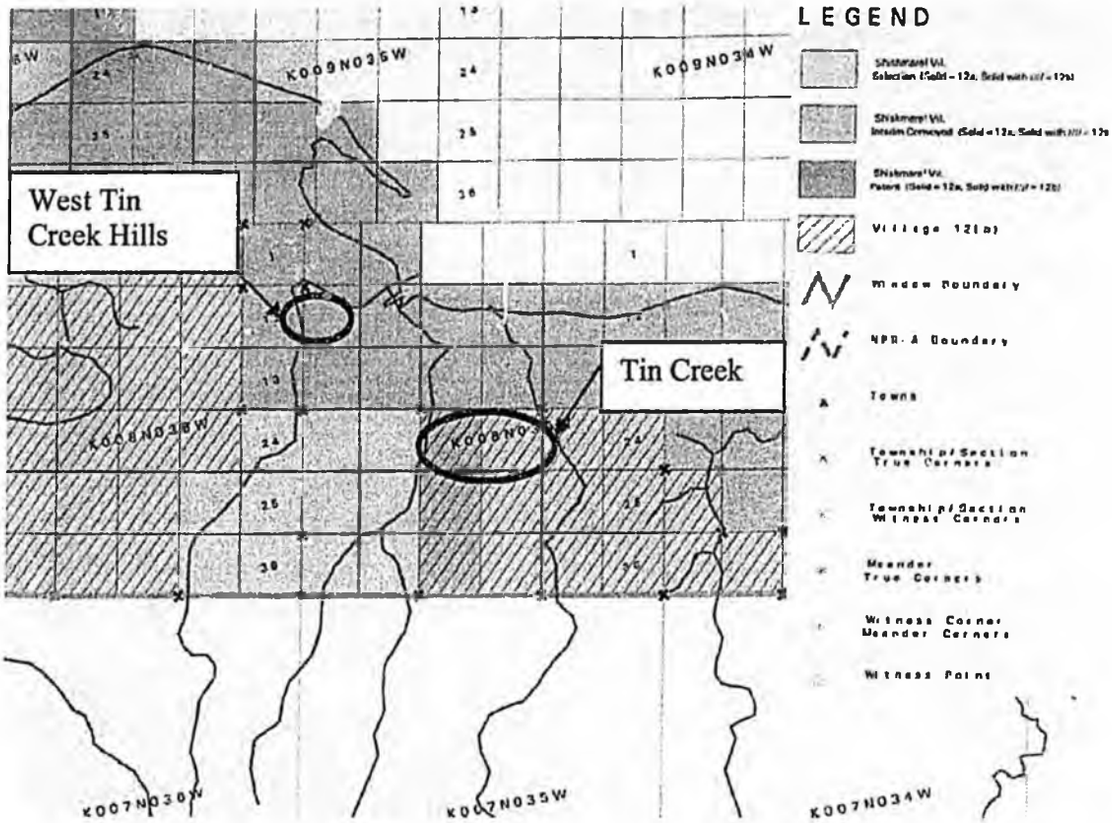

Figure 2 – Land ownership patterns around relocation sites. Note that land south of the shaded area is Federally owned, administered by the National Park Service, Bering Land Bridge National Preserve.

Tin Creek

Tin Creek site, and potentially developable areas are shown in Figure 3. Overall, the Tin Creek site is very spread out, dissected by several low areas and drainage ways.

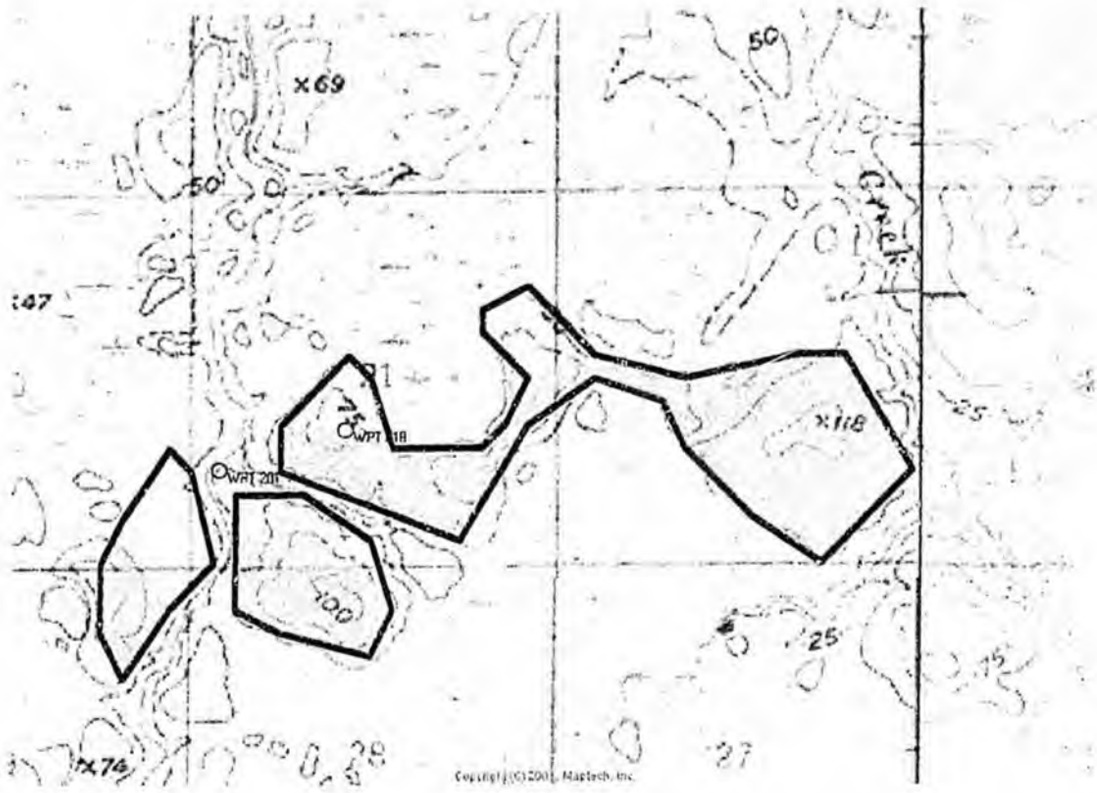

Figure 3 - Tin Creek relocation site. Dark lines encompass usable area. Shaded areas indicate areas where residential housing would be suitable. Sections are in R35W K.R.M., T8N.

The Tin Creek site has three developable areas. To the north and east is 186 acres shown by the dark line. Of this, 120 acres have the potential to be residential areas. To the south is an area of 102 acres that has 70 acres to develop into housing sites. Across the creek to the west is an area of 80 acres that has 40 acres suitable for housing sites. Overall, the site has 368 acres with 230 developable. At a housing density of 2 units per acre, this site could support a maximum of 460 structures. As a point of comparison, there are currently 160 structures in Shishmaref.

A general analysis of slopes at the Tin Creek site is shown in Table 1. A more detailed slope map will be available after data collection is completed in summer 2004.

Slope Summary for Tin Creek (%)

	Max	Min	Average	Distance	Elevation
North	9	0.5	2.9	1660	48
South	8	0.4	2.8	1600	44
East	7	0.2	1.8	1140	20
West	6	0.5	2.3	1140	26

Table 1 – Slope Summary for Tin Creek.

West Tin Creek Hills

West Tin Creek Hills site, and potentially developable areas are shown in Figure 4. Overall, the West Tin Creek Hills site is very compact.

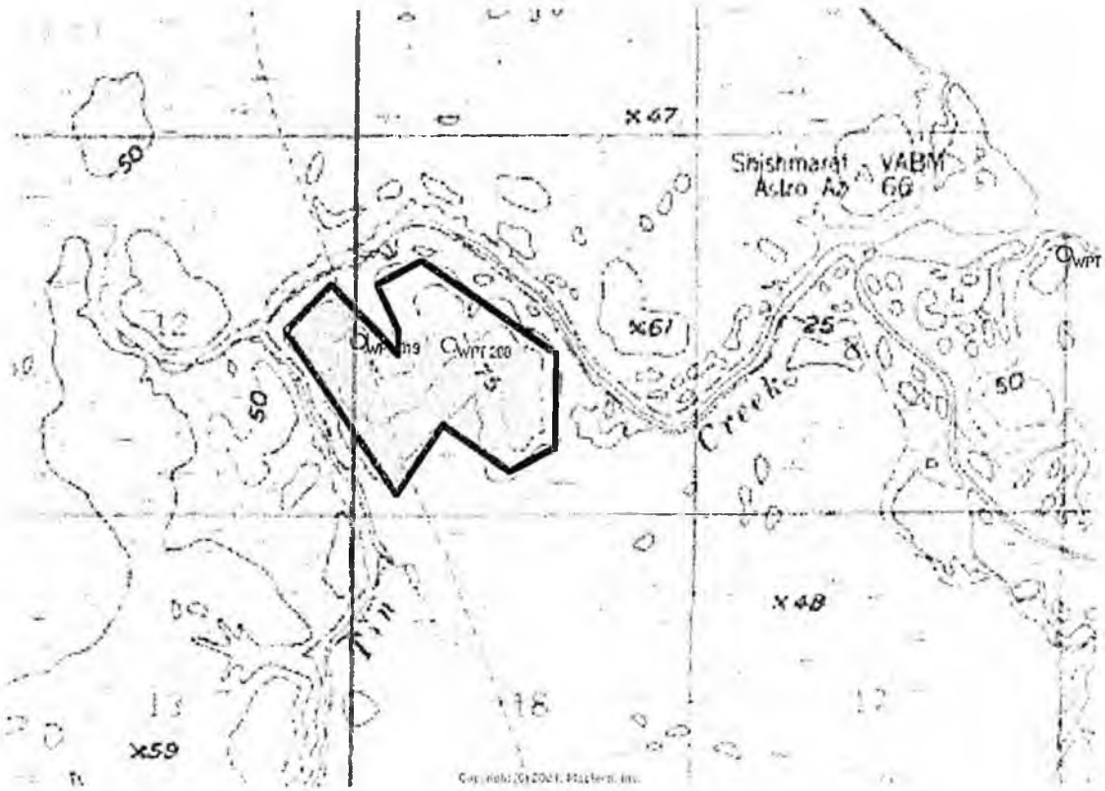

Figure 4 – West Tin Creek Hills relocation site. Dark lines encompass usable area. Shaded areas indicate areas where residential housing would be suitable. Sections are in R36W and R35W K.R.M., T8N. The dashed line is a winter trail.

