

# **NATIVE VILLAGE OF CHIGNIK LAGOON TRIBAL HAZARD MITIGATION PLAN [2019 – 2024]**

**FINAL Revision 0  
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**Prepared for:**

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## ACRONYMS AND ABBREVIATIONS

%	percent
°F	degrees Fahrenheit
BBAHC	Bristol Bay Area Health Corporation
BBNA	Bristol Bay Native Association
BIA	Bureau of Indian Affairs
Bristol	Bristol Engineering Services Company, LLC
CFR	Code of Federal Regulations
Community Council	Chignik Lagoon Village Council
DCCED	State of Alaska Department of Commerce, Community, and Economic Development
DHS&EM	State of Alaska Division of Homeland Security and Emergency Management
DOTID	Department of Transportation and Infrastructure Development
FEMA	Federal Emergency Management Agency
FMA	Flood Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
HUD	Housing and Urban Development
ID	Identification
IGAP	Indian General Assistance Program
km	kilometer
MM	Modified Mercalli Scale
mph	mile per hour
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
PDM	Department of Homeland Security Pre-Disaster Mitigation
THMP	Tribal Hazard Mitigation Plan
Tribe	Native Village Of Chignik Lagoon
USACE	US Army Corps of Engineers
USGS	U.S. Geological Survey

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## EXECUTIVE SUMMARY

The Tribal Hazard Mitigation Plan (THMP) for Chignik Lagoon, Alaska (Community) was developed in accordance with the requirements of the Stafford Act and Title 44 of the Code of Federal Regulations (CFR). Bristol Bay Native Association (BBNA) represents the Native Village of Chignik Lagoon (Tribe) and provides support for the Federal Emergency Management Agency (FEMA) pre-disaster mitigation planning project. BBNA contracted Bristol Engineering Services Company, LLC (Bristol) for the development of the THMP. Planning Team members from the Community were identified by the Tribe to assist in the development of this plan.

Hazard mitigation reduces potential losses from future disasters. It is the goal of the Chignik Lagoon Village Council (Council) to develop a disaster – resistant community for the general public and Tribe members by identifying hazard mitigation actions. These actions will reduce the impact of natural hazards on the Community and encourage the restoration and protection of natural and cultural resources.

This plan contains current community information, documents the planning process for the THMP, identifies the natural hazards that have an impact on the Community, identifies community assets, analyzes how the assets are impacted by natural hazards, and identifies the Community's vulnerability to these hazards. Additionally, the THMP lists the Community's mitigation goals and prioritized mitigation actions.

The Planning Team identified natural hazards that could affect the Community. The following is a list of natural hazards that have had an impact on the Community.

- Drought – Times with little to no rainfall results in a decrease of water levels. Residents rely on ground water for drinking and household purposes. When wells are dry they rely on surface water from a nearby creek which is susceptible to dry conditions.
- Earthquake – Earthquakes occur and can result in damage to the Community's power resources, buildings and utilities.
- Erosion – The Community experiences shoreline erosion along Chignik Lagoon and periodic stream erosion along Packers Creek that runs through the Community. Erosion around these areas are impacting homes and other critical infrastructure.
- Flood – Flooding in the Community occurs due to heavy seasonal rainfall events which increases water levels in Packers Creek, and fall storm surges which floods property and homes along the shorelines of the lagoon. Other critical infrastructure is impacted by floods.
- Landslide – Landslides along Hydro Road block access to the hydroelectric dam.



- Severe Wind – High wind events can result in damage to structures, a loss of power and communications, decreased quality of air due to dust, and limits the accessibility of the Community via air transportation.
- Severe Winter Weather – Severe winter weather events and cold temperatures can result in power outages, and limits air transportation in and out of the Community.
- Tsunami – The Community is located along a large lagoon, just inland from the ocean. Tsunamis have not impacted the Community to this point, but has the potential. The Community is lacking shelter should a tsunami occur.
- Volcano – Ash from Mount Veniaminof, a nearby active volcano, has deposited ash in the Community on more than one occasion. The ash is harmful to the residents and community equipment. Emitting ash can also impact transportation in and out of the Community.
- Wildfire – Wildfires destroy subsistence resources, structures, and is a sever risk to human life.

Mitigation goals were selected by the Planning Team for the identified natural hazards. These goals are broad statements that represent the Community’s vision for reducing or avoiding losses from the identified hazards. The following is a list of mitigation goals:

- Reduce the possibility of damages due to drought.
- Reduce the possibility of damages due to earthquakes.
- Reduce the possibility of damages due to erosion.
- Reduce the possibility of damages due to floods.
- Reduce the possibility of damages due to landslides.
- Reduce the possibility of damages due to severe wind.
- Reduce the possibility of damages due to severe winter weather.
- Reduce the possibility of damages due to tsunamis.
- Reduce the possibility of damages due to volcanos.
- Reduce the possibility of damages due to wildfires.

In addition to the identified hazards and the mitigation goals, the Planning Team identified mitigation actions to support the THMP mitigation goals. The following is a list of the high priority mitigation actions.

- Install water meters on homes and community buildings.
- Continue education efforts to remind residents of water use, and suggestions of how to conserve water (posters, flyers, radio announcements, mail flyers).

- Install pipes/hose in nearby creeks for water to use for fishing boats and subsistence use, and acquire proper permissions and permits.
- Increase the Community's water supply by adding a new well and associated equipment and storage, and update and/or replace water distribution equipment and infrastructure.
- Continue earthquake drills in school
- Educate residents about what to do in earthquakes.
- Acquire a backup generator for the clinic.
- Apply armor rock for bank stabilization to reduce erosion on Hydro Road, hydro dam, and penstock.
- Apply armor rock around bridge abutments and hydro dam.
- Develop a maintenance plan for culvert maintenance.
- Acquire a portable community backup generator.
- Provide education to residents about winter preparedness, and items to carry in skiffs.
- Improve winterization of homes.
- Provide training and recurrent training for road maintenance operators.
- Identify a suitable location for a community shelter, possibly by the water treatment plant.
- Build a shelter on higher ground with an access road.
- Acquire supplies for the shelter.
- Develop an evacuation plan.
- Provide education in school about tsunami safety.
- Provide masks for the Community.
- Educate families to purchase bottled water for their family as backup.
- Update or acquire new fire equipment.
- Organize the volunteer fire department.
- Provide training for the volunteer fire department.
- Provide training for the maintenance of the fire equipment.
- Acquire a water tank for fire suppression, or identify another water source with equipment.

- Continue fire drills at school.
- Distribute fire extinguishers yearly to residents as needed.
- Evaluate and upgrade the Community's firefighting abilities and fire protection system to ensure year round use and prevent hydrant freeze ups.

The THMP is a living document that will be reviewed on an annual basis, and updated every five years. The annual reviews will monitor the relevance and implementation of the mitigation action plan, and evaluate the effectiveness and progress of the THMP. The annual evaluation of the THMP will include a review of any changes to assets, impacts from hazards, or any additional changes to the plan.

## 1.0 INTRODUCTION

Bristol Bay Native Association (BBNA) is an Alaska Native Regional Non-Profit Corporation and tribal consortium. Incorporated under state law, corporation bylaws are structured as a pure tribal consortium. The 31 federally recognized tribes in the Bristol Bay region make up the members of the non-profit corporation. The 31 tribes are represented on the BBNA Board of Directors by their elected tribal presidents, or the president's designee (who must be a tribal member). Therefore, BBNA is directly controlled by the tribal governments it represents.

BBNA is a federally recognized tribal consortium for contracting purposes and is a "Tribal Organization" as defined in the Indian Self-Determination and Education Assistance Act. BBNA operates dozens of grants and contracts under various types of eligibility. Understandably, eligibility of each grant is controlled by the regulations and authorizing legislation of each particular funding source. BBNA operates both Indian and non-Indian programs.

BBNA represents all tribes within the Bristol Bay Region, and as such provides support for the Federal Emergency Management Agency (FEMA) pre-disaster mitigation planning project. On behalf of the Council, BBNA contracted Bristol Engineering Services Company, LLC (Bristol) for the development of this Tribal Hazard Mitigation Plan (THMP) for Chignik Lagoon, Alaska (Community). The THMP was prepared to meet the requirements of the Stafford Act and Title 44 of the Code of Federal Regulations (CFR). By meeting these requirements, it makes the Community eligible for funding through state and federal mitigation grant programs.

The purpose of hazard mitigation is to reduce potential losses from future disasters. The intent of mitigation planning is to maintain a process that leads to hazard mitigation actions. This THMP identifies the natural hazards that affect the Community, identifies actions to reduce losses from those hazards, develops long-term strategies to reduce the impacts of future events on people, property, and the environment, and establishes a coordinated process to implement the plan. The THMP establishes goals and objectives and associated actions to reduce and mitigate the threat of natural hazards to life, property, infrastructure, economic stability and emergency response capabilities in the Community while encouraging the protection and restoration of cultural and natural resources.

It is the goal of the Council to create a disaster-resistant community for the Native Village of Chignik Lagoon (Tribe) members and the general public in the Community. The THMP includes information to assist government leaders and residents with current and future planning efforts to efficiently and effectively mitigate natural hazards in the Community.

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## **2.0 COMMUNITY DESCRIPTION**

This section describes the location and geography, climate, history, demographics, and economy of the Community.

### **2.1 LOCATION AND GEOGRAPHY**

The Community is located on the south shore of the Alaska Peninsula, 450 miles southwest of Anchorage. It lies 180 air miles south of King Salmon, 8.5 miles west of Chignik, and 16 miles east of Chignik Lake. The Community lies at approximately 56.3104° North Latitude and 158.5378° West Longitude (See Figures 1, 2, and 3). The Community is located in Section 5, Township 045S, and Range 059W along the Seward Meridian. The Community is located in the Aleutian Islands Recording District (State of Alaska Department of Commerce, Community, and Economic Development [DCCED], 2018).

### **2.2 CLIMATE**

Climate can have a significant impact on the hazards that affect the Community. The Community's climate can also have an impact on the goals and mitigation strategies that are decided upon. The following is a climate summary of the Community:

The Community falls within the southwest maritime climate zone, characterized by persistently overcast skies, high winds, and frequent cyclonic storms. Thick cloud cover and heavy winds are prevalent during winter months (DCCED, 2018). Annual precipitation averages 127 inches with an annual average snowfall of 58 inches. The average winter temperatures range from 21 to 36 degrees Fahrenheit (°F), and the average summer temperatures range from 39 to 60°F (NOAA, November 2013).

### **2.3 HISTORY**

The Community took its name from its location and proximity to Chignik. The people of this area have always been sea-dependent, living on otter, sea lion, porpoise, and whale. During the Russian fur boom from 1767 to 1783, the sea otter population was decimated. This, in addition to disease and warfare, reduced the Native population to less than half its former size. It has since developed as a fishing village. The Community experiences an influx of fishermen during the summer months. The population swells by 200 during the fishing season (DCCED, 2018).

### **2.4 ECONOMY**

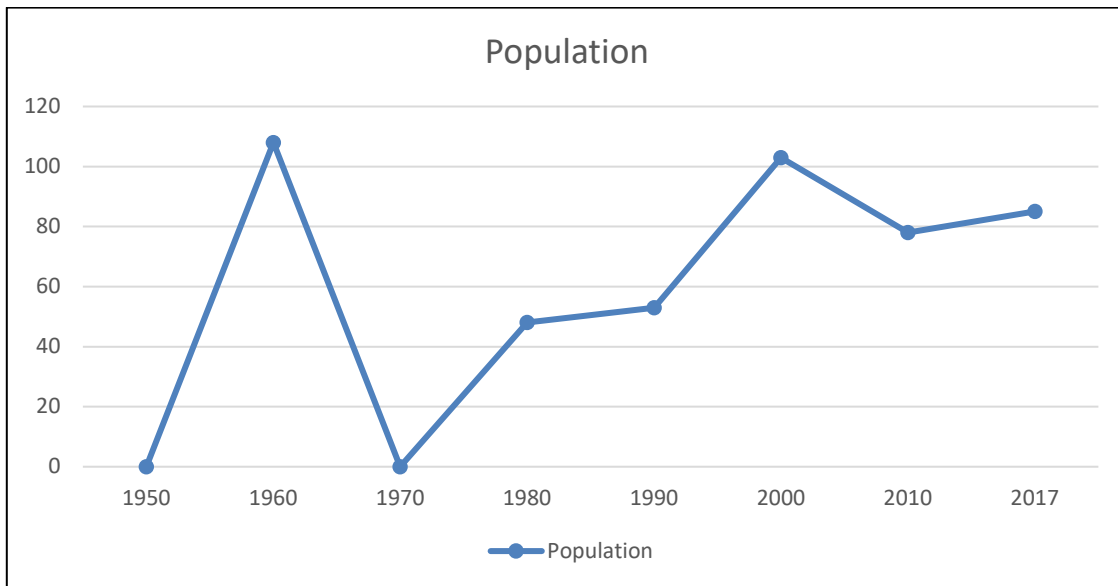
The local government, and educational and health services provide the main employment opportunities in the Community (ALARI, 2018). Other Community employment opportunities include trade, transportation and utilities. The Community is dependent on

fishing Pacific cod, halibut, and salmon, both commercially and subsistence fishing. The Community’s primary source for food is derived from a subsistence lifestyle. According to the 2010 Census, the median household income in the Community was \$123,750. This lifestyle includes activities such as hunting, fishing, berry picking, and other similar activities (DCCED, 2018).