The developable area of West Tin Creek Hills is approximately 163 acres. Of this total, about 125 acres are suitable for housing sites, and these are shown by the shaded area. At a housing density of 2 units per acre, this site could support a maximum of 250 structures.

Slopes at West Tin Creek Hills are slightly flatter than at Tin Creek. A summary of slopes is shown in Table 2.

Slope Summary for West Tin Creek Hills (%)

	Max	Min	Average	Distance	Elevation
North	8	0.5	2.3	800	18
South	4	0.3	0.7	1370	9
East	6	0.0	1.1	1910	20
West	14	0.3	2.4	1910	46

Table 2 – Slope Summary for West Tin Creek Hills.

Infrastructure
A comparison of infrastructure development between the two sites will be general at best. Many individual decisions will need to be made before the correct tests can be completed that would allow a detailed comparison between the sites.

Water
For a village of 800 people, a flow of approximately 125 gallons per minute can be used as a planning goal (Cold Region Utilities, 1996).

Tin Creek has a small lake directly in the middle of the development, and has several other lakes surrounding the area. In general, lake water would be a good source of drinking water if the lake is kept isolated from surface runoff from the village, and is upgradient from any sewer works. The detailed geologic report (Appendix A) indicates there may be some groundwater resources available.

Surface water may be available from the branch of Tin Creek that flows near the Tin Creek site. Investigation into the depth and persistence of winter freezing would be needed.

The West Tin Creek Hills site is not near any lakes large enough to support the required water flows. Direct removal from Tin Creek, or groundwater development are the best water supply alternatives at this site.

Sewer
Because of the shallow depth to ice and amount of wetlands and groundwater, a lined primary treatment lagoon may be the best alternative. Sewage can be collected by means of a pump and haul system, or with central sewer pipes.

If enough storage is provided at the lagoon, a secondary treatment through wetlands may be an effective discharge scheme in the summer.

The Tin Creek site has a potential lagoon location in Section 22. This is shown in Figure 5. The best location for a sewage lagoon at the West Tin Creek Hills site may be across Tin Creek to the Northwest. This site is shown in Figure 6.

Roads
Roads will consist of four components. The village will need a road to the ocean, since a great deal of boat traffic inland is undesirable. The village will need a road to an airport,

and this may be one of the most used roads in the village. The village development will need internal roads to move from house to house. Some of these can be elevated boardwalks for pedestrian and all-terrain vehicle traffic. The development will need a mining road going to a rock, gravel and sand source for village development.

Road to the Ocean
The Tin Creek site ocean road has a potential location along Goose Creek to the east. This road would need a bridge spanning Goose Creek. This potential location is shown in Figure 5, and is approximately 2.0 miles long.

The road to the ocean from West Tin Creek Hills would be about 1.3 miles long, and would go directly north from the village site. This alignment would require a bridge over Tin Creek. This road is anticipated to go across massive ice formations and wetlands and engineering would need to account for these conditions. This location is shown in Figure 6.

Road to the Airport
Both sites have areas that appear suited for airports from a soils and drainage standpoint. It should be stressed that NRCS has no particular expertise in siting airport facilities.

Near each relocation site there are extensive wetland flats. It is assumed these would be areas to build runways. In each case a road of one to two miles would connect the village site to the supposed airport location.

Internal Roads
Internal road design will be specific to village configuration and layout. There is no way to estimate the amount of road needed other than to guess. The relative length of road is an indication of the length of other infrastructure, such as electric lines, sewer and water pipes and pedestrian walkways.

Tin Creek would need trunk and spur roads due to its spread out nature. These roads would total about 6 miles and include two bridges to reach all of the developable areas. This conceptually is shown in Figure 5.

West Tin Creek Hills could be configured with two circular main routes, an inner and outer loop, with radial connecting roads. This layout would require about four miles of road, and is shown conceptually in Figure 6.

Road to Ear Mountain
The most obvious source of raw materials available for village development is Ear Mountain, about 12 miles by air from the village relocation sites.

An optimal route, avoiding massive ice formations, from Ear Mountain to Tin Creek is available. The route is over 21 miles long and drops over 1,600 feet. A rough sketch of this route, and an associated profile are shown in Figures 7 and 8.

An optimal route to West Tin Creek Hills is less obvious. The route shown for Tin Creek in Figure 8 could be used, but the connection between the two sites is over wetlands and

patterned ground that presumably has massive ice formations. There is a potential western route and this is shown in Figure 9. This route is also about 21 miles long and falls over 1,600 feet.

Either of these haul roads will be a large construction endeavor. Raw materials from Ear Mountain appear to be the best available material to construct the village roadways and infrastructure.

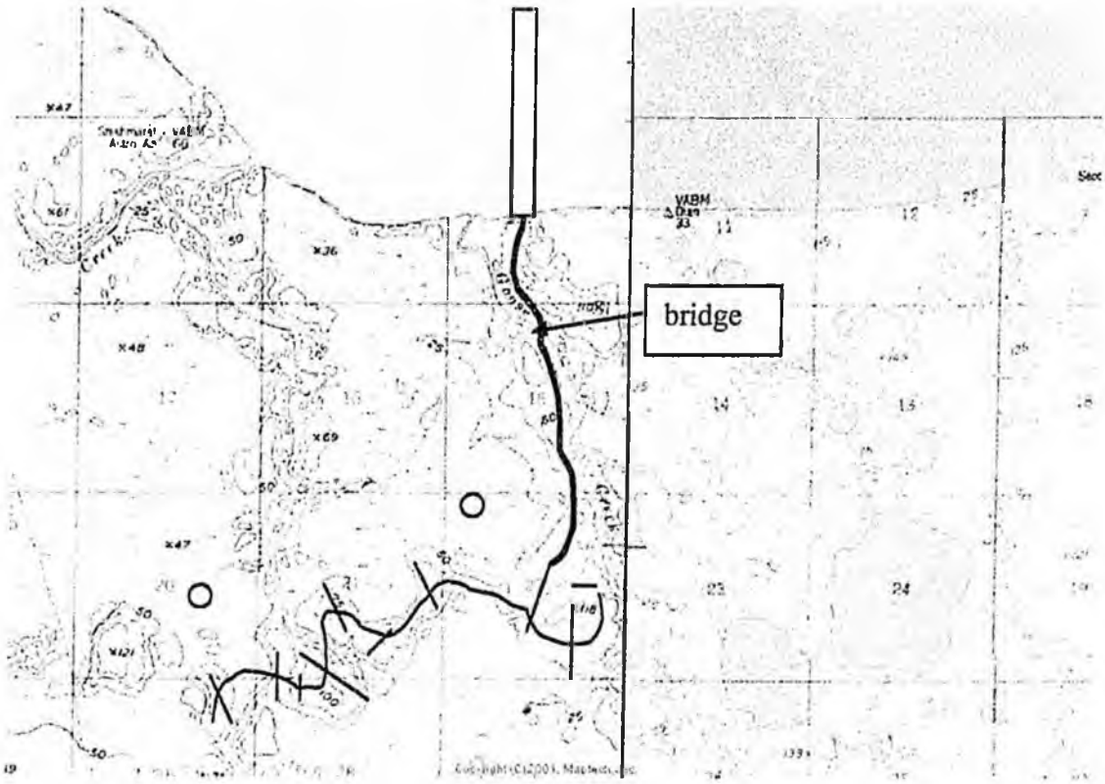

Figure 5 – Ocean (dark line) and internal road scheme (light lines) at Tin Creek site. The white box is a possible causeway for barge traffic and a small boat harbor. The white dots are potential lagoon locations.

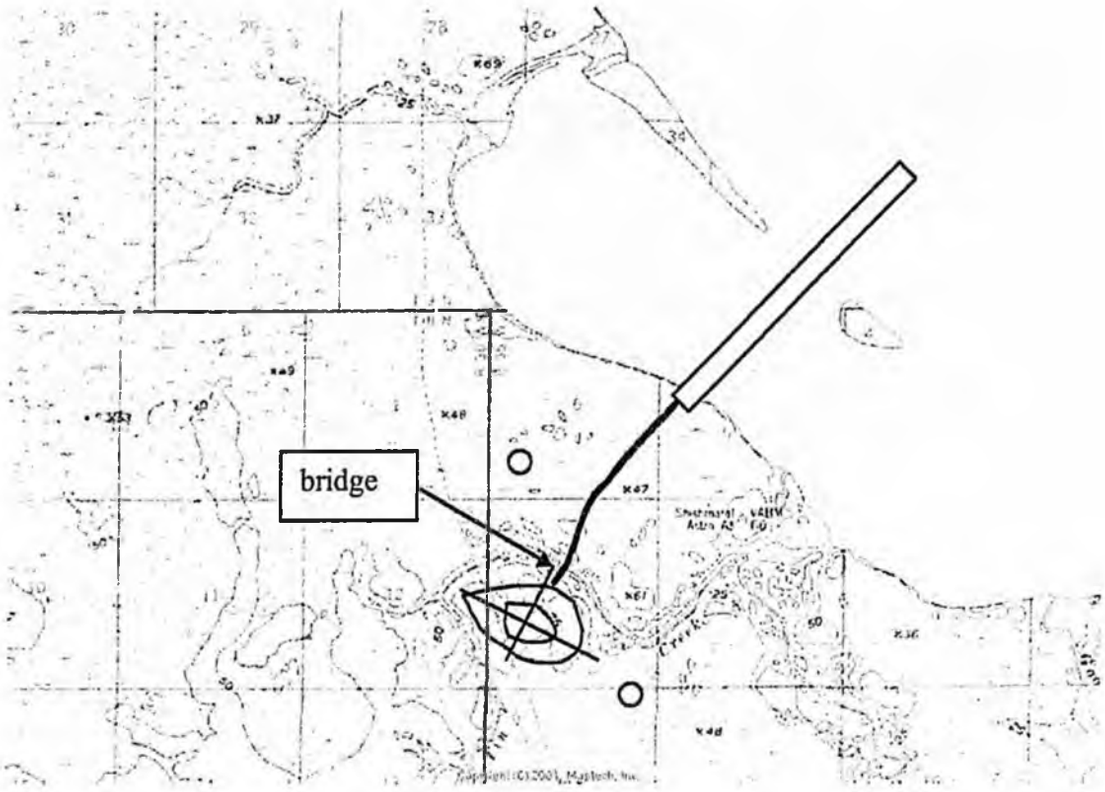

Figure 6 – Ocean (dark line) and internal road scheme (light line) at the West Tin Creek Hills site. The white box is a possible causeway for barge traffic and a small boat harbor. The white dots are potential lagoon locations.