## 2.5 DEMOGRAPHICS

The 2017 State of Alaska Department of Commerce, Community, and Economic Development (DCCED) certified population is 85 (DCCED, 2018). Exhibit 2-1 depicts a historic representation of the population of the Community.

**Exhibit 2-1: Population History**



Source Note: Census Population History retrieved from DCCED  
<https://www.commerce.alaska.gov/dcra/dcraexternal/community/>

The 2010 census recorded 78 residents with a median age of 36. The Community is principally an Alaska Native community with 63 percent (%) Alaska Native, 21% White. In 2010, the male and female population was 40 and 38 respectively. The 2010 census also revealed that there were 29 households with an average household size of 3 people (DCCED, 2018).

## 3.0 PLANNING PROCESS

This section provides information about the planning process that took place during the development of the THMP. It provides an overview of the planning process, the planning team, the public involvement efforts and documentation, the review and incorporation of existing plans, reports and studies, and the plans to integrate the THMP into other planning processes. Documentation of the planning process and public involvement is located in Appendix A and Appendix B, respectively.

### 3.1 PLANNING PROCESS

The planning process was developed following the requirements of 44 CFR 201.7(c)(1). The Department of Homeland Security Pre-Disaster Mitigation (PDM) grant provided funding and project oversight to the BBNA Department of Transportation and Infrastructure Development (DOTID). Bristol, BBNA's contractor, guided the development of a project team to assist BBNA DOTID with the THMP development.

The planning process took place from September 13, 2018 to April 25, 2019. The following steps describe the planning process to develop the THMP and incorporates applicable work completed prior to 2018. All planning documents created or used are included in Appendix A.

1. **Establish the Planning Team:** An initial meeting was held with the Council to establish a point of contact and identify other team members. The titles and organizations of the Planning Team members are identified in Table 3-1. During the initial meeting there was a brief discussion about hazards that affect the community as described in the Risk Assessment (Section 5.0).
2. **Education of the Planning Team:** The THMP planning process was described to the Planning Team on September 13, 2018 and participants were asked to help identify hazards that affect the Community, and critical infrastructure.
3. **Organize Resources:** Members of the Planning Team identified resources, including staff, agencies, and local community members who could provide technical expertise and historical information needed in the development of the THMP (see Sections 3.2 and 3.3.1).
4. **Assess Risks:** The Planning Team identified the hazards and assets within the Community. With the assistance of Bristol, the Planning Team developed a risk analysis for the community assets in relation to the identified hazards. The Planning Team identified the areas of greatest concern to the Community and developed vulnerability statements. Section 5.0 provides a detailed description of the Risk Assessment.



5. **Assess Capabilities:** The Planning Team reviewed current administrative and technical, legal and regulatory, and fiscal capabilities to determine whether existing provisions and requirements adequately address relevant hazards (see Section 3.4 and Section 6.1).
6. **Develop a Mitigation Strategy:** After reviewing the risk analysis and vulnerability statements, the Planning Team developed the mitigation goals. Once goals were established, the Planning Team identified a comprehensive range of potential mitigation actions. Subsequently, the Planning Team refined the prioritized mitigation actions, and evaluated and prioritized the actions for implementation. Section 6.0 provides a detailed description of the Mitigation Strategy.
7. **Monitor, Evaluate, and Plan Updates:** The Planning Team developed a process to monitor, evaluate, and update the THMP to ensure it will be used as intended (see Section 4.0). Plan maintenance forms can be found in Appendix C. The Planning Team also established a plan to track the progress of the identified mitigation actions (see Section 6.7). Mitigation tracking forms are located in Appendix E.

In addition to the steps above the Planning Team encouraged community input throughout the planning process. Section 3.3 details how the public was involved in the planning process.

### 3.2 PLANNING TEAM

The Planning Team is shown in Table 3-1, 44 CFR 201.7(c)(1).

**Table 3-1: Hazard Mitigation Planning Team**

Name	Title	Organization
Al Anderson	Vice President	Chignik Lagoon Village Council
Michelle Anderson	Administrator	Chignik Lagoon Village Council
Oscar Mills	Environmental Program	Chignik Lagoon Village Council
Erin Pedersen	Environmental Program	Chignik Lagoon Village Council
Dan Breeden	Director	BBNA DOTID
Annie Fritze	Program Manager	BBNA DOTID
Isaac Pearson	Senior Engineer	Bristol (THMP Consultant)
Danielle Dance	Civil Engineer	Bristol (THMP Consultant)

### 3.3 PUBLIC INVOLVEMENT

Public involvement is important to the planning process of the THMP, 44 CFR 201.7(c)(1)(i). The Council defines “public” as living in the tribal service area or on tribal land, as well as any tribal member or citizen not living on the tribal lands that desires to provide comment on the THMP. It is important for the public to understand and be educated on the Community’s priorities. The public also provides valuable insight into issues of concern, identifying community assets and areas that need improvement. The public can provide important information about the history of hazards that have affected the area. Additionally, they can provide ideas for continuing public involvement after the plan has been adopted.

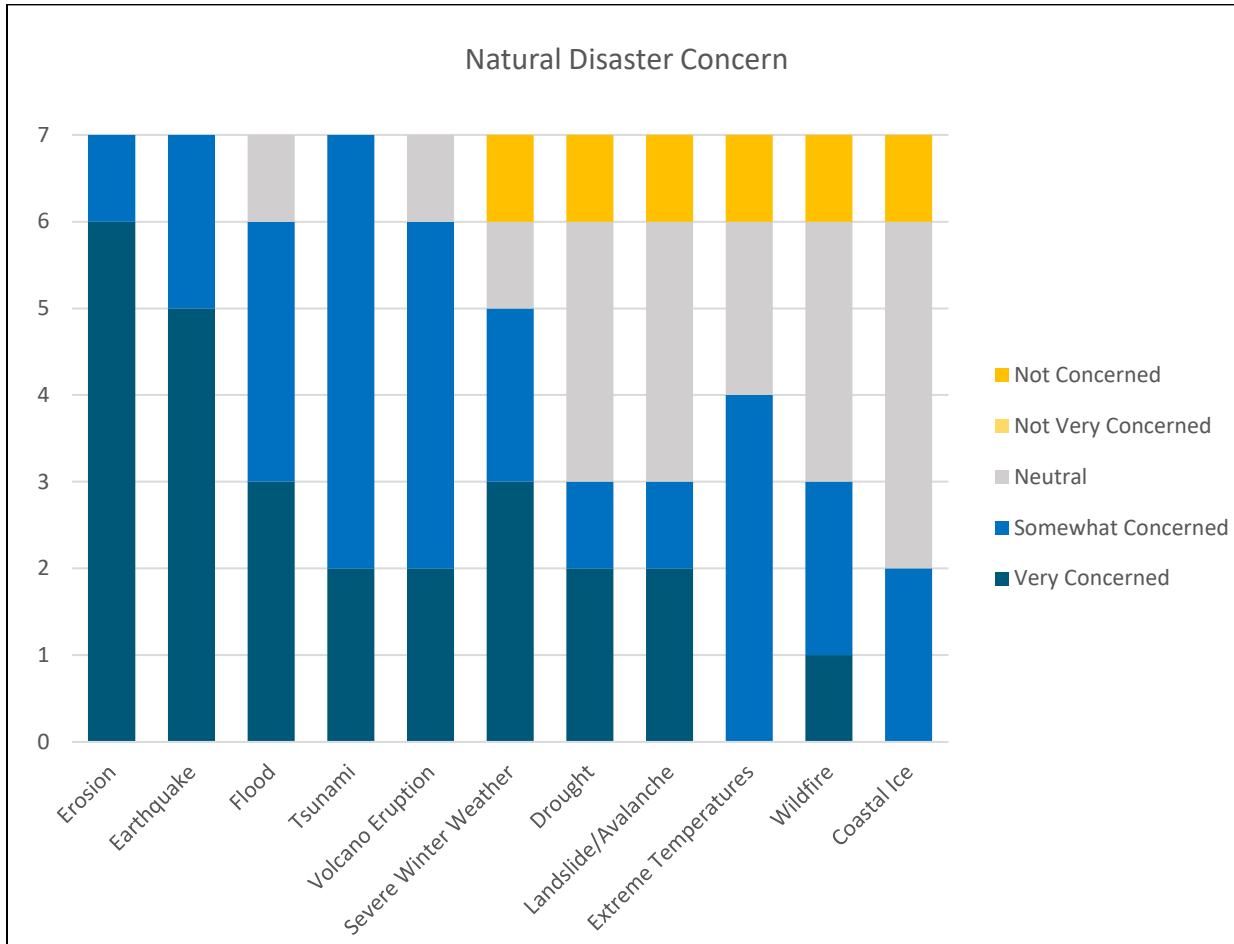
A public meeting was held by BBNA DOTID and Bristol on April 24, 2019 in the Community to educate and receive feedback on the THMP. During the meeting, participants were given the opportunity to discuss how they have personally been impacted by the identified hazards in their community. They were also given the opportunity to discuss mitigation strategies that they felt would help prevent future losses due to the hazards. Additionally, the community was asked how they would like to be included in the remaining planning process and throughout the implementation of the mitigation strategies.

Newsletters were used to inform the public about the project. The first newsletter provided an overall description of the project, its purpose, the general process for plan development, and ways for the public to participate in the development of the plan. The second newsletter was sent to inform the public that a draft of the THMP was ready for review and provided the dates for a public review and comment period.

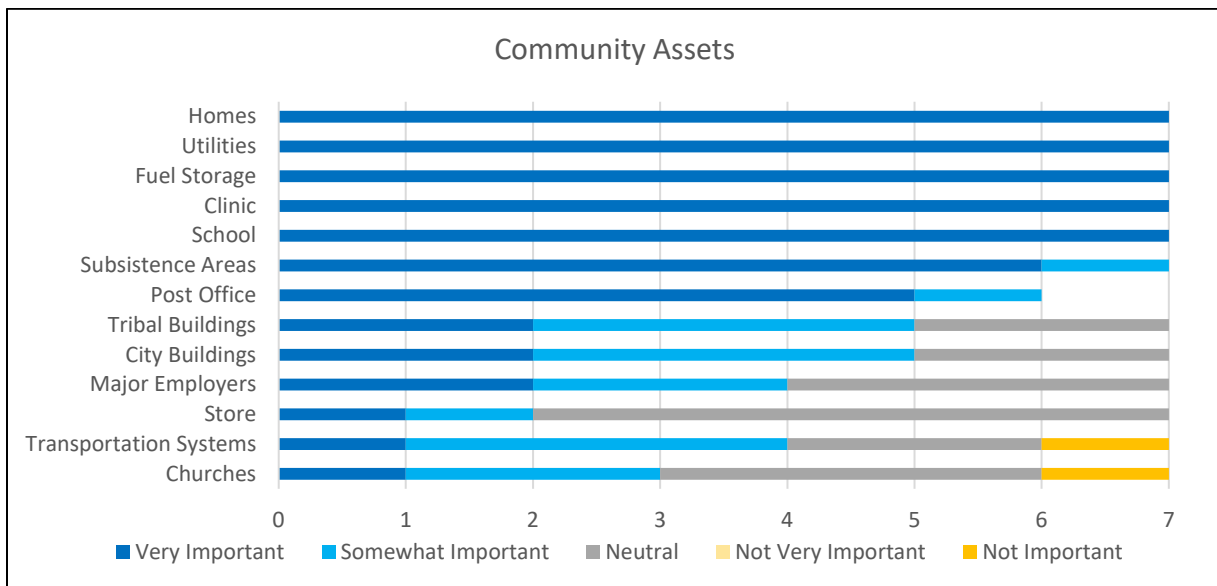
In addition to the public meeting and newsletters, residents or interested parties were encouraged to participate in, and had access to a public survey. This survey was available and located in the tribal office throughout the planning process and during the public meeting.

Seven surveys were completed and returned. The residents of the Community identified through the survey that they are most concerned about erosion (see Exhibit 3-1). However, since the evaluation of the results of the survey events have changed within the Community and their main concern is the lack of water due to drought conditions. Additionally, Exhibit 3-2 illustrates the opinions of the residents regarding the importance of community assets. A copy of the survey distributed to community members and a complete summary of responses can be found in Appendix B.

**Exhibit 3-1: Natural Disaster Concern (Survey Question #2)**



**Exhibit 3-2: Community Assets (Survey Question #7)**



All documentation and materials used to involve the public are located in Appendix B. This includes: public meeting advertisements, sign-in sheets, presentations, handouts, newsletters, surveys and a summary of responses, and any comments received via email, phone, or facsimile.

### 3.3.1 Other Communities, Tribal Agencies, and Regional Agencies Involved

The Planning Team worked to include all stakeholders in the planning process and development of the THMP, 44 CFR 201.7(c)(1)(ii). Table 3-2 provides the other stakeholders, communities, tribal agencies, and regional agencies that were involved in the planning process and development of the plan.