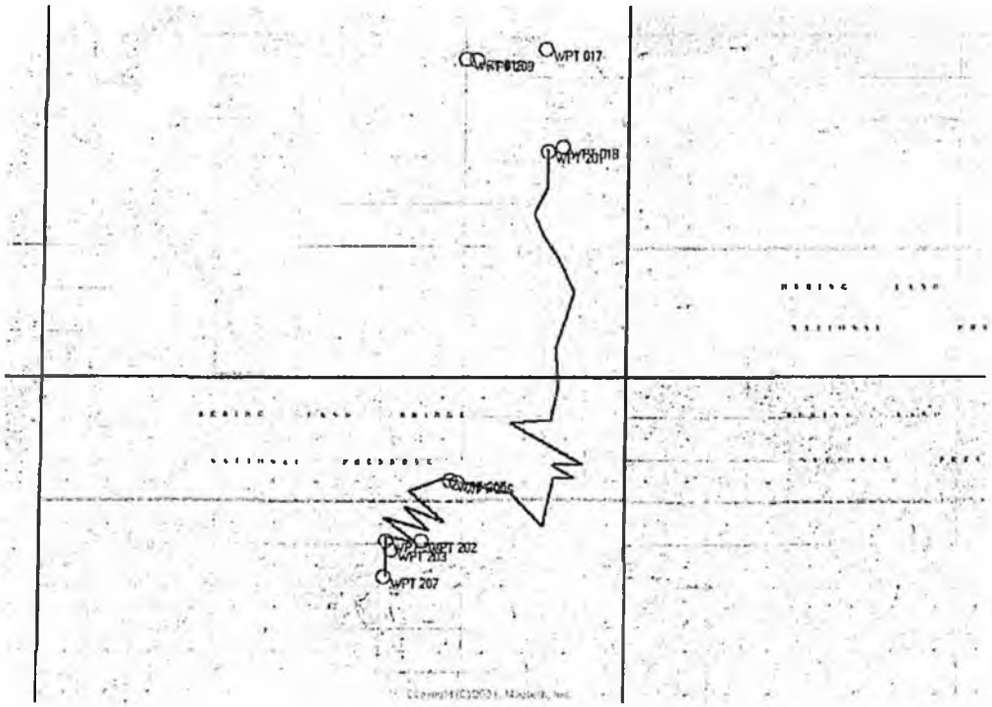

Figure 7 – Potential road alignment from Ear Mountain to Tin Creek site.

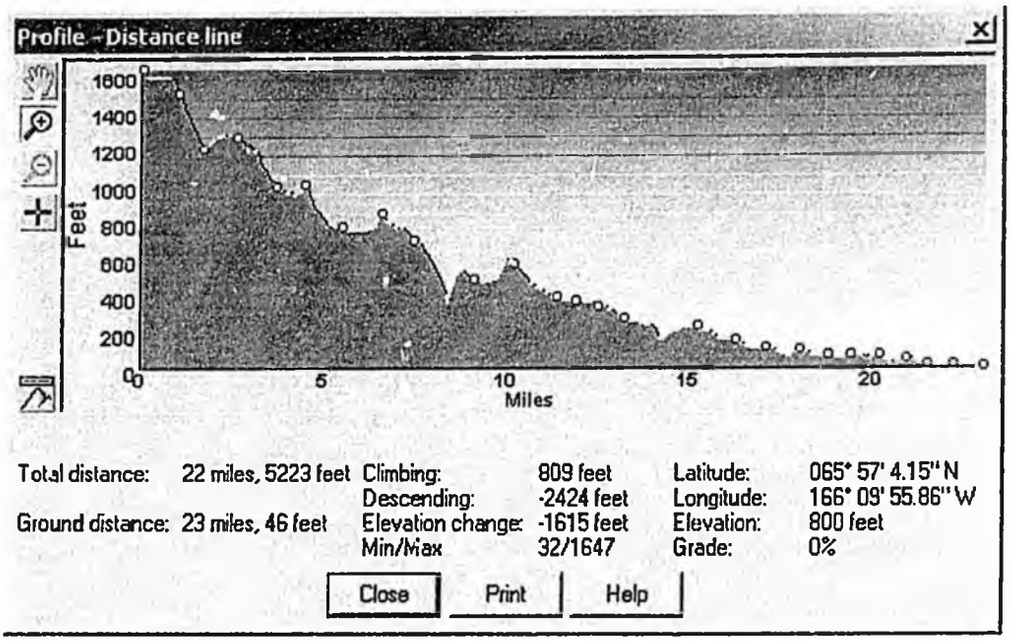

Figure 8 – Profile of alignment shown in Figure 7.

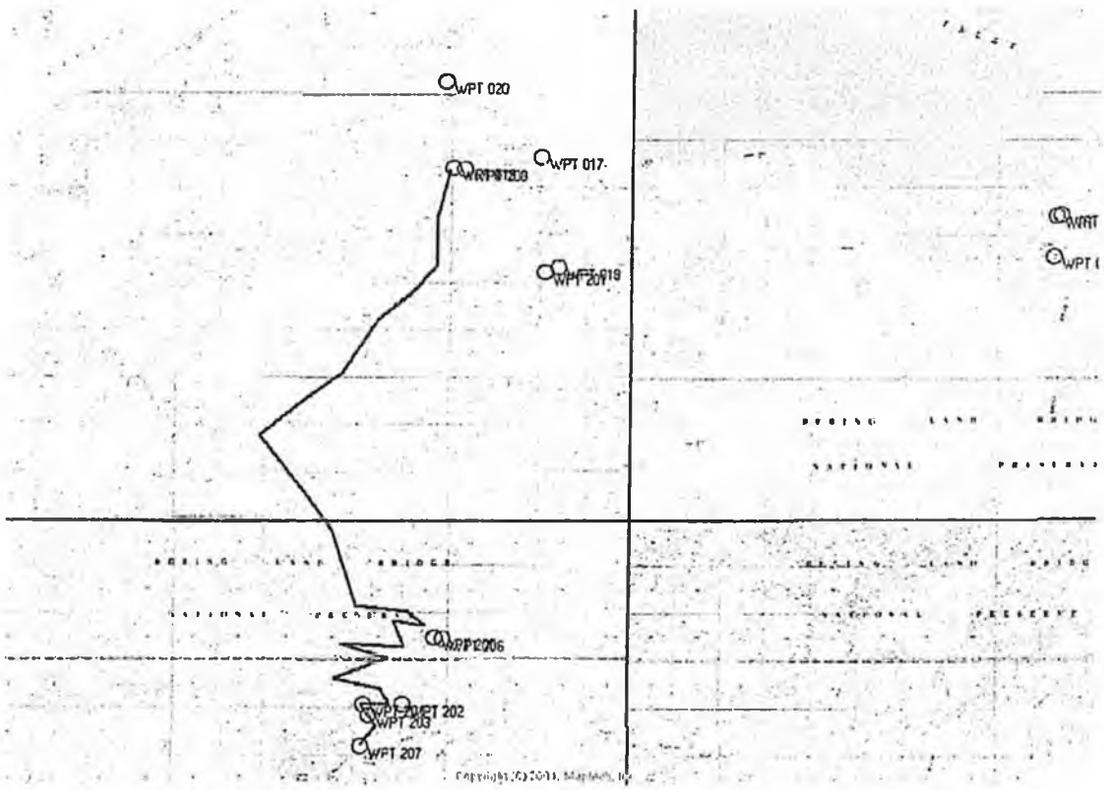

Figure 9 – Potential road alignment from Ear Mountain to West Tin Creek Hills.

Dump or Landfill
Neither site is particularly well suited to an unlined landfill. The potential for water contamination will be difficult to minimize. The location and appropriate type of landfill needs further study.

Barge Access and Marina
Both sites will need a causeway into Shishmaref inlet to reach deep enough water for barge access. Further field work in Summer, 2004 will indicate the lengths of the causeway. At this time an estimated length for both sites is one to two miles.

Summary
Both of these sites can be developed into a 'new' Shishmaref. The main points to take from this analysis are:

1. Both sites are similar in geology, soils and vegetation.

2. Both sites are underlain by ice-rich silt that will need to be considered in any design.

3. Tin Creek is a larger site. It is more spread out, and thus more costly to completely build-out with infrastructure. Tin Creek is farther from the ocean. It has slightly steeper slopes. There would need to be a bridge across Goose Creek to reach the ocean.

4. West Tin Creek Hills is very compact. Per house, there would be less feet of electrical cable or water line compared to Tin Creek. West Tin Creek Hills is closer to the ocean. There would need to be a bridge across Tin Creek to reach the ocean.

5. Both sites have water available. Water is available from the creeks and possibly from groundwater at both sites. There are bigger lakes closer to Tin Creek.

6. Both sites have a location for a sewage lagoon. It will need to be lined. There is a possibility of using local wetlands for secondary treatment in the summer.

7. Both sites have a possible access route to Ear Mountain. Tin Creek has the most obvious route.

8. Both sites will need special considerations as to where a landfill should be located, and how it should be constructed. If the road to Ear Mountain provides access to some upland sites, perhaps this will expand the landfill alternatives.

9. More elevation data and water depth data are needed to complete the digital terrain model of the sites. These will be collected in Summer, 2004.

Figure 10 – A 1985 aerial photo showing the relocation sites.

Figure 11 - Tussock tundra around Tin Creek Site. Circles show parts of village site. Ear Mountain is in the background.

Figure 12 - West Tin Creek Hills site looking at Tin Creek.

Figure 13 - Tin Creek site looking east towards Goose Creek.

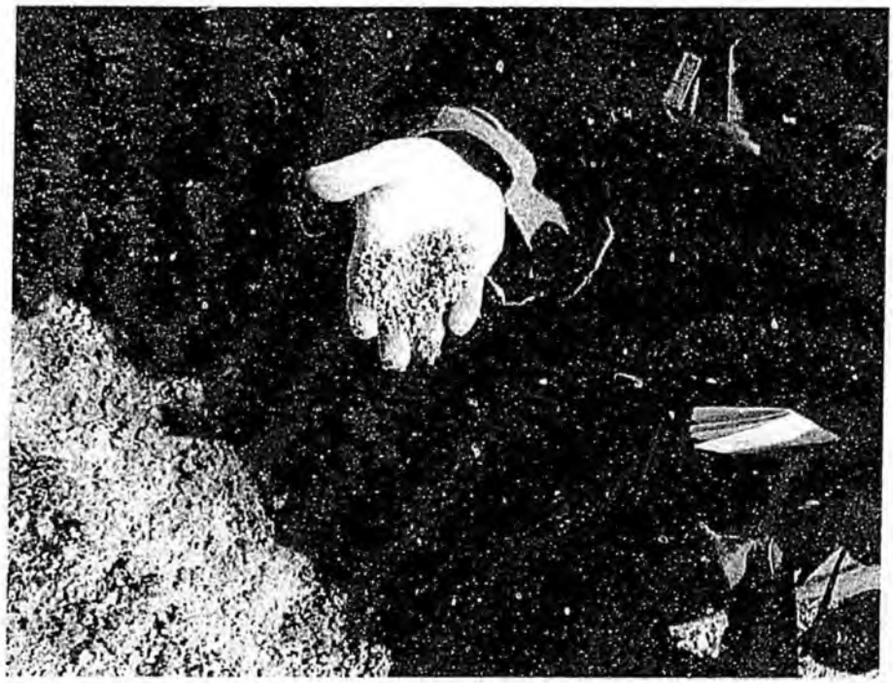

Figure 14 – Some of the granite on Ear Mountain weathers rapidly to course sand.

Figure 15 - The North side of Ear Mountain has conglomerate deposits that will yield small rock and gravel.

Figure 16 – Granite deposits on the top of Ear Mountain can be used for riprap. The arrow points to a glove.

United States Department of Agriculture

NRCS
Natural Resources Conservation Service
9173 W. Barnes Dr., Ste. C
Boise, Idaho 83709

SUBJECT: Trip Report Shishmaref Relocation Study, Shishmaref, AK, September 8-12, 2003

DATE: October 15, 2003

TO: Rob Sampson, SCE, Anchorage, AK

Participants:

Heather Oleson, Biologist, Nome, AK
Steve Becker, RC&D Coordinator, NRCS, Bethel, AK
Lori Richter, Engineer, NRCS, Anchorage, AK
Rob Sampson, SCE, NRCS, Anchorage, AK
Terril Stevenson, Geologist, NRCS, Boise, ID

Background:

Shishmaref is a traditional Inupiaq Eskimo Village on the Chukchi Sea in northwestern Alaska about 110 miles southwest of Kotzebue. The village is located on a barrier island bar between the Chukchi Sea and Shishmaref Inlet. The purpose of the trip was to provide reconnaissance geology assistance for engineering material sources, structural considerations in relocation and construction, groundwater, and geomorphic interpretation in support of a Relocation Study and Plan.

Previous visits by other staff with reconnaissance level investigations and consultation with the village had resulted in a preferred relocation site for further analysis. The Tin Creek site and surrounding area were inspected on foot, by boat, and by light helicopter. The following primary resource issues were the focus of the geologic reconnaissance portion of this trip:

1. Source of small or crushed, well-graded rock material for road construction, building pads, permafrost stabilization.
2. Large size rock material source for riprap, seawall construction, economic development.
3. Channel stability (Tin Creek).
4. Groundwater.

Observations:

Geology and Rock Materials

The area is within the Intermontane Plateaus Physiographic Province (North American). In general, the area is developed in coastal deposits of interbedded marine and terrestrial sediments of clay, silt, lime, and sand. Ear Mountain and the foothills behind the Tin Creek site that form the catchment are developed in metasedimentary rocks with igneous intrusions. The predominant rock types observed were limestone and granite or granodiorite intrusions. The sediments probably originated in the miogeosynclinal trough associated with the Pacific Plate and subduction zone along the western edge of the North American continent. The ocean floor sediments were uplifted and rafted into the current location. The granitic intrusions and associated mineralization are evidence of melting of continental crust that was subducted. The contact zones between the granitic intrusions and the marine sediments contain mineral deposits of tin on the north side of Ear Mountain. Other mineral deposits may exist, but extensive exploration would probably be required to identify marketable deposits.

The slopes on the north side of Ear Mountain are formed in platy to blocky, gravel to cobble size, angular limestone. Areas of fairly pure calcite were also observed.

The "saddle" area and lobate slope extending north from the saddle at the top of Ear Mountain are formed in fairly massive, medium grained, granite/granodiorite. The granite is jointed and fractured on about a three- to eight-foot spacing. The rock material appears to be hard, massive, durable, and competent, with very slight to no weathering effects observed. The individual minerals appeared fresh and unaltered in hand specimens. Individual angular boulders ranging in size from one-foot to over eight-feet diameter were observed, with the average size about three- to four-feet diameter.

Slopes in the upper watershed and footslopes exhibit evidence of "solifluction" – freeze-thaw creep or flow of surface materials downslope resulting in lobate mini-terraced (terracets) slopes.

The Tin Creek site is on the flatter, tidal influenced plain to the north of Ear Mountain. The tidal flat is developed in interbedded Quaternary (very recent) marine deposits (shallow sea floor) and terrestrial sediments (fluvial materials) deposited by Tin Creek and other surface streams draining into Shishmaref Inlet as well as eolian sediments (windblown) of sand, silt and volcanic ash. The predominant sediment material at the site is eolian and fluvial sand. The volcanic ash is a very minor constituent, derived predominantly from Devil Mountain northeast of Shishmaref Inlet. Devil Mountain is a Maar – a low relief, broad volcanic crater and is the source of extensive ash deposits on Cape Espenberg and in the Kotzebue Sound area.

River Processes

Observed creek banks adjacent to the Tin Creek site were steeply sloped to nearly vertical with very little associated woody vegetation. It appeared that lenses of compressed silt and bio-muck with higher shrink-swell potential are interlayered with more free-draining sandy soil layers. When exposed in the stream banks this material swells or "heaves" either with saturation or freeze-thaw activity. Cracks develop paralleling the stream flow, and wedges of bank material eventually fail into the creek. These wedges look like "clumps" of bank "eroding" into the creek. Cracks and subsidence associated with "blocks" of bank material along the creek were

noted. The unstable bank areas did not coincide with outside curves in meanders, but instead were located along all sections of the river, on inside bends, outside bends and in crossovers and straight sections. The clumps remain along the bank areas for long periods of time. The creek does not exhibit sufficient energy to break down and remove or transport the materials effectively. Storm surges associated with fall and winter winds off the Chukchi Sea and Shishmaref Inlet destroy and transport some of the materials. Remnant wedges were observed occasionally along the Creek. There is only slight overall bank erosion occurring as well as little sediment transport activity. The bank soil materials appear to be active, but cumulative effects of present usage of the area do not appear to be severe.

Groundwater

Deeper groundwater recharge is mainly from rain and snowmelt water in the upper watershed (Ear Mountain). Deep groundwater may contribute to springs and small creeks and ponds observed throughout the study area as the groundwater flows intersect geologic contacts and fault zones associated with Ear Mountain and the surrounding area south of the study location.

There is little evidence of surface water flow or developed drainage paths (streams) off the majority of the upper hillslope area of Ear Mountain. Most of the precipitation probably infiltrates directly into the fractured bedrock on the hillslopes or is stored in the soil-vegetation mat. Soils are very shallow to bedrock or permafrost.

The entire area is underlain by permafrost, and there is surface evidence of some impacts to groundwater from long-term changes in the permafrost. The Tin Creek site and surrounding area includes thaw lakes, small areas of thermokarst, and extensive ice-wedge polygons.

Tin Creek is a perennial stream that derives much of its flow from groundwater, either from drainage of "pothole" or thaw lakes, or shallow groundwater perched on the permafrost and discharged into the creek.

Surface recharge is associated with "Tundra" soils and vegetation that act as a "sponge" to hold dramatic volumes of water in shallow aquifers perched above the permafrost as snows melt and spring rain collects on the surface. Later in the summer and fall, water is released slowly from the "sponge".

As is evidenced by the color and flavor of the water in the thaw lakes and in Tin Creek, the shallow groundwater in the area is very high in tannins and possibly other organic acids.

Conclusions and Recommendations:

Rock Materials

The granitic material on Ear Mountain appears suitable for most construction material needs identified by the relocation study.

The volume of material that can be developed at Ear Mountain can not be reasonably estimated without further exploration. The core of Ear Mountain may be granitic with just the outer slopes covered with the metasedimentary rocks (limestone). Intrusion of the granite through the sedimentary rocks may be what formed Ear Mountain. The limestone may be just a "shell" or veneer of remnant material around the intrusive body.

Additional surface as well as subsurface exploration to determine the volume of the rock source will be required. Surface exploration should include mapping the areal extent of the surface exposure. This can be accomplished using aerial photographs and limited ground-truthing.

Subsurface exploration typically can use either direct or indirect methods. Direct methods provide the most conclusive information. These methods include digging large test-pits using heavy equipment such as track-hoes or drilling exploration holes using rock drilling and sampling equipment. The large size of some of the boulders observed on Ear Mountain may preclude use of test-pits as a viable exploration method. Drilling and sampling often is cost-prohibitive.

Indirect subsurface methods using geophysical survey techniques can provide some information, though not as specific nor conclusive as direct methods. Two geophysical techniques that are appropriate for delineating rock stratum and therefore, volumetric determination of an individual rock type, are Resistivity Surveys and Seismic Refraction.

Resistivity Surveys measure the electrical resistivity of earth materials. Resistivity Surveys readily differentiate between changes in ionized salts and water content and thus can usually provide reasonable results identifying rock contacts between limestone and granite.

Seismic Refraction Surveys measure wave propagation velocities through earth materials. Changes in rock types and minerals result in different seismic refraction. These surveys can provide more information than Resistivity Surveys. In addition to identifying rock contacts, Seismic Refraction Surveys have been used to determine relative thickness and extent of the different rock materials encountered. The velocity of each individual rock type can also indicate resistance to excavation and provide some idea of what excavation methods may be required (drill and blast versus rip).

Excavation of either the granitic rock or the limestone colluvium and bedrock may encounter shallow groundwater and permafrost conditions. Development of rock material sources may require staged excavation to allow for perched water and permafrost to drain following exposure in the rock source.

Small rock

Limestone - With screening, the limestone materials and existing unconsolidated cover may also be adequate for some of the construction material needs for road sub-base and building site footings. This material is less durable and will be more prone to weathering and break-down to finer materials. The percentage of fines may result in decreased permeability and the material may not be free-draining enough for use in road base and building pad construction.