**Table 3-2: Stakeholder Contacts**

Stakeholder Type	Stakeholder	Contact Person (Title)	Contact Email
Village for Profit	Chignik Lagoon Native Corporation	Rodney Anderson (President)	<a href="mailto:endurancefisheries@hughes.net">endurancefisheries@hughes.net</a>
Regional for Profit	Bristol Bay Native Corporation	Jason Metrokin (President)	<a href="mailto:jmetrokin@bbnc.net">jmetrokin@bbnc.net</a>
Non-Profit Agency	BBNA	Gayla Hoseth (Natural Resources Director)	<a href="mailto:ghoseth@bbna.com">ghoseth@bbna.com</a>
Non-Profit Agency	BBNA	Carla Akelkok (VPSO Program Manager)	<a href="mailto:cakelkok@bbna.com">cakelkok@bbna.com</a>
Economic Development	BBNA	Kristina Andrew (Program Manager)	<a href="mailto:krandrew@bbna.com">krandrew@bbna.com</a>
Regional Housing	Bristol Bay Housing Authority	Brenda Akelkok (Executive Director)	<a href="mailto:bakelkok@bbha.org">bakelkok@bbha.org</a>
Regional Hospital	Bristol Bay Area Health Corporation (BBAHC)	Robert Clark (CEO)	<a href="mailto:rclark@bbahc.org">rclark@bbahc.org</a>
Village Clinic	BBAHC	Rhonda Gregorio (Health Aide)	<a href="mailto:rgregorio@bbahc.org">rgregorio@bbahc.org</a>

**Table 3-2 (Continued): Stakeholder Contacts**

Stakeholder Type	Stakeholder	Contact Person (Title)	Contact Email
Village Clinic	BBAHC	Christine Anderson (Health Aide)	<a href="mailto:canderson@bbahc.org">canderson@bbahc.org</a>
Borough	Lake and Peninsula Borough	Kate Konley (Borough Clerk)	<a href="mailto:katekonley@lakeandpen.com">katekonley@lakeandpen.com</a>
Borough	Lake and Peninsula Borough	Nate Hill (Borough Manager)	<a href="mailto:manager@lakeandpen.com">manager@lakeandpen.com</a>
School District	Lake and Peninsula School District	Ty Mase (Superintendent)	<a href="mailto:tmase@lpsd.com">tmase@lpsd.com</a>
School	Chignik Lagoon School	Joe Ward (Principal/Lead Teacher)	<a href="mailto:jward@lpsd.com">jward@lpsd.com</a>
Electric Utility	Chignik Lagoon Power Utility	Hanna Overston	<a href="mailto:clpu.office@gmail.com">clpu.office@gmail.com</a>
Telephone	GCI	Lana Woods (Permitting & Compliance Manager)	<a href="mailto:lwoods@gci.com">lwoods@gci.com</a>
State Representative	State of Alaska	Bryce Edgmon (Representative)	<a href="mailto:representative.bryce.edgmon@akleg.gov">representative.bryce.edgmon@akleg.gov</a>
State Senator	State of Alaska	Lyman Hoffman (Senator)	<a href="mailto:senator.lyman.hoffman@akleg.gov">senator.lyman.hoffman@akleg.gov</a>

Applicable stakeholders were contacted by e-mail to invite their participation in the planning process. Applicable comments provided by these stakeholders are included in Appendix B.

### 3.4 INCORPORATION OF EXISTING PLANS/STUDIES/REPORTS

During the development of the THMP the Planning Team reviewed any applicable existing plans, studies, and reports, 44 CFR 201.7(c)(1)(iii). Table 3-3 lists those documents reviewed by the Planning Team and contains a summary of the incorporated content.

**Table 3-3: Existing Plans, Studies, and Reports Reviewed**

<b>Plans/Studies/Reports Reviewed for this THMP</b>	<b>Summary of Incorporated Content</b>
US Army Corps of Engineers (USACE) Alaska Baseline Erosion Assessment	This report identifies the Community as having erosion issues (USACE, 2009).
USACE Erosion Assessment	Erosion along the shoreline of the lagoon that fronts the Community is primarily caused by large tides, wind-driven wave action, and coastal flooding. Periodic stream erosion occurs along Packers Creek due to natural processes (USACE, 2008).
State of Alaska Hazard Mitigation Plan	Identifies profiled hazards, provides resources, and provides goals and mitigation strategies identified by the State of Alaska Division of Homeland Security and Emergency Management (DHS&EM) (DHS&EM, 2013).
Lake and Peninsula Borough Multi-Jurisdictional Hazard Mitigation Plan Update	This report provides the Borough mitigation actions and goals. It also identified that the Community has documented problems with unstable soils (Lake and Peninsula Borough, 2015).
Alaska Emergency Response Guide for Small Communities	This guide provides general procedures to assist local officials in preparing for, responding to, and recovering from emergency and disaster situations developed by the DHS&EM (DHS&EM, 2017).

NOTE: Complete reference information for the Plans/Studies/Reports in the table above is included in Section 8.0 of this plan.

### 3.5 INTEGRATION INTO OTHER TRIBAL PLANNING PROCESSES

The Planning Team worked to share and integrate the information collected during the planning process with other tribal planning processes, 44 CFR 201.7(c)(1)(iv). They accomplished this by attending tribal planning meetings when invited and providing regular updates to the Council. Through this process the Planning Team was also able to identify projects or actions for the mitigation plan.

There were no FEMA programs or initiatives occurring at the time of the planning process. Therefore, the planning process was not integrated into other FEMA programs or initiatives.

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## **4.0 PLAN MAINTENANCE**

This section provides a formal maintenance plan to monitor, evaluate, and update the THMP to ensure that it remains an applicable and active document, and that improvements and updates to the THMP happen in a coordinated and organized manner, 44 CFR 201.7(c)(4)(i). This section also describes how the Council plans to continue public involvement in the maintenance of the plan. Appendix C contains questionnaires and forms to track the maintenance process.

### **4.1 MONITORING**

The Planning Team will continue to monitor the progress of the mitigation actions to track the relevance and implementation of the mitigation action plan (Section 6.5) and all of its elements. Once a year from the time that the plan is adopted, the Tribal Administrator, or designee, will track the status of implementation of the identified mitigation actions and provide a status report to the Council. A more thorough review, by the responsible agency, of the progress of each identified mitigation action will be addressed in Section 6.7. The THMP Maintenance Monitoring Form (THMP Form 4-1) is located in Appendix C.

### **4.2 EVALUATING**

The Planning Team will evaluate the THMP, in its entirety, to assess its effectiveness at achieving its stated goals and purposes. The Planning Team will evaluate the progress towards the THMP goals on an annual basis from the time the plan was adopted. The THMP Plan Update Evaluation Form (THMP Form 4-2) is located in Appendix C. This evaluation will include a review of the following:

- Identification of agencies, stakeholders, residents that have participated in THMP implementation efforts;
- Identification of notable changes to the risk assessment;
- Identification of new hazards and their impacts;
- Identification of new reports or planning materials available to the Community;  
and
- Identification of new hazard mitigation projects.

The Tribal Administrator, or designee, will contact the Council and other applicable stakeholders identified in Sections 3.2 and 3.3.1 to determine if the THMP needs to be updated to address newly identified hazards, new reports, or new hazard mitigation projects. The Tribal Administrator, or designee, will e-mail all stakeholders summarizing this process and request a planning meeting, if an update is warranted.



### 4.3 UPDATING

The THMP will be updated at least once every five (5) years. The plan can be revised prior to this when significant changes need to be made, if any necessary changes are identified during the evaluation process (Section 4.2). The Tribal Administrator, or designee will contact the Council and Planning Team no later than the beginning of the fourth year following the THMP adoption to begin the process for updating the plan. The Planning Team will review and incorporate all applicable information collected or received to update the THMP. Comments received from the public and information collected from the THMP evaluation form (Form 4-2 located in Appendix C) and mitigation action plan review forms (Form 6-2 located in Appendix E) will aid the Planning Team in refocusing on any possible new hazards, or available resources.

In addition to reviewing the plan maintenance forms and mitigation action plan review forms the Planning Team will begin the following activities:

- Request grant assistance to update the THMP.
- Identify sections of the plan that need to be improved and begin brainstorming proposed changes.
- Update and analyze the risk assessment.
  - Review and update the hazard analysis.
  - Review and update the Community assets.
  - Complete a new risk analysis.
  - Re-evaluate the Community Vulnerability statements.
- Update the Community mitigation strategy.
  - Re-evaluate and update the Community mitigation goals.
  - Update and review mitigation actions.
- Update the THMP document.
- Submit updated THMP to FEMA for review and approval.

Table 4-1 identifies the plan maintenance timeline and the tasks that should be completed each year.

**Table 4-1: Plan Maintenance Timeline**

Year	Action(s)	Applicable Forms
2019	Plan Adoption	N/A
2020	<ul style="list-style-type: none"> <li>• Monitor status of actions</li> <li>• Evaluate THMP</li> </ul>	<ul style="list-style-type: none"> <li>• THMP Form 4-1</li> <li>• THMP Form 4-2</li> </ul>
2021	<ul style="list-style-type: none"> <li>• Monitor status of actions</li> <li>• Evaluate THMP</li> </ul>	<ul style="list-style-type: none"> <li>• THMP Form 4-1</li> <li>• THMP Form 4-2</li> </ul>
2022	<ul style="list-style-type: none"> <li>• Monitor status of actions</li> <li>• Evaluate THMP</li> </ul>	<ul style="list-style-type: none"> <li>• THMP Form 4-1</li> <li>• THMP Form 4-2</li> </ul>
2023	Begin plan update activities (outlined in Section 4.3)	N/A
2024	Finalize THMP update	N/A
2025	THMP Update adopted	N/A

#### 4.4 PUBLIC INVOLVEMENT IN THE PLAN MAINTENANCE PROCESS

The Council is committed to involving the public in the continual maintenance and updating of the THMP, 44 CFR 201.7(c)(4)(iv). A continued effort will be made to identify opportunities to raise community awareness about the hazards that affect the Community. This effort could include attendance and provision of materials at Tribe-sponsored events, outreach programs, and public mailings. Additionally, efforts will be made to include hazard mitigation into Community public meetings when possible.

A paper copy of the THMP and any proposed changes will be available at the Tribal office and at the BBNA DOTID office. An electronic copy of the THMP Plan will also be available from the Tribal office or the BBNA DOTID office. Comments or concerns can be directed to the Tribal Administrator, or designee. Any comments or concerns collected will be included in the annual monitoring effort and considered for inclusion in future THMP updates.

The Planning Team will ensure that the public will be involved in the THMP update. This involvement could be in the form of public meetings, newsletters, or other community correspondence techniques. The public will be given the time to review the draft plan prior to its adoption.

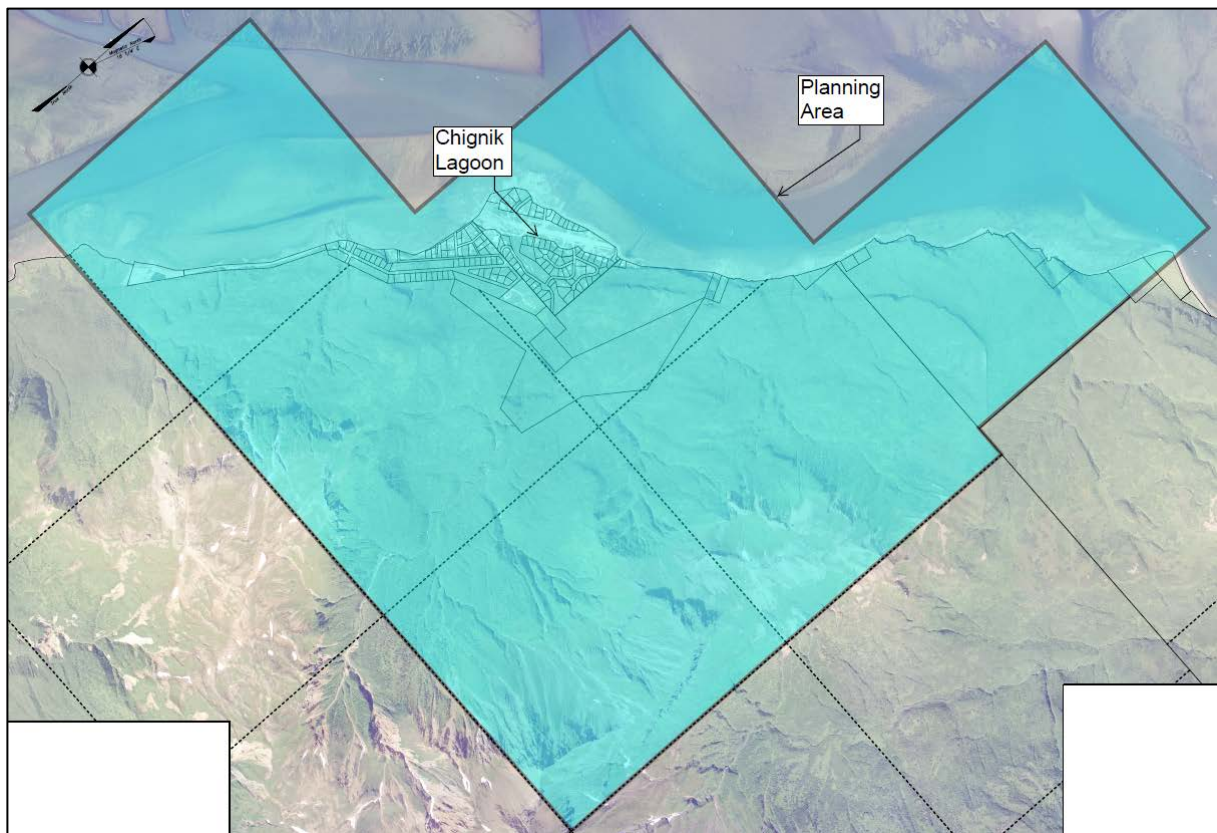
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## 5.0 RISK ASSESSMENT

This section provides an analysis of the hazards that affect the Community planning area, 44 CFR 201.7(c)(2)(i). This section also identifies the Community’s assets, analyzes the risks of assets associated with each hazard type, and assesses the vulnerabilities of local people, property, and natural environment.

The Community planning area is shown in Exhibit 5-1. The planning area encompasses Sections 4-9 of Township 45 South Range 59 West, and Section 36 of Township 44 South, Range 59 West, of the Seward Meridian. Community trails and subsistence areas may extend beyond the sections shown.

**Exhibit 5-1: Planning Area**



### 5.1 HAZARD ANALYSIS

The first step in the risk assessment is to identify the natural hazards that could affect the planning area. Natural hazards result from uncontrollable or unexpected natural events. The Planning Team reviewed 14 possible hazards that could affect the planning area. Each hazard was evaluated based on a range of factors. Table 5-1 through Table 5-4 provide the classifications and definitions of each factor (FEMA, March 2013). These factors included

the location of affected area (Table 5-1), the maximum extent or magnitude of the event (Table 5-2), and the probability of future events (Table 5-3). Based on the rankings from Table 5-1 through Table 5-3 the possible hazards were then ranked again based on their overall impact on the Community (Table 5-4). The hazard identification worksheet (Worksheet 1) is located in Appendix A.

Table 5-1 provides a classification and its definition related to the geographic area that the hazard may affect.

**Table 5-1: Location**

Color Code	Area Affected	Definition
<b>BLUE</b>	Negligible	<ul style="list-style-type: none"> <li>Isolated single-point occurrences</li> <li>Less than 10% of planning area</li> </ul>
<b>GREEN</b>	Limited	<ul style="list-style-type: none"> <li>Limited single-point occurrences</li> <li>10% to 25% of planning area</li> </ul>
<b>YELLOW</b>	Significant	<ul style="list-style-type: none"> <li>Frequent single-point occurrences</li> <li>25% to 75% of planning area</li> </ul>
<b>RED</b>	Extensive	<ul style="list-style-type: none"> <li>Consistent single-point occurrences</li> <li>75% to 100% of planning area</li> </ul>

Table 5-2 provides classifications and definitions used to determine the significance of each hazard based on maximum extent or magnitude seen in historic events or future probability.

**Table 5-2: Maximum Extent or Magnitude**

Color Code	Maximum Extent	Definition
<b>BLUE</b>	Weak	<ul style="list-style-type: none"> <li>Little to no damage done</li> <li>Slow speed of onset or short duration of event</li> <li>Limited classification on scientific scale (if applicable)</li> </ul>
<b>GREEN</b>	Moderate	<ul style="list-style-type: none"> <li>Some damage and loss of services for days</li> <li>Moderate speed of onset or moderate duration of event</li> <li>Moderate classification on scientific scale (if applicable)</li> </ul>
<b>YELLOW</b>	Severe	<ul style="list-style-type: none"> <li>Devastating damage and loss of services for weeks or months</li> <li>Fast speed of onset or long duration of event</li> <li>Severe classification on scientific scale (if applicable)</li> </ul>
<b>RED</b>	Extreme	<ul style="list-style-type: none"> <li>Catastrophic damage and uninhabitable conditions</li> <li>Immediate onset or extended duration of event</li> <li>Extreme classification on scientific scale (if applicable)</li> </ul>

Table 5-3 provides classifications with definitions related to the probability of future events happening in the planning area.

**Table 5-3: Probability of Future Events**

Color Code	Probability of Future Event	Definition
<b>BLUE</b>	Unlikely	<ul style="list-style-type: none"> <li>• Less than 1% probability of occurrence in the next year</li> <li>• Recurrence interval of greater than every 100 years</li> </ul>
<b>GREEN</b>	Occasional	<ul style="list-style-type: none"> <li>• 1% to 10% probability of occurrence in the next year</li> <li>• Recurrence interval of 11 to 100 years</li> </ul>
<b>YELLOW</b>	Likely	<ul style="list-style-type: none"> <li>• 10% to 90% probability of occurrence in the next year</li> <li>• Recurrence interval of 1 to 10 years</li> </ul>
<b>RED</b>	Highly Likely	<ul style="list-style-type: none"> <li>• 90% to 100% probability of occurrence in the next year</li> <li>• Recurrence interval of less than 1 year</li> </ul>

After the possible hazards were evaluated according to location, extent or magnitude, and probable future occurrence each hazard was then ranked according to its overall impact. A hazard’s overall impact is the effect or consequence of the hazard on the Community and its assets. The Community’s assets are identified and further discussed in Section 5.2. Table 5-4 provides the classifications with definitions to determine the overall impact of each hazard on the planning area.

**Table 5-4: Overall Impact**

Color Code	Impact	Definition
<b>GREEN</b>	Low	<ul style="list-style-type: none"> <li>• Event has minimal impact on planning area</li> <li>• Two or more criteria fall in lower classifications</li> </ul>
<b>YELLOW</b>	Medium	<ul style="list-style-type: none"> <li>• Event’s impacts on the planning area are noticeable but not devastating</li> <li>• Criteria fall mostly in the middle ranges of classifications</li> </ul>
<b>RED</b>	High	<ul style="list-style-type: none"> <li>• Event is likely/highly likely to occur with severe strength over a significant or extensive portion of the planning area</li> <li>• Criteria consistently fall in the high classifications</li> </ul>

Table 5-5 shows a summary of the hazard analysis (also provided in Appendix A, Worksheet 1). This summary identifies each of the hazards evaluated, if the hazard presents a significant impact to the Community, and an explanation of why it was or was not determined to be significant to the Community and further analyzed by the Planning Team.

**Table 5-5: Significant Hazards in the Planning Area**

<b>Hazard</b>	<b>Significant (Yes/No)</b>	<b>Explanation</b>
Avalanche	No	Avalanches do not occur in the Community. There is potential for avalanches if the Community has a season with a large amount of snowfall.
Drought	Yes	Times with little to no rainfall can result in a decrease of water levels. This can impact the subsistence resources. Drought also contributes to dust emissions and causes dry vegetation, increasing the risk of wildfires.
Earthquake	Yes	Earthquakes occur in the Community, and can result in damage to buildings, utilities, and power resources.
Erosion	Yes	The Community is situated along the banks of Chignik Lagoon. Additionally, Packers Creek runs through the Community. Both bodies of water are causing erosion and impacting homes and other critical infrastructure.
Extreme Temperatures (Severe Cold & Heat)	No	The Community does not experience extreme temperatures. The Community is experiencing warmer temperatures than in the past.
Flood	Yes	Flooding can occur due to heavy rainfall, fall storm events, heavy seasonal runoff, and high water from storm surges. Critical facilities and residential homes are at risk of flooding.
Landslide	Yes	Landslides occur along Hydro Road which blocks access to the hydroelectric dam which is the Community's power source.
Severe Wind	Yes	Strong wind storms occur every fall in the Community. These storms can damage roofs, blow over tall communication towers and trees, potentially leading to loss of power or communication service.
Severe Winter Weather	Yes	Severe winter weather can affect plane access to the community for travel, food and supplies, and medical emergency evacuations. Snow and sleet storms can also cause power outages.
Subsidence	No	The Community is beginning to notice a few buildings sinking, settling, and tilting.
Tsunami	Yes	The Community is located just inland of the ocean on a large lagoon. There are instances in which a large tsunami could impact the Community.

**Table 5-5 (Continued): Significant Hazards in the Planning Area**

Hazard	Significant (Yes/No)	Explanation
Volcano	Yes	The Community is located approximately 40 miles from Mount Veniaminof. It is actively monitored and erupts ash every few years. It has deposited ash in the Community many times in the recent history. The corrosive properties of volcanic ash are harmful to equipment and detrimental to human health.
Wildfire	Yes	There have been 4 fires within roughly 62 miles of the Community since 1992, totaling 2,480 acres. Wildfires can destroy structures and subsistence resources, and is a severe risk to human life.

The following sections examine each hazard identified by the Tribe that could impact the planning area. This examination includes a general description of each hazard, its anticipated location, anticipated extent, history of occurrences in the planning area, and the probability of future occurrences.

Some hazards, such as tornadoes, could occur in the planning area, but with such infrequency that they were not considered for this evaluation.

### 5.1.1 Drought

A drought is a period of time that has unusually dry weather. This length of time persists long enough that it causes deficiencies in water supplies. The effects of a drought take a long period of time to develop however, over time they can severely impact water supplies, crops, wildlife, subsistence areas, and recreational resources. Direct and indirect impacts to the economy can be significant if the drought conditions extend over a long period of time. If a drought continues for a long duration it can make the area more susceptible to fire.

#### 5.1.1.1 Location

All land in the entire tribal planning area (see Exhibit 5-1) is equally at risk for the hazard.

#### 5.1.1.2 Extent

Drought can impact subsistence foods, increase fire risks, and decrease water levels. With limited rainfall or snowfall, local water bodies can see a reduction in water levels including rivers, streams, fishponds, and shallow groundwater aquifers. Residents of the Community rely on groundwater wells for drinking water and household sanitation. Additionally, the Community depends on hydroelectric power. This requires that the source for the hydroelectric dam maintain its capacity and flow.



Weeks without sufficient rainfall can lower water levels in fishponds and tributaries, disrupting spawning areas available for salmon and resulting in poor subsistence harvest. Additionally, dry summers can result in poor production of natural berry patches. As a community with a subsistence lifestyle, residents can be especially impacted by drought because it can affect the quality of, and access to native food sources.

Limited moisture can also increase dust emissions caused by wind and travel on gravel roads and runways. Dust is a nuisance as well as a health hazard. Dust can settle on subsistence foods such as berry patches or salmon hanging out to dry. Inhaling airborne dust is also a risk, particularly for children, elders, and people with respiratory issues. Dust contains particulate matter that can irritate a person's eyes and throat, aggravate existing heart and lung disease, and damage lung tissue.

The Community has experienced two or three historical seasonal dry periods of limited or no rainfall. Drought of this duration can affect an entire year's supply of subsistence foods. Based on these factors and the summation of impacts described above, the THMP Planning Team has classed the maximum probable extent (magnitude/strength) of drought in the Community as "severe."

#### **5.1.1.3 History of Occurrences**

Due to limited data collection in rural Alaska, historical drought events are based on anecdotal evidence from community members. In 2018 the Community was required to use their back up surface water source, nearby creeks, while repairs were made to the water system and the pumps were lowered deeper into the well. The Community stated that they are in the process of looking for funding for deeper wells for the Community. The Community was on a boil notice while they were using surface water.

The Community was also required to use their back up surface water source, and boil notice, during the summer of 2019. Efforts were made to locate and repair leaks in the current water distribution system and well casings. This was not a permanent solution. Due to the un-seasonally dry weather the backup surface water source dried up to barely a trickle of water. Leaders are cautioning residents to conserve water, and looking for resources for the Community.

#### **5.1.1.4 Probability of Future Events**

Droughts are highly likely to continue to affect the Community.

### **5.1.2 Earthquake**

An earthquake is a sudden trembling or movement in the earth's crust due to a sudden release of energy along the edge of the earth's tectonic plates. Earthquakes typically occur

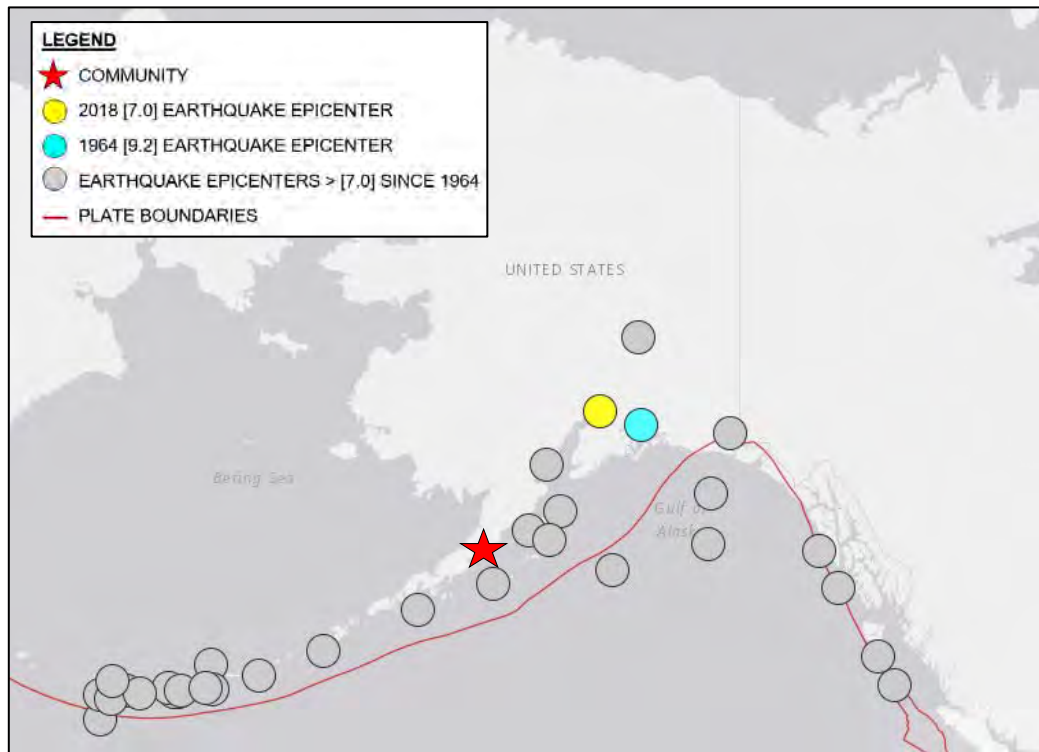
without warning. The effects of an earthquake can be felt far beyond the site of its epicenter. The epicenter is the point on the earth's surface that is vertically above the point in the crust where the seismic movement begins. A seismometer detects the vibrations caused by an earthquake and plots them on a seismograph. The magnitude of an earthquake is measured using the Richter scale. Most earthquake-related deaths and property damage are caused by the collapse and failure of structures due to ground shaking. The amount of damage depends upon the duration and extent of the shaking.