Granite – Use of the granite for road sub-base and surfacing, and building site footings or pads will require processing through a crusher and screens to develop the smaller sizes and gradations of material needed. Much of what was on the surface is oversize and would need to be broken, probably through drilling and shooting prior to processing through a crusher. Waste percentage may be fairly high after processing through a crusher. If the primary requirement for the material is high permeability (free-draining), crushed rock will need to be screened to remove fines produced during the crushing process.

Riprap

The granite observed on Ear Mountain appears to be suitable as a riprap/large rock source. The size gradation of the material (one- to eight-feet, average three-to four-feet) is within the size range required. Development of the rock source will require heavy equipment. The material that was observed at the surface would not require drilling and blasting to develop, however, depending on the total volume of material needed, deeper excavation and development may require drilling and blasting to remove the material. Massive, unweathered granites are usually not rippable with a dozer unless highly fractured and jointed. The size range of the surface materials indicates the material is only moderately jointed. The exploration to determine volume of material available may also provide some indication of rippability and blasting requirements.

Typical heavy equipment needed to develop, process, and haul riprap material may include: Grizzly (oversize and undersize screen), large bulldozer with ripper tooth/teeth, front end loader, air track drill, blasting agents and operators, haul trucks, and track hoe.

Use of heavy equipment and drilling and blasting techniques to develop riprap from a massive granitic source typically results in waste percentages of 25 to 50 percent. Some factors that contribute to waste percentage are: Size and gradation of material required, drilling and blasting or development of the source, excavation of the material, and transportation, hauling, and placement (Handling).

Waste rock not useable for riprap will probably be suitable for other building material – small rock for building footings and road sub-base, if processed through a crusher and screens.

Channel Stability

The slight river bank erosion that is presently occurring does not appear to be primarily a fluvial process (not the result of river flow). It appears that heaving of exposed compressed silty clayey or mucky soil in the river banks is the dominant physical process resulting in bank instability. The river does not appear to exhibit sufficient energy to break down and remove or transport the materials effectively. The bank soil materials are highly active, but the cumulative effects do not appear to be severe. The shrink-swell and soil heaving activity may be re-occurring seasonally in the same wedges rather than involving large volumes of "new" material each season. Management and treatment alternatives should focus on minimizing soil surface exposure. Since the process does not appear to be related to stream energy, management or use of Tin Creek, and channel treatments that alter the flow energy or transport capacity may result in significant impacts to channel stability.

Increased boat traffic and impacts of boat wake wave energy should be considered when planning the village relocation. Increased wave action may result in increased instability of the bank materials, increased wedge failure and sedimentation in Tin Creek. Without the stream flow energy to transport this material, Tin Creek may become overwide, and too shallow to support continued boat traffic. Vegetation alone will probably not be very effective. Treatment should address stabilizing the soil materials as a whole – keeping "blocks" of material in-place. Treatment should address the "heaving" nature of the materials and boat wake impacts, not fluvial (river) processes.

Groundwater

Drinking Water Source

The appears to be ample shallow groundwater available at or adjacent to the Tin Creek site. The presence of tannins and possibly other organic acids and constituents will require testing and treatment of groundwater if used as a drinking or municipal water source.

Construction and Development Impacts

Wet areas in and adjacent to the village site are associated with disruption of shallow groundwater, permafrost, and surface flow. Construction of roads and walkways, and building pads involving fill and leveling of soil materials can create small, localized "dams", changing shallow groundwater flowpaths and resulting in wet, boggy, and ponded water areas. These wet areas become nuisance zones for travel, land use and management.

Construction and development plans at the new village site should consider these possible groundwater impacts and minimize the effects. New construction should include practices and considerations to minimize the effects. Leveling and filling for construction of building pads, roadways and walkways should not be completed without providing drainage for shallow groundwater and surface water from the slope toward the creek.

Development plans and construction should also be planned to minimize impacts on the permafrost. Any thawing or disturbance to the permafrost in the area will result in increased problems with soil instability and disruption of shallow groundwater and will greatly accelerate the effects discussed above. Buildings should be constructed using elevated and insulated techniques and the soil and vegetated surface should be left undisturbed as much as possible.

Terril Stevenson
Geologist, NRCS Idaho

References:

Connor, Cathy and Daniel O-Haire, 1988, Roadside Geology of Alaska; Mountain Press Publishing Company, Missoula, MT,

Pewe, Troy L., 1975, Quaternary Geology of Alaska; US Geological Survey Professional Paper Number 835, US Government Printing Office, Washington, D.C.

Schroeder, Warren L., 1975, Soils In Construction; John Wiley and Sons, Inc., New York, NY.

Vegetation Descriptions for Tin Creek sites

East and West Tin Creek

These sites occur on low hills adjacent to a coastal plain lake system and breached lake beds. The sites are dominated primarily by tussock cottongrass (*Eriophorum vaginatum*), Bigelow sedge (*Carex bigelowii*), water sedge (*Carex aquatilis*), northern labrador tea (*Ledum decumbens*), dwarf arctic birch (*Betula nana*), and lingonberry (*Vaccinium vitisidaea*). Low willows (*Salix spp.*) are also present in some areas. Grasses and grasslikes comprise 50 percent, forbs 5 percent, and shrubs 45 percent of the vegetative production on these sites. Lichens and mosses fill in the understory of the vegetation. Annual vascular plant production is estimated to be 800 pounds per acre.

Ear Mountain Gravel Site

The areas surveyed at this site consist of lichen meadows, shrub meadows, and lichen granitic slopes on a broad north facing mountainside. The higher regions of the slope are composed primarily of white mountain-avens (*Dryas octopetala*) and a 1.5 inch lichen mat. Bigelow sedge (*Carex bigelowii*), entire-leaf mountain-avens (*Dryas integrifolia*), and a 2 inch lichen mat characterize the lower elevations of the slope. Scattered forbs and other low shrubs are also present, but are not as abundant. Grasses and grasslikes constitute 15 to 30 percent, forbs 5 percent, and shrubs 65 to 80 percent of the vegetative production over the whole site. Annual vascular plant production is approximately 400 pounds per acre, on average.

SHISHMAREF EROSION AND RELOCATION COALITION
P.O. Box 72100
Shishmaref, Alaska 99772

Shishmaref Relocation Strategic Plan
January 2002

Introduction

The community of Shishmaref has determined that the threat to life and property from reoccurring beachfront erosion requires immediate action. The community has taken the first step by establishing an erosion and relocation coalition made up of the governing members of the City, Indian Reorganization Act (IRA) Council and Shishmaref Native Corporation Board of Directors. Faced with the decision of whether to remain at its present location or to move, the majority of the community is in favor of moving. This plan is a guideline to assist the community as well as state, federal, and other agencies in assisting Shishmaref with an orderly relocation.

Background

Shishmaref is located approximately 30 miles south of the Arctic Circle and 50 miles northeast of the Bering Straits. The community is currently home to 600 people mostly consisting of Native Inupiaq Eskimos. The community is a traditional Eskimo village that is heavily reliant on subsistence lifestyle activities based in and around the Chukchi Sea. The local economy is subsistence based, and supplemented by part time wage earnings and local sales of arts and crafts. In addition, the community has a

Tannery and two stores, Washeteria, 1-fastfood restaurant, school K-12th grade, health clinic, post office, Community Center, City Library, Church, youth center, Learning center, Shishmaref Village Corporation, AVEC, Shishmaref Emergency Services, Kawerak (Transportation, Head start, Village based Coordinators, Employment Education and Training, VPSO Program, Youth Development Coordinators) and various local government offices (City, Ira Council, Alaska Army National Guard, Alaska State DOT&PF) and other outside businesses providing services essential to everyday living. Although 600 people live in Shishmaref, a noticeable number of individuals have relocated to other parts of Alaska. This is due to the fact that the island can no longer expand services needed for increased development of new construction of homes and related infrastructure. The family population has increased in the past 10 years. The community can no longer ignore the fact that the living conditions are comparable to third world Nations. Most families do not have running water and sewer services in their homes. The lack of roads, high costs of fresh foods, inadequate fuel storage for home heating and transportation, exorbitant cost of basic services and the constant anxiety caused by the erosion is an excessive burden carried by all members of the community.

The community of Shishmaref is situated on a barrier island no wider than 1/4 mile, and 3 miles in length. The island is comprised of fine sand deposits and permafrost that is vulnerable to erosion. The community has experienced erosion of its north shoreline an average of 3-5 feet per year, except for the storms of: November 9&10, 1973, October 4, 1997, and October 7, 2001 where extensive erosion in highly vulnerable areas was as much as 125' horizontal distance. We also are experiencing erosion of the southern side of the island, which is noticeably reducing the size of the island. The community is most vulnerable when tidal high water is combined with intense wave action of the Chukchi Sea during storms. Erosion has been heightened by continual degradation of permafrost. An average high tide is 3 feet above the normal tide, during storms; the wave action can increase the high tide by 3 feet, which causes the waves to crest over the bluff.

During the aftermath of the 1973 storm a community meeting was held with the local entities along with Natural Resources Conservation Services (NRCS), Department of Community and Regional Affairs (DCRA), and U.S. Army Corps of Engineers assessing the extent of the existing, potential and projected erosion problems at Shishmaref. A decision was made by the community to relocate to the mainland to Nunatuk 6 miles south from the existing community. However, in August 1974 the community reversed its position and determined not to relocate but to focus on providing protection along the beachfront to protect the community for another twenty years. During August 1974, 50,000 sand bags were put along the worst hit areas of Shishmaref protecting homes and retail infrastructures. The protection worked for 24 years, however as a result of the 1997 storm, the State of Alaska declared Shishmaref a disaster area and requested Federal assistance in relocating 13 residential homes to higher more protected areas in the newly platted residential site on the old airport. All homes were successfully relocated using local labor with assistance from the Alaska Division of Emergency Services. The most recent storm of October 5, 2001 resulted in the Governor of Alaska,

Tony Knowles, issuing an administrative order that stated "Not doing anything would pose an imminent and continuing threat that justified the State taking action to provide some kind of protective measure along the shoreline of Shishmaref". An appropriation of $110,000.00 was awarded to complete the project, of which $85,000.00 was identified for the community of Shishmaref (via Kawerak, Inc.) to aid in temporary sand filled gabions along the worst hit areas of the community.

Situation

The loss of land through erosive action and increasing risk to property and lives has caused a dangerous situation for the community of Shishmaref. The community has determined that staying on the island to face the ever-present threat from ocean-based storms is unacceptable. The only viable solution is to relocate the community off the island to a nearby mainland location that is accessible to the sea, suitable for the subsistence lifestyle of the community, and preserves the culture and integrity of the community.