Landslides, liquefaction, and tsunamis are some other damaging effects of an earthquake. Earthquake-induced landslides are the down-slope movement of rock, soil and other debris due to ground movement on a steep mountain or hillside slope. Liquefaction occurs when saturated, unconsolidated sand or soil is disturbed due to the shaking from an earthquake. This shaking causes ordinarily solid material or soils to behave like a liquid. A tsunami is a series of enormous ocean waves that can damage or destroy buildings and infrastructure and cause flooding.

#### **5.1.2.1 Location**

An earthquake above a 7.0 on the Richter scale is considered a major earthquake. The epicenters of all major earthquakes occurring in Alaska since 1964 are shown on Exhibit 5-2. This map was developed using the US Geological Survey (USGS) Earthquake Catalog Search feature (USGS, 2018). The Community is located approximately 510 miles southwest of the 1964 earthquake epicenter, the largest recorded earthquake in Alaska. The Community is not located on any mapped fault lines. The largest earthquake that has occurred within a 75 miles radius of the Community was a magnitude 6.4 on the Richter scale, located 33.2 miles away on the Alaska Peninsula in March 1972. The closest earthquake to occur near the Community above a magnitude 2.5 was a magnitude 2.8 earthquake that occurred 1.7 miles away in June 2006 (USGS, 2018). More historic earthquakes information surrounding the community is provided in Section 5.1.2.3.

### Exhibit 5-2: Major Earthquakes in Alaska

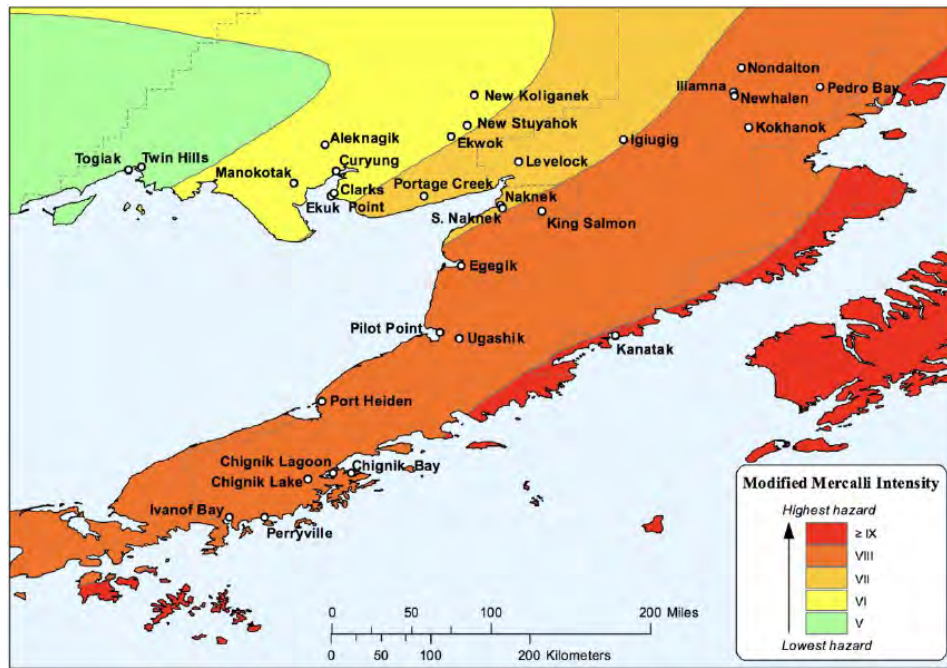


#### 5.1.2.2 Extent

Earthquakes are rarely felt in the Community. Community members have reportedly felt slight tremors from major earthquakes in Alaska, but these earthquakes have not caused any known damage in the Community. The most severe earthquake felt in the Community was the Great Alaska Earthquake of 1964. Residents described the event saying the lagoon was emptied. This earthquake had a recorded magnitude of 9.2 on the Richter scale, making it the second largest recorded earthquake in the world. Its effects were felt as far away as South Africa (Alaska Earthquake Center, 2018).

The Geological Hazards Team of the USGS National Earthquake Information Center in Golden, Colorado created a time-independent probabilistic seismic hazard map for the Bristol Bay Region of Alaska. The map (Exhibit 5-3) depicts the intensity of potential earthquake ground shaking that has a 2% chance of occurring in 50 years, presented in terms of the Modified Mercalli Scale (MM) and based on peak ground acceleration. The Community is located in a Zone VII MM Intensity, indicating the earthquake risk is relatively high (Natalia Ruppert, Presentation, November 22, 2016). Exhibit 5-4 provides a description of damages that can occur at each magnitude of the MM. This exhibit also provides an approximate Richter Scale equivalent for each MM intensity (USGS, 2019 and SMS Tsunami Warning, 2018).

### Exhibit 5-3: Bristol Bay Earthquake Hazard Map



USGS map showing the intensity of potential earthquake ground shaking that has a 2% chance of occurring in 50 years, site class B (based on peak ground acceleration)

### Exhibit 5-4: Modified Mercalli Intensity Scale with Approximate Richter Scale Equivalent

MM Intensity	Richter Scale (approximate)	People's Reaction	Furnishings	Built Environment	Natural Environment
I	1-2	Not felt			Changes in level and clarity of well water are occasionally associated with great earthquakes at distances beyond which the earthquakes felt by people
II	3	Felt by a few	Delicately suspended objects may swing.		
III	3.5	Felt by several; vibration like passing truck.	Hanging objects may swing appreciably.		
IV	4	Felt by many; sensation like heavy body striking building.	Dishes rattle	Walls creak; windows rattle	
V	4.6	Felt by nearly all; frightens a few.	Pictures swing out of place; small objects move; a few objects fall from shelves within the community.	A few instances of cracked plaster and cracked windows with the community.	Trees and bushes shaken noticeably.
VI	5	Frightens many; people move unsteadily.	Many objects fall from shelves.	A few instances of fallen plaster, broken windows, and damaged chimneys within the community.	Some fall of tree limbs and tops, isolated rockfalls and landslides, and isolated liquefaction.
VII	5.5	Frightens most; some lose balance.	Heavy furniture overturned.	Damage negligible in buildings of good design and construction, but considerable in some poorly built or badly designed structures; weak chimneys broken at roof line, fall of unbraced parapets.	Tree damage, rockfalls, landslides, and liquefaction are more severe and widespread with increasing intensity.
VIII	6	Many find it difficult to stand	Very heavy furniture moves conspicuously.	Damage slight in buildings designed to be earthquake resistant, but severe in some poorly built structures. Widespread fall of chimneys and monuments.	
IX	6.5	Some forcibly thrown to the ground.		Damage considerable in some buildings designed to be earthquake resistant; buildings shift off foundations if not bolted to them.	
X	7			Most ordinary masonry structures collapse; damage moderate to severe in many buildings designed to be earthquake resistant.	

NOTE: Information in this exhibit is a compilation of information from the USGS Modified Mercalli Scale, and the SMS Tsunami Warning Scale (reference information located in Section 8.0).

The largest local concern regarding earthquakes in the Community is damages to the Community’s power resources. Additionally, the Community does not have a safety shelter for residents, and would not easily be able to get to emergency services during an emergency.

Seismic activity can cause damage to older community structures and underground utilities. This activity also has the potential to cause chemical spills if tank connections become loose or break.

### 5.1.2.3 History of Occurrences

Residents recalled the 1964 earthquake and stated that everyone ran outside, and it was hard to stand up. They stated that tide slowly receded and emptied the lagoon then came back. They also remember getting to higher ground. Additionally, the USGS Search Earthquake Catalog was consulted for a history of recorded earthquakes with epicenters within 75 miles of the Community and magnitude of 2.5 or greater since 1964. Table 5-6 shows the top ten data results by distance from the Community, Table 5-7 by magnitude, and Table 5-8 by date (USGS, 2018).

**Table 5-6: Top 10 Historic Earthquake Epicenters Closest to Community**

Date	Magnitude	Distance from the Community (miles)	Location
Jun-2006	2.8	1.7	Alaska Peninsula
Jan-1992	3.9	2.3	Alaska Peninsula
Aug-2016	3.6	2.3	97 kilometer (km) NE* of Chernabura Island, Alaska
Oct-2016	2.7	5.8	103 km NE* of Chignik Lake, Alaska
Apr-2016	3.3	6.4	96 km NNE* of Chignik Lake, Alaska
Jan-1998	3.5	6.5	Alaska Peninsula
Mar-2018	2.6	7.1	62 km ESE* of Chignik Lake, Alaska
Sep-2013	2.9	8.0	100 km E* of Chignik Lake, Alaska
Apr-2016	2.5	9.5	114 km NE* of Chignik Lake, Alaska
Apr-2016	2.6	10.0	94 km NE* of Chignik Lake, Alaska

\* Northeast (NE), North Northeast (NNE), East Southeast (ESE), East (E)

**Table 5-7: Top 10 Greatest Magnitude Historic Earthquakes near Community**

Date	Magnitude	Distance from the Community (miles)	Location
Mar-1972	6.4	33.2	Alaska Peninsula
Jan-1963	6.4	37.8	Alaska Peninsula
Apr-2016	5.9	49.7	98 km NNE* of Chignik Lake, Alaska
Feb-1972	5.8	43.5	Alaska Peninsula
May-2016	5.7	24.0	95 km NE* of Chernabura Island, Alaska
Jan-2004	5.6	20.4	Alaska Peninsula
Dec-2000	5.6	27.5	Alaska Peninsula
Dec-2004	5.3	21.7	Alaska Peninsula
Nov-2016	5.2	32.2	112 km NE* of Chignik Lake, Alaska
Aug-2016	5.1	36.9	55 km SSE* of Chignik Lake, Alaska

\* North Northeast (NNE), Northeast (NE), South Southeast (SSE)

**Table 5-8: Top 10 Most Recent Historic Earthquakes near Community**

Date	Magnitude	Distance from the Community (miles)	Location
Nov-2018	3.6	41.4	93 km ESE* of Chignik Lake, Alaska
Oct-2018	3.1	48.5	80 km WNW* of Chirikof Island, Alaska
Aug-2018	3.0	45.2	98 km NE* of Chernabura Island, Alaska
Jul-2018	3.6	41.8	75 km NW* of Chirikof Island, Alaska
Jul-2018	3.1	19.9	102 km NNE* of Chignik Lake, Alaska
Jun-2018	4.1	31.3	77 km NW* of Chirikof Island, Alaska
Jun-2018	3.7	18.7	79 km NE* of Chignik Lake, Alaska
Apr-2018	3.7	39.1	58 km S* of Chignik Lake, Alaska
Mar-2018	3.4	29.0	85 km W* of Chirikof Island, Alaska
Mar-2018	3.8	24.3	99 km WSW* of Chirikof Island, Alaska

\* East Southeast (ESE), West Northwest (WNW), Northeast (NE), North Northeast (NNE), Northwest (NW), South (S), West (W), West Southwest (WSW)

#### 5.1.2.4 Probability of Future Events

It is likely for earthquakes to occur in or near the Community in the future.

### 5.1.3 Erosion

Erosion is the wearing away, movement, or transportation of land. This can occur along riverbanks, shorelines, dune materials, and beaches. Repetitive flooding events, sea level rise, wave action, subsidence, sediment loss, and climate change can result in long-term erosion. Though most erosion happens gradually over a long period, it can also happen quickly due to periodic natural events such as windstorms, flooding, hurricanes, and storm surges. This can also be intensified by human activities or influences such as the construction of embankment protection structures or water table depletion. Erosion is measured as the rate of change in the displacement or position of the shoreline or riverbank over a given period of time. Erosion does not typically cause death or injury to people; however, it can destroy community infrastructure, buildings, and transportation systems.

#### 5.1.3.1 Location

The Community experiences shoreline erosion along the lagoon fronting the Community and periodic stream erosion along Packers Creek. Significant erosion areas are identified on Figures 1, 2, and 3.

#### 5.1.3.2 Extent

The Community THMP team has classed the area affected by erosion as “extreme.” Shoreline erosion occurs along the lagoon, which fronts the Community. Wind-driven wave action, periodic higher than normal tides, and coastal flooding that is usually associated with periodic storms cause and contribute to shoreline erosion (USACE, 2008). The Community has installed a breakwater around certain portions of the lagoon to protect personal dwellings and other community assets, but there are still many exposed areas. The road to the landfill runs along the lagoon towards the mouth of the Chignik River. This area is susceptible to erosion which could cut off or limit access to the landfill.