Objective

Relocation of the community of Shishmaref to a site selected, planned and located on the mainland by April 30, 2009.

Action Plan

1. Identification of High Potential Relocation Sites

Scope of work:

The community must identify potential relocation sites. The Coalition will contact appropriate agencies to gather information essential for a successful relocation. We will use each agency's input to eliminate potential problematic relocation sites. At a minimum, we will gather the following information to aid us in identifying the sites with the highest potential for success of the relocation:

- Soil to support infrastructure requirements
- Size minimums to address community growth
- Access: Land, Water, Air
- Subsistence
- Develop Site Evaluation Matrix

2. Identification of Required Evaluations and Studies

Scope of work:

The community must identify hydrological, geotechnical, environmental, and other studies related to the successful relocation site. At a minimum, we will contact the appropriate agencies for required studies, and the successful completion of those studies required. Information gathered will be used for the successful selection of a relocation site.

- National Environmental Policy Act (NEPA)
- Geotechnical Studies
- Hydrological Studies
- Other studies (Site specific)

3. Infrastructure Development

Scope of work:

The community must identify infrastructure development needed for the successful development of a new site for the community of Shishmaref. The Coalition will hold community meetings and invite various governmental agencies to these meetings to develop an infrastructure development needs list identified by the community for a successful relocation. Infrastructure needs are as follows:

- Transportation
- Roads & Trails
- Airports
    1. Terminal
    2. Runways
    3. Freight storage facilities
    4. Equipment storage facilities
- Harbors
- Power/communications
- Telephone/Internet
- Electricity
- Cable/Internet
- Modern Water & Sewer
    1. Water Source & Treatment
    2. Sewage treatment & Disposal
- Washeteria
- Landfill site
- Housing
- Evaluation of existing homes for relocation

- Existing homes relocation
- Planned additional home construction
- Healthcare
- Health Care Services
    1. Facilities
- Clinic Relocation
- Education
- Evaluate Services to determine facility needs
- Facilities Relocation
- New Construction
- Native Corporations
- Land Development
    1. Housing
    2. Roads
    3. Infrastructure Services
    4. Easements
    5. Gravel Fill
- Businesses
    1. Store(s)
    2. Fuel storage
    3. Ware houses
    4. Bed & Breakfast
    5. Home Based Businesses
    6. Tannery
    7. Other (including new)
- City Government
    1. Facilities needed for Governmental Services
        a) Emergency Services
    2. Office Relocation
- Tribal Government
- Governmental Services Facilities
- Office Relocation
- Relocation Project Coordination
- Multipurpose building
- Head start building
- Cultural Center
- Community play ground
- Churches
    1. Cemeteries
    2. Evaluation of Facility needs
- Post Office

4. Identification of Community Needs and Wants

SHISHMAREF EROSION AND RELOCATION COALITION
P.O. Box 72100
Shishmaref, Alaska 99772

Scope of work:

The Coalition will hold public meetings within the community to identify the community needs and wants. The information gathered will be used to develop a community better suited to provide services needed for the new community. The information gathered will used to add to the list of community needs and wants identified:

- Running water and flush toilets
- Adequate landfill site
- Recreation Center
- Centralized Governmental office buildings
- Adequate snow removal equipment
- Washeteria
- New power generator system
- Dock facilities
- Elder Housing/Center
- Day care facilities
- New Health Clinic
- Police building-separate
- Search and Rescue building
- New Post Office
- New School Facilities
- Public Library
- Youth Center
- Cemetery and Grave Sites
- Recreational Park
- Visitor Center
- Museum
- Restaurants
- Carving Center-Kasghi
- Boardwalks or sidewalks
- Fire Station
- Community Hall
- Safe House
- Armory
- More employment
- Airport & Terminal Facilities
- Roads
- Lodging
- Heavy equipment
- Cultural Center

5. Development of Agreements and time targeted actions

Scope of work:

The Coalition will identify Agreements and timed target actions needed to follow to ensure successful relocation of the community. These actions will be developed once the comprehensive plan for relocation is developed:

- Identification of preferred site-January 2003
- Other agreements/timed target actions

6. Identification of salvageable/moveable infrastructure/facilities

Scope of work:

The Coalition will develop a list of salvageable/moveable infrastructure/ facilities in addition to the following:

- AVEC power plant & Bulk tanks
- City Buildings & Bulk tanks
- Shishmaref Native Store, Warehouses & bulk fuel tanks
- Nayokpuk General Store, Warehouses & Bulk tanks
- Shishmaref School buildings-5 & bulk tanks
- Clinic Building
- Tannery Buildings-4
- Shishmaref Lutheran Church/Parsonage building, bulk tank
- City water tanks-2
- National Guard Facilities

7. Timeline infrastructure development
Years to completion (best case scenario)

Scope of work:

The Coalition along with assistance from Kawerak Inc. and the relocation committee must develop an infrastructure development timeline. This list will be developed with outside governmental assistance and input. The timeline will be made to ensure relocation is successful:

- Temporary erosion protection- City of Shishmaref-2 yrs.
- School–Bering Straits School District- 6 yrs.
- Clinic–Native Village of Shishmaref – 4 yrs.
- Water-Sewer-Line installation-Native Village of Shishmaref/Alaska Native Tribal Health Consortium-7 yrs.
- Community Streets–City of Shishmaref-6 yrs.
- Access Road to Water-City of Shishmaref-7 yrs.

- Access Road to Nome-City of Shishmaref/ADOT-6 yrs.
- Airport- City of Shishmaref/ ADOT-6 yrs.
- Sewage treatment plant-Native Village of Shishmaref/ANTHC-6 yrs.
- Water treatment plant- Native Village of Shishmaref/ANTHC-6 yrs.
- Power Plant-Alaska Village Electric Cooperative-6 yrs.
- Telephone- Mukluk Telephone Company-6 yrs.
- Cable-Shishmaref Native Corporation-6 yrs.
- Stores
    1. Nayokpuk General Store-6 yrs.
    2. Shishmaref Native Store-6 yrs.
- Washeteria-City of Shishmaref/ANTHC-6 yrs.
- City Offices-City of Shishmaref-6 yrs.
- IRA Offices-Native Village of Shishmaref-6 yrs.
- Multipurpose building-Native Village of Shishmaref-6 yrs.
- Harbors–Native Village of Shishmaref-7 yrs.
- Material source (gravel fill)-Shishmaref Native Corporation/Native Village of Shishmaref/Bering Straits Native Corporation-2 yrs.
- Church-Shishmaref Lutheran Church-6 yrs.

8. Development of Comprehensive Community Plan

Scope of work:

The Coalition will develop a comprehensive plan along with assistance from Kawerak Inc. and local governmental agencies. This plan will be structured to address relocation in detail regarding the following by 2004:

- Land usage-City of Shishmaref/Native Village of Shishmaref/Shishmaref Native Corporation/Kawerak Inc.
- Village layout-City of Shishmaref/Native Village of Shishmaref/Kawerak Inc.
- Lot sizes
- Street and trail system
- Service Providers

9. Development of Funding Commitment-Construction Timeline

Scope of work:

The Coalition along with the Relocation Coordination Committee will develop a funding commitment timeline to address the relocation tasks necessary to ensure a successful relocation:

- January 2004

10. Implementation Plan

Scope of work:

The Coalition will select a lead organization locally or regionally to ensure that the tasks for a successful relocation are completed:

- Establishment of Relocation Coordination Committee (members have key responsibilities for various construction/action portions of relocation/infrastructure development.) January 2003

11. Old Site Cleanup Plan

Scope of work:

The Coalition will develop an Old Site Cleanup Plan to ensure a clean environment is left behind:

- Developed by January 2007

12. Identification of Funding Sources and Technical Assistance Resources

Scope of work:

The Coalition will develop a list of funding and technical assistance resources essential to the successful relocation of the community. A comprehensive list of resources will address the infrastructure development needed for the successful relocation of the community. Identify all potential funding sources and state whether they use federal or State funds and applicable matching requirements. Include contact names, addresses, e-mail addresses (if known), telephone and fax numbers. These funding sources will be used to facilitate relocation funding acquisition. The Coalition along with the Relocation Coordination Committee will pursue funding commitments from the resources below:

SHISHMAREF EROSION AND RELOCATION COALITION
P.O. Box 72100
Shishmaref, Alaska 99772

Contact Agency Name	Address E-Mail Address Phone Number Fax Number Funding Source (Private, Federal or State) Matching Requirements Local Assets
Federal: FEMA	130 228th Street, S.W., Bothel, WA 98021-9796 N/A 425-487-xxxx 425-487-xxxx Federal 75/25 (most programs)
Department of the Interior	1849 C Street N.W Washington DC, 20240 www.doi.gov 202-208-3100 N/A Federal N/A
Bureau of Indian Affairs Bureau of Indian Affairs Juneau Regional Office 709 West 9th, 3rd Floor Federal Building Juneau, AK 99802	bobmartin@bia.gov

SHISHMAREF EROSION AND RELOCATION COALITION
P.O. Box 72100
Shishmaref, Alaska 99772

Contact Agency Name	Address	E-Mail Address	Phone Number	Fax Number	Funding Source (Private, Federal or State)	Matching Requirements	Local Assets
Federal							
U.S. Bureau of Land Management Alaska	Division of Wildlife Conservation P.O Box 25526, Juneau, AK 99802-5526	www.blm.gov	907-271-5960	907-271-4418	Federal	N/A	
U.S. Department of Agriculture	800 W. Evergreen Ste 105, Palmer, AK 99645	fmuncy@rdasum2.rurdev.usda.gov	907-761-7705	907-761-7783	Federal	N/A	
U.S. Department of Agriculture	P.O. Box 1569 Nome, AK 99762	tsparks@rdmail.rural.usda.gov	907-443-6022	907-443-6024	Federal	N/A	
U.S. Army Corp. of Engineers	P.O. Box 898 Anchorage, AK 99506-0898	N/A	907- 753-2606	907-753-2625	Federal	25%	
U.S. Environmental Protection Agency	222 W. 7th Ave. #19 Anchorage, AK 99513	wagner.dennisx@epamail.epa.gov	907-271-3651	907-271-3424	Federal	N/A	
Housing and Urban Development	949 East 36th Avenue Suite 40, Anchorage, AK 99508-4399	collen_bickford@hud.gov	907-271-4170	907-271-3778	Federal	N/A	
U.S. Department of Commerce / EDA	550 W. 7th Ave. Ste. 1780 Anchorage, AK 99501	brichert@eda.doc.gov	907-271-2272	907-271-2273	Federal	N/A	