Periodic stream erosion, along Packers Creek, occurs in the Community. Stream erosion is associated with the natural processes along Packers Creek, such as water level changes and seasonal flow fluctuations. Periodic overflow from Chignik Lake, down the Chignik River to the lagoon causes erosion (USACE, 2008). Hydro Road that leads to the hydroelectric dam is adjacent to Packers Creek and is at risk of erosion damage. This could prevent or limit access to the hydroelectric dam.

The state-maintained airstrip runs through the center of the Community. One end of the airstrip stops at the lagoon and the other end is close to Packers Creek. It has been estimated that up to a total of 100 feet has been lost at both ends of the runway (USACE, 2008). Armor rock has been placed around the runway to help prevent further erosion damage, but some is still eroding.

Approximately four Housing and Urban Development (HUD) apartments and six houses in a subdivision near Packers Point, which is an area that juts out into the lagoon, are at risk. Some of these structures are within 50 to 100 feet of the eroding lagoon shoreline. Additionally, the bulk fuel tanks and clinic are at risk due to their proximity to Packers Point (USACE, 2008). Additionally, the Community is built at the base of the mountains. Heavy rains and seasonal runoff causes erosion throughout the Community.

Erosion can also have a potential impact on fish migration. River channels change courses as erosion occurs along the banks. This could potentially lead to fewer fish for the Community. Residents in the Community rely heavily on fish harvests as a source of income and food source.

### **5.1.3.3 History of Occurrences**

Erosion is an on-going process. However, particular events can result in notable occurrences of erosion, such as floods, high tides, wind-driven waves, and seasonal flow fluctuations. In November and December of 2007 higher tides, wind-driven waves, and coastal flooding caused erosion in the Community. This event put the sewer lift station near the school at risk (USACE, 2008).

Community residents were unable to provide precise years of the events but provided the following accounts of erosion that has occurred in the Community:

- A few years ago the Community had some major issues and damage to homes, the school, and the bridge across Packers Creek.
- Residents are unable to access homes and property because of erosion.
- The entire lagoon is being eroded. The Community had roads in “design-phase,” but they were never constructed because the land was eroded away.
- The Community has tried to stabilize the banks by adding breakwaters. This has not been completely successful and they do not have enough material.

### **5.1.3.4 Probability of Future Events**

Significant erosion is visible along the riverbank and lagoon every year. It is highly likely for erosion to continue to occur in the Community due to tides, storms, wind, and the continuous flow of the river.

### **5.1.4 Flood**

Flooding is the accumulation of water where normally none exists. There are various types of flooding, such as, coastal flooding, riverine flooding, and shallow flooding. Additionally, flooding can occur due to rapid snowmelt, ice jams, heavy rainfall, severe thunderstorms,



tropical storms, and other high precipitation events. Flooding can damage buildings, personal property, and infrastructure. It can cause road or bridge closures. It can cause a disruption of services, such as, transportation, or utility services. It can also cause injuries or death.

Flooding events are the most significant threats to ecosystems along river and coastal areas of Alaska. As the water runs over and through the watershed, it picks up and carries contaminants and soil. Everything from leaked motor oil on parking areas, plastic grocery bags, pesticides, fertilizers, detergents, and sediments; known as non-point source pollutants. Point source discharges are; discharge points, bulk fuel storage and sewage treatment plants, and other regulated known sources or points of pollutant discharges. If untreated, these pollutants wash directly into waterways carried by runoff from rain and snowmelt. These contaminants can infiltrate groundwater and concentrate in streams and rivers and can be carried down the watershed and into the ocean. Non-point source pollution is linked to the creation of large dead-zones (areas with minimal oxygen) in the ocean and threatens the health of the ecosystem.

#### **5.1.4.1 Location**

Areas in the Community at risk of flooding are depicted on Figures 1, 2, and 3. FEMA flood maps are not available for the Community. The low-lying areas adjacent to the lagoon, and those along Packers Creek have the highest risk. Additionally, many roads and properties in the Community have poor drainage.

#### **5.1.4.2 Extent**

The Community has experienced flooding in the past. Flooding in the Community occurs primarily in the fall due to storm events. Extreme high water from storm surges has flooded some land around houses along the shoreline of the lagoon. Additionally, flooding occurs along Packers Creek due to increased seasonal water levels, and heavy rains. Levees along the bottom of Packers Creek have been constructed by the Alaska Department of Transportation and Public Facilities.

The schools generator and fuel tanks, and buildings downstream of Packers Creek are susceptible to flooding (USACE, 2015). The school, clinic, and residential buildings are at risk of flooding. The access road to the school and clinic area located in an area that is susceptible to flooding. If this road becomes flooded it could cut off access to these critical facilities. Additionally, it is difficult for the Community to access the landfill during flooding events. This can cause refuse to pile up in the Community.

#### **5.1.4.3 History of Occurrences**

The Community was flooded due to high waters in Packers Creek in June 1977. In 1965 the runway was constructed in the Community, which stopped at Packers Creek. In 1969 the runway was extended over the creek using two corrugated metal pipe arch culverts. In 1971 a storm washed out the culverts and the end of the runway and created a new creek channel to the west of the old school. At the time the Community blocked off this new channel, diverting it back to the original channel through the runway. The State then extended the runway on the opposite end. In June 1977 heavy rains caused the creek to break through the blockage to flow once more by the old school. This came to within approximately 10 feet of the building foundation. This same flooding event damaged the foundations of the timber foot bridge which crossed the creek at the time (Kenneth E. Hitch, 1977).

A flood disaster was declared starting October 2002 through November 2002, and then extended through December 2002 (03-202 Kenai Peninsula Borough Flooding (AK-DR-1445). Heavy rains (from three to fifteen inches) caused widespread damage, school closures, road washouts, and stranded residents and hunters throughout the Kenai Peninsula Borough, the Kodiak Borough and the Chignik Bay area, including the Community and Chignik Lagoon. Driving rain continued for an extended time frame with multiple storm fronts. The damage from these storms consisted of sea surge damage to docks and piers, damage of fuel off loading facilities and additional damages (DHS&EM, Department of Military and Veterans Affairs, 2013).

Heavy rains, strong onshore winds, high tide and storm surge, and potentially frozen ground contributed to flooding in November and December 2007 in the Community. There was a concern about how close the water came to the sewer lift station near the school (USACE, 2008). No other data was available regarding this flood event.

#### **5.1.4.4 Probability of Future Events**

It is highly likely flooding will continue to happen in the Community due to the continuing effects of storms, water runoff, and high water levels in Packers Creek and the lagoon.

#### **5.1.5 Landslide**

A landslide is the movement of a mass of debris, rock, or earth by force of gravity down a slope. Landslides occur when the stability of the slope changes from stable to unstable. This can be caused by storms, earthquakes, volcanic eruptions, fire, erosion, and other human-induced activities. Steep slopes and long slopes have a higher probability to slide. High soil water content and/or slopes with low vegetative coverage are also likely to slide. Landslides cause infrastructure and property damage, environmental disturbance, and possible injuries and fatalities.

#### **5.1.5.1 Location**

Landslides occur in the Community along Hydro Road which is adjacent to Packers Creek (see Figures 1, 2, and 3).

#### **5.1.5.2 Extent**

There are steep slopes that extend along the length of Hydro Road. This road is used to maintain the Community's hydroelectric dam. Material slides both above the road and below the road. The material that slides above the road causes road blocks, which blocks access to the hydroelectric dam. Depending on weather conditions the road could be blocked, with a loss of access to the hydroelectric dam for up to a week at a time. The Community is not always able to remove all of the debris from the landslides which causes damage to the road and makes the road narrower.

Material that sloughs off below the road is undercutting the road and cause damage to the structure of the road. This is a driving hazard to those who need to traverse the road to maintain the hydroelectric dam.

The hydroelectric dam provides power to the Community. Should this power source go down and maintenance workers are not able to access the power source due to a landslide this puts the Community at risk. The clinic could be at risk of losing essential vaccines and medications that require refrigeration if power is not quickly restored.

#### **5.1.5.3 History of Occurrences**

No data is available pertaining to landslides in the Community. However, residents have stated that Hydro Road has been open for three years and the road has been closed due to landslides approximately ten times. Community residents were unable to provide specific information regarding these landslides. They also stated that they are not always able to remove all of the debris from these landslides. When this is the case they remove enough to get a vehicle through.

#### **5.1.5.4 Probability of Future Events**

It is anticipated that landslides will continue to have an impact on the Community.

#### **5.1.6 Severe Wind**

Severe wind can accompany other natural hazards or occur alone. Wind events pose a threat to vital utilities, lives, and property. Severe winds are classified using the Beaufort Wind Scale. Strong gale winds of 47 miles per hour (mph) and greater are considered severe and likely to produce damage.

**5.1.6.1 Location**

Severe wind affects the entire tribal planning area (see Exhibit 5-1).

**5.1.6.2 Extent**

The Beaufort Wind Scale gives a force scale of 1 – 12 based on sustained wind speed. Exhibit 5-5 identifies the scale and the consequences that are possible at the different levels as well as, the impacts to ocean water movement (NOAA, National Weather Service, March 2013). Any wind event, Force 9 and higher is considered severe and can cause damage within the Community.

**Exhibit 5-5: Beaufort Wind Scale**

The Beaufort Wind Scale				
Force	Name	Wind Speed knots    mph		Consequence
0	Calm	0	0	Smoke rises vertically
<b>Wave height: 0 m - Sea: Like a mirror</b>				
1	Light air	1-3	1-3	Smoke drifts with air
<b>Wave height: 0.1 m (.25 ft) - Sea: Ripples - No foam crests</b>				
2	Light breeze	4-6	4-7	Weather vanes become active
<b>Wave height: 0.2-0.3 m (0.5-1 ft) - Sea: Small wavelets - Not breaking</b>				
3	Gentle breeze	7-10	8-12	Leaves and small twigs move
<b>Wave height: 0.6-1 m (2-3 ft) - Sea: Small wavelets - Crests begin to break</b>				
4	Moderate breeze	11-16	13-18	Small branches sway
<b>Wave height: 1-1.5 m - Sea: Small waves becoming longer, numerous whitecaps.</b>				
5	Fresh breeze	17-21	19-24	Small trees sway - Waves break
<b>Wave height: 2-2.5 m (6-8 ft) - Sea: Moderate waves - Many whitecaps</b>				
6	Strong breeze	22-27	25-31	Large branches sway
<b>Wave height: 3-4 m (9.5-13 ft) - Sea: Larger waves forming - Whitecaps everywhere</b>				
7	Near gale	28-33	32-38	Whole trees sway - difficult to walk
<b>Wave height: 4-5.5 m (13.5-19 ft) - Sea: Sea heaps up - White foam blown around</b>				
8	Gale	34-40	39-46	Twigs break off trees
<b>Wave height: 5.5-7.5 m (18-25 ft) - Sea: Edges of crests break into spindrifts</b>				
9	Strong gale	41-47	47-54	Shingles blow off roofs
<b>Wave height: 7-10 m (23-32 ft) - Sea: High waves - Sea rolls - Reduced visibility</b>				
10	Storm	48-55	55-63	Trees uprooted - Damage to buildings
<b>Wave height: 9-12.5 m (29-41 ft) - Sea: Very high waves with overhanging crests</b>				
11	Violent Storm	56-63	64-73	Widespread damage
<b>Wave height: 11.5-16 m (37-52 ft) - Sea: Exceptionally high waves</b>				
12	Hurricane	Over 63	Over 73	Violent destruction
<b>Wave height: 16+ m (52+ ft) - Sea: Sea completely white - Excessive foam</b>				

Severe wind can be present all year, but these events are most common during the spring and fall months. These conditions can cause loose debris to blow around the Community and detach roofing or siding from homes and other structures.

Severe wind can cause power poles to blow over and cause power outages, and interrupt communications. When power outages happen during cold temperatures it produces a hazard to residents.

In the winter, severe winds can cause snowdrifts that impact visibility and travel throughout the Community. In the summer and fall months, severe wind conditions produce an unhealthy amount of dust. The airport runway and all the roads in the Community are gravel. This produces large amounts of airborne dust, impacting subsistence harvests and producing a breathing risk to everyone, but especially young children and those with respiratory issues.

Severe wind impacts air transportation in and out of the Community. This increases risks to residents if there is a lack of needed supplies, medications, and mail. This also decreases the ability to evacuate for medical emergencies.

Severe wind can also cause large waves to form and can increase the impacts of flooding, and erosion within the Community.

### **5.1.6.3 History of Occurrences**

According to locals, severe windstorms occur more than once per year. Residents have reported that boats have blown down the channel, power lines get damaged, debris is blown around the Community, siding has blown off houses and building, and mail and medical supplies have been held up for about a week. Additionally, if a serious medical emergency were to occur during a windstorm, there is a high possibility of not being able to get out of the Community.

Wind data is not readily available for the Community. However, wind speeds have been recorded in the nearby community of Port Moller, which is roughly 87 miles away. These communities are assumed to experience similar wind speeds although local topography can affect wind speeds felt in the Community. Therefore, Table 5-9 identifies historical severe wind events recorded in Port Moller (Weather Underground, 2018).

**Table 5-9: Historical Severe Wind Events**

Year	Max Wind Speed (mph)	# of Days Above 47 mph
2018	37	0
2017	40	0
2016	38	0
2015	39	0
2014	36	0
2013	47	1
2012	54	1
2011	44	0
2010	45	0
2009	45	0
2008	38	0

#### **5.1.6.4 Probability of Future Events**

Severe wind events are highly likely to continue to occur in the Community.

#### **5.1.7 Severe Winter Weather**

Severe winter storms can include snow, freezing rain, sleet, or a mix of the previous forms of precipitation. Heavy snowfall occurs when large quantities of snow is produced in a short period of time. Drifting snow creates an uneven distribution of snow caused by strong winds. This weather can cause harm to individuals, cause power outages, cause property damage, and damage utilities.

##### **5.1.7.1 Location**

Severe winter weather affects the entire tribal planning area (see Exhibit 5-1).

##### **5.1.7.2 Extent**

Air transportation is essential to the Community. Severe winter storm conditions create a hazard for planes to land in the Community. These storms hinder the ability to evacuate for medical emergencies, and receive needed supplies, medications, and mail due to ice or snow on the runway. There have been times in the past when planes have not been able to land in the Community for several days or weeks at a time.

Traveling in severe winter conditions is dangerous for residents because of the blowing snow and reduced visibility. This is exacerbated by colder temperatures because of their

effect on the snow ratio. Due to the average temperatures in Alaska being lower than the rest of the United States during winter months, a snow ratio of 1:20 was assumed. This means that for every 1 inch of precipitation, 20 inches of snow falls. Due to moderate winter temperatures, they also frequently have sleet which can cause icy conditions.

Power outages can be caused by severe winter storms. If power is not quickly restored, the clinic is at risk of losing essential medications and vaccines that require refrigeration. Young children and community elders are at greater risk of injury during power outages.

Icy conditions throughout the Community can present a hazard for all residents. Vehicles are at risk of sliding off the roads if the roads are not cleared of snow and ice. Walking residents are at risk of falling and injuring themselves. Walking residents share the road with vehicles and large equipment. This causes a risk to pedestrians walking in the Community.

### 5.1.7.3 History of Occurrences

Precipitation data is not readily available for the Community. However, precipitation has been recorded in the nearby community of Port Moller, which is roughly 87 miles away. These communities are assumed to experience similar amounts of precipitation. Table 5-10 identifies historical severe winter weather events recorded in Port Moller between the months of November and March. Precipitation data was not available between 2008 and 2012 (Weather Underground, 2018).

**Table 5-10: Historical Severe Winter Weather Events**

Year	Maximum One Day Precipitation (Inches)	# of Days Above 1.0 Inch
2018	2.11	5
2017	3.28	7
2016	1.84	3
2015	3.84	12
2014	6.42	27
2013	4.49	9

Additionally, residents in the Community provided the following accounts of severe winter weather:

- Last few winters have had a lot of sleet and rain.
- Inclement conditions affect the ability for pilots to fly in.
- They have gone 2-3 weeks without medications and supplies due to severe winter weather.

#### **5.1.7.4 Probability of Future Events**

Severe winter weather will likely continue to occur and impact the Community. However, the Community is noticing that they are not getting the amount of snow that they used to get in the past. This is due to the warmer winter temperatures that they are experiencing.

#### **5.1.8 Tsunami**

A tsunami is a series of large waves created disturbances that take place undersea, such as a volcanic eruption or earthquake. These waves are powerful and can travel many miles over open sea, and can potentially cause devastating damage to shorelines. These powerful waves can result in flooding, can cause severe property damage, and cause injuries and deaths.

##### **5.1.8.1 Location**

The lower lying areas of the village site could be impacted by tsunamis.

##### **5.1.8.2 Extent**

Tsunamis have not had an impact on the Community to this point. However, should a tsunami occur, it could have a significant impact on the Community. Exhibit 5-6 portrays the maximum estimated tsunami inundation map for the Community created by the Alaska Division of Geological & Geophysical Surveys (USGS) (Nicolosky, Suleimani, & Koehler, 2016). This map shows that the main portion of the Community could be covered by up to 40 feet of water. It also shows that over half of the Community could be impacted by some amount of water from a tsunami. Although there are several residents' homes above the possible impact area, they do not have a designated tsunami shelter for displaced residents if one were to occur.



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**Exhibit 5-6: Maximum Estimated Tsunami Inundation, Chignik Lagoon, Alaska**



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### **5.1.8.3 History of Occurrences**

No tsunamis have occurred in the Community. However, residents stated that they have received tsunami warnings for the Community in the past. They receive texts and calls warning residents to get to higher ground until the threat subsides. Residents stated that they received a tsunami warning in Spring 2018 due to a large, nearby earthquake.

### **5.1.8.4 Probability of Future Events**

The probability of a tsunamis is relatively low, however not impossible. The Community is in a high earthquake zone and should a large earthquake occur close to the Community the likelihood of a tsunami would increase.

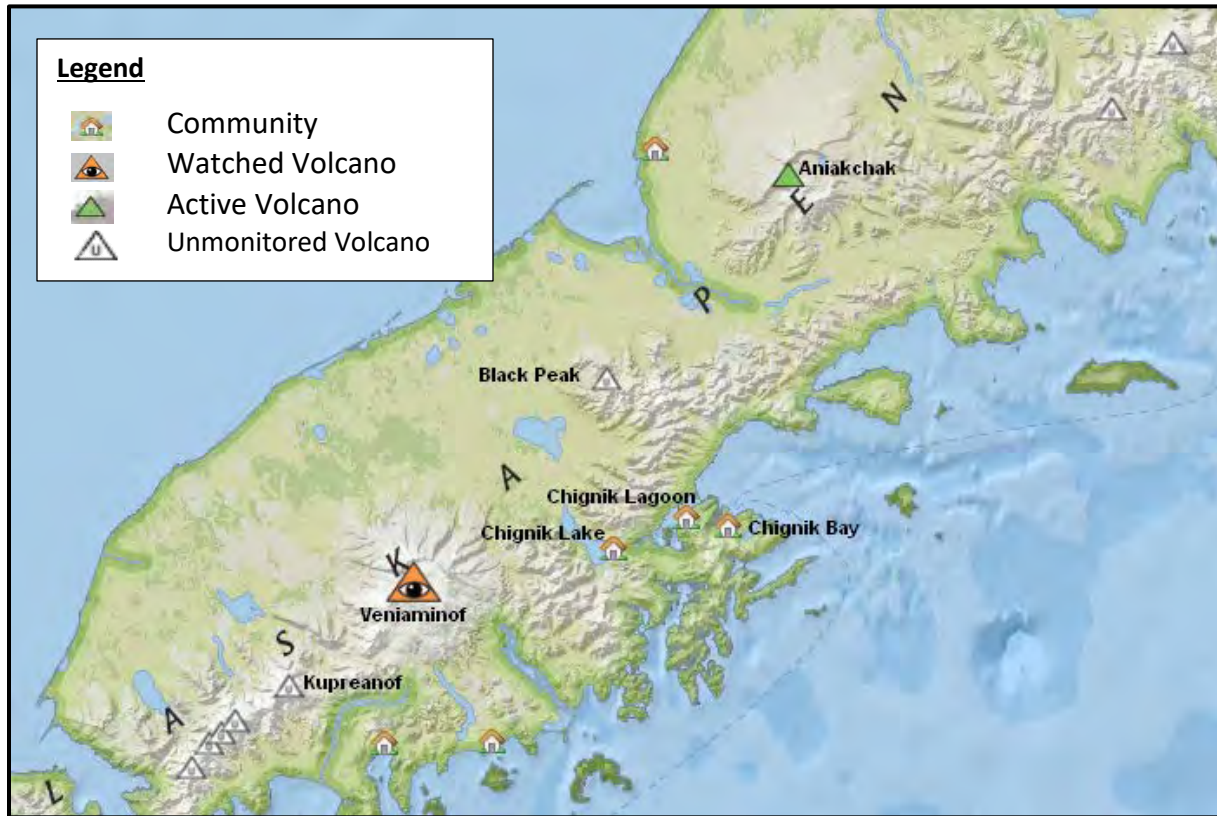
## **5.1.9 Volcano**

A volcano is a typically conical shaped mountain or hill that has a crater or vent. Lava, rock fragments, gases, and hot vapors erupt from the earth's core through the crater or vent. Volcanos are generally found where tectonic plates are diverging or converging. Erupting volcanos can pose hazards to those in the immediate area of the eruption or outside of the area for many miles. A volcano produces volcanic ash when it erupts. This can impact aircraft and vehicle transportation. It can also cause injury to people as it impacts air quality. Breathing volcanic ash can damage the lungs and cause breathing issues.

### **5.1.9.1 Location**

There are three historically active volcanos within 100 miles of the Community: Veniaminof and Aniakchak at approximately 40 miles, and the unmonitored Kupreanof at approximately 60 miles from the Community. Exhibit 5-7 identifies some of the volcanos that can impact the Community with ash fall. The entire planning community is at risk when ash fall enters the area (see Exhibit 5-1).

### Exhibit 5-7: Volcanos Near the Community



#### 5.1.9.2 Extent

Volcanic ash is the primary concern for the Community for various reasons. Ash fall produces poor air quality and is a health risk to people with respiratory issues. Ash fall also creates a hazard to equipment, generators, vehicles, or anything with a motor. Volcanic ash is corrosive and can damage machinery. In rural Alaska, it can be challenging to replace equipment due to limited local resources, and delivery access to the Community. The Community relies upon air transportation for supplies, mail, and medical emergencies. Volcanic ash may or may not fall on the Community depending on the wind direction from the source. However, it can still have an impact if it is in the flight path of the aircraft.

#### 5.1.9.3 History of Occurrences

Mount Redoubt erupted in 2009. This eruption caused interrupted air transportation throughout the State and Bristol Bay region.

Mount Veniaminof is approximately 40 miles from the Community. This volcano has been historically active and is being monitored by the Alaska Volcano Observatory. Veniaminof is one of the largest and most active volcanic centers in the Aleutian Arc and has erupted at least 13 times in the past 200 years. Recent significant eruptions of the volcano occurred in

1993-95, 2005, and 2013. During the 1993-95 activity, a small lava flow was extruded, and in 2013, five small lava flows effused from the intracaldera cone over about five months. Minor ash-producing explosions occurred nearly annually between 2002 and 2010. Previous historical eruptions have produced ash plumes that reached 20,000 feet above sea level and in 1939 ash fallout that blanketed areas within about 25 miles of the volcano (Alaska Volcano Observatory, 2016).

The Alaska Volcano Observatory stated that a lava flow was erupting from the cone within Veniaminof volcano's ice-filled summit caldera in December 2018. Additionally, residents stated that they experienced ash fall in 2010. No details were provided for this event (Alaska Volcano Observatory, 2016). Residents in the Community recall the following impacts of volcanic ash:

#### **5.1.9.4 Probability of Future Events**

Volcanic eruptions are challenging to predict, and ash fall impacts are dependent on wind patterns. However, volcanos are likely to continue to have an impact on the Community as there are several volcanoes nearby.

#### **5.1.10 Wildfire**

A wildfire spreads through the consumption of vegetation. It typically occurs in areas with abundant vegetation. It often begins unnoticed and spreads quickly. It produces dense smoke that can be seen for many miles. Wildfires can result in damage to property, subsistence areas, and loss of life. The smoke produced from wildfires can prohibit air transportation in and out of a community, and reduces air quality.

Fuel, weather, and topography contribute to the behavior of the wildfire (Idaho Firewise, 2018):