SHISHMAREF EROSION AND RELOCATION COALITION
P.O. Box 72100
Shishmaref, Alaska 99772

Contact Agency Name	Address	E-Mail Address	Phone Number	Fax Number	Funding Source (Private, Federal or State)	Matching Requirements	Local Assets
Denali Commission	510 L St.#410 Anchorage, AK 99501	Aewing@denali.gov	907-271-1414	907-271-1415	Federal	N/A	
State:							
Alaska Housing Finance Corporation	P.O. Box 101020 Anchorage, AK 99510-1020	bpickett@ahfc.state.ak.us	907-330-8273	907-338-2585	State	N/A	
AK Department of Transportation / PF	222 W. 7th Ave., Box14 Anchorage, Alaska 99513	tom_brigham@dot.state.ak.us	907-271-5459	907-271-2851	State	N/A	
Department of Health and Social Sciences	Office of the Comm. P. O. Box 110601 Juneau, AK 99811-0601	Karen_Pearson@helath.state.ak.us	907-465-3090	907-586-1877	State	N/A	
Fish and Wildlife	P.O. Box 110610 Juneau, AK 99811	david_thomson@fishgame.state.ak.us	907- 465-4190	907- 465-6142	State	N/A	
AK Department of Education and Early Development	801 West 10th Street, Suite 200, Juneau, AK 99801-2800	N/A	907-465-2800	907-465-4156	State	N/A	
Village Safe Water Program	555 Cordova Street Anchorage, AK 99501	Kurt_Egelhofer@environcon.state.ak.us	907-269-7601	907-269-7509	State	N/A	
Division of Emergency Services	P.O. Box 5750 Ft. Richardson, AK	ades@ak-prepared.com	1-800-478-2337	907-428-7009	State	N/A	

Contact Agency Name	Address	E-Mail Address	Phone Number	Fax Number	Funding Source (Private, Federal or State)	Matching Requirements	Local Assets
	99503-5750						
DOT & PF roads, airports and harbors	2301 Peger Road Fairbanks, AK 99709	dave_sanches@dot.state.ak.us	907-451-2385	907-451-2313	State	N/A	
Department of Community and Economic Development	P.O. 110800 Juneau, AK 99811-0801		907-465-2500	907-465-5442	State	N/A	
Department of Community and Economic Development	P.O. Box 1068 Nome, AK 99762	carol_piscova@dced.state.ak.us	907-443-5459	907-443-2409	State	N/A	
DCED/DCBD	Director, DCBD 550W 7th Ave, Ste 1770, Anch, AK 99501-3510		907-269-4580		State	N/A	
Department of Environmental Conservation	Juneau Office, ADEC 410 Willoughby Avenue, Juneau, AK 99801-1795		907) 465-5010	907-465-5097	State	N/A	
Bering Straits School District	P.O. Box 225 Unalakleet, AK 99684	www.bssd.org	907-624-3611	907-624-3099	State	N/A	

SHISHMAREF EROSION AND RELOCATION COALITION
P.O. Box 72100
Shishmaref, Alaska 99772

Contact Agency Name	Address	E-Mail Address	Phone Number	Fax Number	Funding Source (Private, Federal or State)	Matching Requirements	Local Assets
Local Government						N/A	
City of Shishmaref	P.O. Box 83 Shishmaref, AK 99772	N/A	907-649-3781	907-649-2131	Private	N/A	
Shishmaref IRA Council	P.O. Box 72110 Shishmaref, AK 99772	jeanette@kawerak.org	907-649-3821	907-649-2104	Private	N/A	
Regional Corporations/Profit/ Non-profit							
Kawerak, Inc.	P.O. Box 948 Nome, AK 99762	ruby@kawerak.org	907-443-5231	907-443-4452	Private	N/A	
Bering Straits Native Corporation	P.O. Box 1008 Nome, AK 99762	www.beringstraits.com	907-443-5252	907-443-2985	Private	N/A	
Norton Sound Health Corporation	P.O. Box 966 Nome, AK 99762	N/A	907-443-3311	N/A	Private	N/A	
Nome Eskimo Community	P.O. Box 1090 Nome, AK 99762	bunny@kawerak.org	907-443-2246	907-443-3539	Private	N/A	
Sitnasuak Native Corporation	P.O. Box 905 Nome, AK 99762	N/A	907-443-2632	907-443-3063	Private	N/A	

SHISHMAREF EROSION AND RELOCATION COALITION
P.O. Box 72100
Shishmaref, Alaska 99772

Contact Agency Name	Address	E-Mail Address	Phone Number	Fax Number	Funding Source (Private, Federal or State)	Matching Requirements	Local Assets
Rural Alaska Community Action Program	P.O.Box 200908 Anchorage , AK 99520	cook@citi.com	907-279-2511	907-278-2309	Private	N/A	
Other							
AVEC	4831 Eagle Street Anchorage, AK 99583	mbecker@avec.org	907-561-1818	907-562-4086	State	N/A	
TelAlsAKa	P.O. Box 293 Nome, AK 99762	N/A	907-443-5466 1-888-478-3127	907-443-0078	Private	N/A	
GCI Cable	P.O. Box 274 Nome, AK 99762	N/A	907-443-2550 1-800-800-4800	443-5845	Private	N/A	
Shishmaref Native Corporation	P.O. Box 151 Shishmaref, AK 99772	N/A	907-649-3751	907-649-3731	Private	N/A	
Bering Straits Housing Authority	P.O Box 995 Nome, AK 99762	wmundy@bsrha.org	907-443-5256	907-443-2160	Private	N/A	
NOOK.net (Web info source)	P.O. Box 970 Nome, AK 99762	www.nook.net	907-443-7575		Private	N/A	
First National Bank	101 W. 36th Ave. Anchorage, Alaska 99510-07720	N/A	907-777-5663	907-777-3003	Private	N/A	

SHISHMAREF EROSION AND RELOCATION COALITION
P.O. Box 72100
Shishmaref, Alaska 99772

Contact Agency Name	Address	E-Mail Address	Phone Number	Fax Number	Funding Source (Private, Federal or State)	Matching Requirements	Local Assets
Association of Alaska Housing Authorities	4300 Boniface Parkway Anchorage, Alaska 99504	N/A	907-338-3970	907-338-4904	Private		
Alaska Airlines	P.O. Box 929 Nome, AK 99762	N/A	907-443-2288	907-443-5520	Private	N/A	
Bering Air	P.O. Box 1650 Nome, AK 99762	N/A	907-443-5464	907-443-5919	Private	N/A	
Cape Symthe	P.O. Box 1856 Nome, AK 99762	N/A	907-443-2414	907-443-2548	Private	N/A	
Hageland Aviation	P.O. Box 1490 Nome, AK 99762	N/A	907-443-7595	907-443-7660	Private	N/A	
Northern Air Cargo	P.O. Box 790 Nome, AK 99762	N/A	907-443-2215	907-443-5052	Private	N/A	
Artic Transportation Services	P.O. Box 790 Nome, AK 99762	N/A	907-443-5482	907-443-4939	Private	N/A	
Lynden Air Cargo	P.O. Box 967 Nome, AK 99762	N/A	907-443-4671	907-443-4672	Private	N/A	

ORDINANCE NO. 98-01

AN ORDINANCE OF THE CITY OF SHISHMAREF, ALASKA ESTABLISHING LAND USE REGULATIONS TO CONFORM TO REQUIREMENTS OF THE NATIONAL FLOOD INSURANCE PROGRAM AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, Alaska Statutes 29.35.260(a) empowers the City of Shishmaref to exercise a power not otherwise prohibited by law.

WHEREAS, it is desirable to provide the residents and businesses of the City of Shishmaref the opportunity to purchase flood insurance;

THEREFORE BE IT ENACTED BY THE CITY OF SHISHMAREF AS FOLLOWS:

Section 1.0 Statutory authorization, findings of fact, and purpose.

The City Council of Shishmaref, Alaska, does recognize that the city is periodically subject to flooding, and land areas adjacent to the Chukchi Sea are subject to coastal erosion, furthermore, both hazards may result in loss of life and property, health and safety hazards, and public expenditures for flood protection, relief and erosion control, all of which adversely affect the public health, safety and general welfare.

The purpose of this ordinance is to promote public health, safety and general welfare and to minimize flood losses. To accomplish this purpose, it is the intent of this ordinance to:

1. Encourage land uses vulnerable to floods be protected against flood damages at the time of initial construction or substantial improvement;

2. Modify land uses which are dangerous to health, safety or property in time of flood or cause excessive increase in flood heights or velocity;

3. Insure that subdivision and development of land within the city are consistent with the need to minimize flood hazards; and insure that the sale of flood insurance is

AUG-2

available to residents, and that those who occupy the areas of special flood hazard assume responsibility for their actions

Section 2.0 Definitions

"AREA OF SPECIAL FLOOD HAZARD" means the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year.
"COASTAL HIGH HAZARD AREA" Means an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. The area is designate on the FIRM as VE.
"DEVELOPMENT" means any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations located within the area of special flood hazard.
"FLOOD" or "FLOODING" means a general and temporary condition of partial or complete inundation of normally dry land areas from:

(1) the overflow of inland or tidal waters and/or;
(2) ~~the~~The unusual and rapid accumulation of runoff of surface waters from any source.

"FLOOD INSURANCE RATE MAP (FIRM)" means the official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to the City of Shishmaref.
"FLOOD-RELATED EROSION" means the collapse or subsidence of land along the shore of a body of water ~~a~~as a result of undermining caused by waves, or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as an abnormal tidal surge.
"STRUCTURE" means a walled and roofed building, manufactured home, and includes a gas or liquid storage tank that is principally above ground.
"SUBSTANTIAL IMPROVEMENT" means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either:

(1) before the improvement or repair is started, or
(2) if the structure has been damaged, and is being restored, before the damage occurred.

For the purposes of this definition "substantial improvement: is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.

SECTION 3.0 General Provisions

3.1 LANDS TO WHICH THIS ORDINANCE APPLIES
This ordinance shall apply to all areas of special flood hazard within the jurisdiction of the City of Shishmaref.

BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD
The areas of special flood hazard identified by the Federal Insurance Administration on the Flood Insurance Rate Map dated August 23, 2001 are hereby adopted by reference and declared to be a part of this ordinance. The Flood Insurance Rate Map is on file at the
City of Shishmaref, P.O. Box 83, Shishmaref, AK 99772.

~~as shown on the *Shishmaref Community Profile* Special Flood Hazard overlay map.~~
Source data is a Flood Insurance Study produced by the Federal Insurance Administration dated August 23, 2001 that cites *the Shishmaref Coastal Erosion Study* prepared for the Alaska District Corps of Engineers by R&M Consultants, Inc. November 1986."

SECTION 4.0 Administration

4.1 ESTABLISHMENT OF DEVELOPMENT PERMIT

4.1-1 Development Permit Required

A development permit shall be obtained before construction or development begins to determine if such development is proposed within flood-prone areas. The permit shall be for all structures, including manufactured homes, and for all development including fill. Customary and traditional subsistence activities including drying racks are categorically excluded from this permit requirement.

4.2 Designation of the Local Administrator
The City Clerk is hereby appointed to administer and implement this ordinance by granting or denying development permit applications in accordance with its provisions.

4.3 DUTIES AND RESPONSIBILITIES OF THE CITY CLERK.
Duties of the City Clerk shall include, but not be limited to:

4.3-1 Permit Review
(1) Review all development permits to determine if the proposed development is located in a Special flood hazard area as shown on the Flood Insurance Rate Map dated August 23, 2001.

(2) Review all development permits to determine that all necessary permits have been obtained from those Federal, State, or local governmental agencies from which prior approval is required.

(1) All subdivision proposals shall be consistent with the need to minimize flood damage.

(2) All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood and erosion damage;

(3) All subdivision proposals shall have adequate drainage provided to reduce exposure to flood damage.

5.1-4 Review of Building Permits

Where flood elevation data is not available either through a Flood Insurance Study or from another authoritative source, applications for building permits will be reviewed to assure proposed construction will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes use of historical data, high water marks, photographs of past flooding, where available. Failure to elevate at least two feet above grade in these zones may result in higher insurance rates.

5.2 Residential Construction

(1) In all areas of special flood hazards, new construction and substantial improvement of any residential structure shall have the lowest floor elevated to or above base flood elevation if established, or the high water marks of record.

(2) Fully enclosed areas below the lowest floor that are subject to flooding are prohibited.

(3) All new residential construction shall utilize a foundation system that is easily relocatable (such as a Triodetic foundation system) so structures may be more easily relocated in the event erosion threatens building site.

5.3 Nonresidential Construction

New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall either have the lowest floor elevated to or above the level of the base flood elevation or high water marks of record; or, together with attendant utility and sanitary facilities shall:

(1) Be floodproofed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water;

(2) Be certified by a registered professional engineer or architect that the design and methods of construction are in accordance with accepted standards of practice for meeting provisions of this section and such certifications shall be provided to the city clerk.

(3) Fully enclosed areas below the lowest floor in nonresidential elevated structures that are subject to flooding are prohibited.

(4) All nonresidential construction shall utilize a foundation system that may allow for relocation of the structure, or erosion control is provided, or the site is

certified by a Professional Engineer to be safe from erosion for the useful life of the structure, or 15-years (whichever is less).

Section 6.0. Coastal High Hazard Areas

The Shishmaref Flood Insurance Rate Map depicts areas along the Chukchi Sea and Shishmaref Inlet as Coastal High Hazard Areas designated as Zones VE. These areas have high velocity waters from storm surges and are subject to erosion. In the areas of Coastal High Hazard, shown as Zone VE on the FIRM:

(1) All new construction shall be located landward of the reach of Mean High Tide except for an engineered groin field, gabion baskets, or other erosion control.

(2) No new residential or nonresidential structures are allowed in the Coastal High Hazard Areas (Zone VE).

Date of Introduction: 4/28/98

Date of Public Hearing: 5/7/98

Date Ordinance 98-1 Amendment Introduced: _____

Date of Public Hearing: _____

APPROVED by the Shishmaref City Council, this 7th day of May 1998.

Date Ordinance 98-1 Amendment adopted by the Shishmaref City Council, this 21st day of August 2001.

ATTEST: Mildred Kuzuguk

Act. alt. City Clerk

CITY OF SHISHMAREF, ALASKA

Resolution 04-04

A Resolution of the City of Shishmaref requesting the State of Alaska and Governor Frank H. Murkowski to assess the current and potential shoreline erosion and flooding danger in Shishmaref, Alaska and provide financial assistance to ensure that preventative measures are in place to protect against loss of life and property and to alleviate potential disaster from future storms as experienced in November 2003.

WHEREAS; the City of Shishmaref is a political subdivision within the State of Alaska and is governed by the duly elected City Council of the City of Shishmaref ; and

WHEREAS; the Community of Shishmaref suffered devastating shoreline erosion and flooding during the storm of November 20-21, 2003, resulting in accelerated shoreline erosion in some areas in excess of thirty (30) feet caused by a particularly severe storm with significant storm surges and tidal action, wave heights of 14 feet, high winds with gusts to 60 MPH and heavy surf spray with flooding of the main street; and

WHEREAS; several homes and the Bering Straits School teachers quarters were also threatened causing evacuation of the Kokeok and three (3) teacher families; and

WHEREAS; the storm created significant and dangerous bluff undercuts directly threatening three utility poles causing potential loss of power to the community, two satellite dish communication systems, the National Guard facility and power to the Shishmaref airport and weather reporting system; and

WHEREAS; numerous and significant sections of the gabion revetment failed during the storm, and reconstruction or replacement is needed; and

WHEREAS; a large majority of the community in the low lying areas on the eastern side of the community also suffered erosion and flooding as well as the landfill road due to the fact that there is no protection in place and the community has not been able to secure funding to place such structures to prevent continued erosion and flooding; and

WHEREAS; the Native Village of Shishmaref in coordination with Kawerak, Inc. Transportation Program will construct a rip rap seawall in Spring 2004 to protect an area of the community with severe erosion that continues to threaten the main street access to the airport, however, this funding is limited and will only construct a seawall up to 400 feet leaving unprotected areas vulnerable to erosion; and

WHEREAS; the community, through the Shishmaref Erosion and Relocation Coalition and in cooperation with the Bering Straits School District has approached the US Corp of Engineers to construct a seawall of a planned 230 ft., continuing from the Kawerak funded rip rap seawall to provide protection below the school property. However, this project funding is also limited and will not provide shoreline protection to other threatened areas; and

WHEREAS; heavy construction equipment from the Kawerak Transportation Program seawall project is now available and local material in the form of re-useable armorflex cement blocks from a previously constructed and failed seawall; and

WHEREAS; the community voted overwhelmingly to relocate in July 2001 and the community anticipates an expedited relocation to occur by 2009, however, relocation is dependant on outside funding sources; and

WHEREAS; the recent storm erosion damage creates a significant continuing threat to the Community of Shishmaref and the ability of our community to respond to this situation is beyond our capability and resources. The fall storm conditions with freezing and dangerous rough seas limits the evacuation of the community by boat or aircraft if the runway is flooded; and

NOW THEREFORE BE IT RESOLVED, that the City of Shishmaref through this resolution hereby requests the State of Alaska and Governor Frank H. Murkowski, to assess the current and potential erosion and flooding dangers in Shishmaref and provide financial assistance to place preventative measures by moving homes and other facilities threatened or placing shoreline protection as required to protect our community and to alleviate a potential disaster and a state of emergency in the Community of Shishmaref. Furthermore, until a safe relocation to a new site on the mainland is completed, our need is to continue to protect the health, safety and welfare of the residents of Shishmaref.

PASSED AND APPROVED by a duly constituted quorum of the Shishmaref City Council this 19th. day of February, 2004

Curtis Nayokpuk, Mayor
City of Shishmaref

Melissa Johnson, Secretary
City of Shishmaref

SENATE COMMITTEE REPORT
First Committee of Referral

DATE: 2/6/04

FURTHER: State Affairs

Date of 5-Day Notice: _____
(in accordance with Uniform Rule 23)

DATE TURNED IN TO OFFICE: 2/25/04

Community and Regional Affairs Committee considered SENATE JOINT RESOLUTION NO. 25

SJR 25 FLOODING AND EROSION CONTROL ASSISTANCE

Recommending that certain federal funding restrictions be eased so that more villages in Alaska would qualify for assistance relating to flooding and erosion.

and recommends:

[ ] be **replaced** with _____ **CS** _____ (_____)

[ ] adopt **previous** _____ **CS** _____ (_____)

[ ] attached amendment(s)

[ ] adopt Letter of Intent by _____ Committee

[ ] further referral to _____ Committee

Senate Bill:
[ ] Same Title
[ ] New Title

House Bill:
[ ] Same Title
[ ] Technical Title Change
[ ] New Title w/ SCR #_____

NEW FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#
DCED	2/25/04			✓	

PREVIOUS FISCAL NOTE(S):

Department	Date	Fiscal	Indet.	Zero	FN#

[ ] **APPROPRIATION - no fiscal note**

SIGNATURES AND RECOMMENDATIONS:	DO PASS	DO NOT PASS	NO REC	AMEND
	✓			
	✓			
	✓			
	✓			
CHAIR:	✓			

FISCAL NOTE

STATE OF ALASKA
2004 LEGISLATIVE SESSION

Fiscal Note Number:
Bill Version: SJR 25
() Publish Date:

Revision Date/Time (Note if correction):
Dept. Affected: DCED
Title: Flooding & Erosion Control Assistance
RDU: Comm Assist & Ec Dev (405)
Component: Community Advocacy
Sponsor: Senator Olson
Requester: Senate Community & Regional Affairs
Component No.: 2703

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0
CAPITAL EXPENDITURES						
CHANGE IN REVENUES ( )						

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type--Do not abbreviate)						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2004) cost: 0.0
Mark this box (X) if funding for this bill is included in the Governor's FY 2005 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: *(Attach a separate page if necessary)*

This resolution urges the federal government to ease the cost and benefit analysis rules associated with federal assistance for flood and erosion damage, and moves to help communities in the state that are threatened by erosion and flooding.

This resolution has no fiscal impact upon the operations of the division.

Prepared by: Gene Kane, Director
Phone (907) 269-4578
Division: Community Advocacy
Date/Time 2/25/04 11:54 AM
Approved by: Edgar Blatchford, Commissioner
Date 2/25/2004
Agency: Department of Community & Economic Development

(Revised 9/2003 OMB)