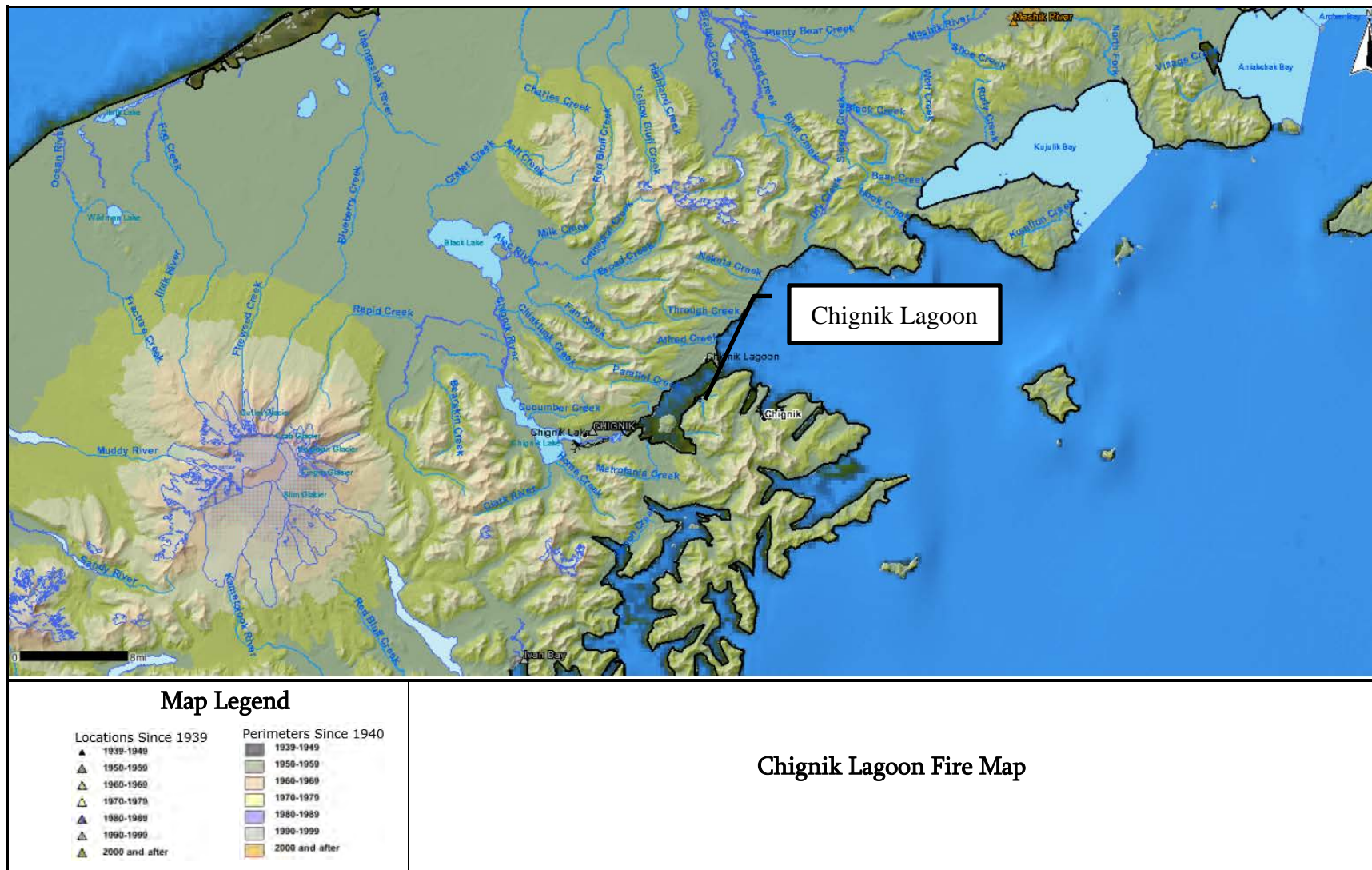
- Wildfire fuel includes structures and vegetation. Dense, large areas burn for a longer duration and creates large amounts of heat. Less dense and dry areas burn quickly with less heat.
- Weather that can affect a wildfire includes wind, moisture, temperature, cloudiness, and air pressure. Wind moves the wildfire across the landscape and provides oxygen which can make the fire grow quickly. It can also cause embers to blow to new areas potentially causing new fire locations. Low humidity and high temperatures can cause the vegetation to become dry. High humidity and rain can extinguish or slow the fire down.

- Topography, or physical features, including aspect and slope of an area, can contribute to the behavior of a wildfire. Wildfires burn more rapidly moving up a slope because it preheats the fuels which makes them more combustible. Also, south and west facing slopes have drier fuels due to more exposure to the sun.

#### **5.1.10.1 Location**

A map of wildfires located in and around the Community since 1939 is provided in Exhibit 5-8. However, wildfires have an impact on the entire tribal planning area (see Exhibit 5-1) due to the impacts of smoke and subsistence resources.

Exhibit 5-8: Chignik Lagoon Fire Map



Source: (Alaska Interagency Coordination Center, 2018)



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### 5.1.10.2 Extent

Subsistence areas around the Community provide needed food sources for residents. Wildfires can damage these areas and the resources they provide, such as berries, greens, and wildlife.

Smoke from wildfires produce poor air quality. It is hazardous to residents and pets, especially the elders, young children, and those with respiratory issues. Smoke from wildfires can also have a negative impact on subsistence harvests. This is an issue because residents throughout the Community rely upon these harvests to sustain themselves through the winter months.

Nearby wildfires are a great concern and stress for the Community because they lack the ability to fight a large fire if one were to occur. The Community would like to update their firefighting equipment and better organize the volunteer fire department since their current fire suppression gear is lacking or outdated.

### 5.1.10.3 History of Occurrences

Table 5-11 below provides a list of wildfires and their impacts (in acreage) in or around the Community (Alaska Interagency Coordination Center, 2018). They have not had many nearby wildfires, but the summers are getting drier and hotter every year.

**Table 5-11: History of Wildfires**

Fire Name	Year	Estimated Impact (Acres)	Distance from the Community (Miles)
Yantarni	1992	880	61.4
Ivan Bay	1992	210	25.3
Chignik	1996	80	12.8
Meshik River	2006	1310	34.6

### 5.1.10.4 Probability of Future Events

Wildfires are highly likely to continue to affect the Community. The Community is noticing drier and hotter seasons with more lightning. These conditions cause the vegetation to become drier, and more susceptible to fires. These same conditions are becoming more common throughout Alaska which also increases the risk of smoke from distant wildfires being blown into the Community.

## 5.2 COMMUNITY ASSETS

The Planning Team determined the potential impacts of natural hazards to the Community assets. Assets are broadly defined as anything that is important to the Community such as the people, the economy, and the natural and built environments of the Community. Some assets are more vulnerable to these hazards because of their socioeconomic uses and physical characteristics.

### 5.2.1 People

The most important asset to the Community is the people. The 2017 DCCED certified population was 85. Residents are not always in their homes. The following list provides the main places that people are in large numbers during the day when not in their place of residence.

- School
- Subsistence Building
- Village Office
- Post Office

### 5.2.2 Economy

The local economy is important to understand when planning to reduce the impacts of hazards. Economic resiliency influences recovery after a natural disaster. The following is a list of economic resources that could be affected and pose a severe impact on the Community should a hazard impact the Community.

- Village Tank Farms
- Airport
- Fuel Barge Landing

### 5.2.3 Built Environment

Existing infrastructure and structures are another important asset to the Community. The following is a list of important infrastructure, existing structures, and critical facilities in the community.

- Critical Facilities/Existing Structures
  - Clinic
  - School
  - School Quarters
  - Subsistence Building
  - Park
  - HUD Apartments

- Village Office
- Cemeteries
- Infrastructure
  - Village Tank Farm
  - School Tank Farm
  - Water Tank
  - Dam Intake
  - Tribal Equipment
  - Landfill
  - GCI Tower
  - ACS Building
  - Fuel Barge Landing
  - Trails
  - Underground Water & Sewer Utilities
- Post Office
- Generator
- Water Plant
- Hydro Building
- Village School
- Lift Station
- Sewage Lagoon
- Cell Tower
- Airport
- Roads
- Overhead Power Lines

#### 5.2.4 Natural Environment

Natural resources and environmental assets are also important to the Community. These resources are important to the Community’s quality of life and identity.

- Packers Creek
- Second Bluff Rec Area
- Subsistence Areas (hunting and berry picking areas)
- Old Ladies Creek
- Chignik Lagoon

### 5.3 RISK ANALYSIS

The risk analysis assesses the potential effects of the identified hazards on the vulnerable assets that have been identified. Table 5-12 provides a list of the identified assets with the Community. It provides a monetary value, if applicable, to the asset as well as the number of occupants that could be affected should a natural hazard impact the asset. Each asset was evaluated for each identified hazard. If the hazard posed a significant risk to the asset an “X” was placed in the corresponding “Hazard Impact” column in Table 5-12. This information helped the Planning Team determine where the Community is most vulnerable and further helped in the identification of mitigation goals and actions.

The Planning Team used a combination of historical, exposure, and scenario analysis to determine the impact each hazard could have on the Community assets. They used historical analysis by reviewing the frequency and impact on the Community of the hazard in the past. Exposure analysis was used by evaluating the existing assets in the area where the hazard is likely to occur or has occurred in the past. Additionally, they used Community plans to identify future assets that may be affected by the hazard. The Planning Team used scenario analysis by asking “what if” questions about the hazard and made predictions of how the hazard would impact the Community assets should a hazard occur.

**Table 5-12: Risks to Vulnerable Assets**

Facility Type	Facility Number (See Fig. 1 - 3)	Facility Name	Number of Occupants	Location (Latitude, Longitude)	Estimated Value	Hazard Impacts									
						Drought	Earthquake	Erosion	Flood	Landslide	Severe Wind	Severe Winter Weather	Tsunami	Volcano	Wildfire
Government	10	Village office	5	56°18'42.08"N, 158°31'50.66"W	Unknown		X				X	X	X	X	X
	11	Post Office	1	56°18'38.37"N, 158°31'59.51"W	Unknown		X				X	X	X	X	X
Transportation	17	Tribal Equipment	N/A	56°18'31.21"N, 158°32'2.98"W	Unknown							X	X	X	X
	25	Airport	N/A	56°18'38.88"N, 158°32'8.57"W	\$30M						X	X	X	X	
	33	Fuel Barge Landing	N/A	56°18'43.92"N, 158°32'8.26"W	Unknown	X		X	X				X		
	34	Official NTTFI Roads	N/A	20.5 Miles	\$41M			X	X	X			X		
	35	Trails	N/A	Community Wide	--					X			X		

**Table 5-12 (Continued): Risks to Vulnerable Assets**

Facility Type	Facility Number (See Fig. 1 - 3)	Facility Name	Number of Occupants	Location (Latitude, Longitude)	Estimated Value	Hazard Impacts									
						Drought	Earthquake	Erosion	Flood	Landslide	Severe Wind	Severe Winter Weather	Tsunami	Volcano	Wildfire
<i>Educational</i>	1	School	15+	56°18'30.59"N, 158°32'15.46"W	Unknown	X	X	X	X		X	X	X	X	X
	3	School Quarters	4	56°18'30.53"N, 158°32'18.90"W	Unknown	X	X		X		X	X	X	X	X
	9	School Tank Farm		56°18'29.75"N, 158°32'13.90"W	Unknown		X					X	X		X
<i>Medical</i>	7	Clinic	10	56°18'35.79"N, 158°32'20.03"W	Unknown	X	X				X	X	X	X	X
<i>Community</i>	4	Subsistence Building	50	56°18'22.63"N, 158°32'21.89"W	Unknown	X	X		X		X	X	X	X	X
	5	Park	10	56°18'24.15"N, 158°32'23.47"W	Unknown	X			X				X		
	6	HUD Apartments	9	56°18'35.43"N, 158°32'22.94"W	Unknown	X	X				X	X	X		X

**Table 5-12 (Continued): Risks to Vulnerable Assets**

Facility Type	Facility Number (See Fig. 1 - 3)	Facility Name	Number of Occupants	Location (Latitude, Longitude)	Estimated Value	Hazard Impacts										
						Drought	Earthquake	Erosion	Flood	Landslide	Severe Wind	Severe Winter Weather	Tsunami	Volcano	Wildfire	
Community (Continued)	16	Village Shop	3	56°18'30.21"N, 158°32'3.10"W	Unknown		X				X	X	X	X	X	
	19	Break Water	N/A	56°18'50.73"N, 158°31'36.08"W	Unknown	X	X	X					X			
	24	ACS Building	N/A	56°18'34.23"N, 158°32'21.45"W	Unknown		X				X	X	X	X	X	
	26	Cemetery	N/A	56°18'30.04"N, 158°31'53.09"W	--									X		X
	31	Old Graveyard	N/A	56°18'22.28"N, 158°32'15.46"W	--									X		X
	32	Private Cemeteries	N/A	56°18'34.81"N, 158°32'2.69"W	--									X		X
56°18'40.65"N, 158°31'44.04"W																
56°19'39.29"N, 158°30'25.73"W																



**Table 5-12 (Continued): Risks to Vulnerable Assets**

Facility Type	Facility Number (See Fig. 1 - 3)	Facility Name	Number of Occupants	Location (Latitude, Longitude)	Estimated Value	Hazard Impacts									
						Drought	Earthquake	Erosion	Flood	Landslide	Severe Wind	Severe Winter Weather	Tsunami	Volcano	Wildfire
<i>Utilities</i>	2	Generator	1	56°18'29.54"N, 158°32'17.33"W	Unknown		X		X			X	X	X	X
	8	Village Tank Farms		56°18'40.89"N, 158°32'13.03"W	Unknown		X	X				X	X		X
	12	Water Plant	1	56°18'27.42"N, 158°31'54.56"W	Unknown	X	X				X	X	X	X	X
	13	Water tank		56°18'21.12"N, 158°32'10.76"W	Unknown	X	X					X	X	X	X
	14	Hydro Building	1	56°18'32.28"N, 158°31'45.65"W	Unknown	X	X	X	X	X	X	X	X	X	X
	15	Dam Intake	1	56°18'19.49"N, 158°31'10.41"W	Unknown	X	X	X	X	X		X	X	X	
	18	Lift Station		56°18'31.05"N, 158°32'19.63"W	Unknown	X	X		X			X	X	X	
	20	Landfill		56°17'24.08"N, 158°33'38.62"W	Unknown			X					X		

**Table 5-12 (Continued): Risks to Vulnerable Assets**

Facility Type	Facility Number (See Fig. 1 - 3)	Facility Name	Number of Occupants	Location (Latitude, Longitude)	Estimated Value	Hazard Impacts									
						Drought	Earthquake	Erosion	Flood	Landslide	Severe Wind	Severe Winter Weather	Tsunami	Volcano	Wildfire
<i>Utilities (Continued)</i>	21	Sewage Lagoon		56°17'30.53"N, 158°33'21.98"W	Unknown			X					X		
	22	GCI Tower		56°18'36.43"N, 158°32'20.43"W	Unknown		X				X	X	X	X	
	23	Cell Tower		56°18'24.05"N, 158°32'20.81"W	Unknown		X		X		X	X	X	X	
	37	Underground Water/ Sewer Utilities		Community Wide	Unknown		X					X	X		
	38	Overhead Power Lines		Community Wide	Unknown		X				X	X	X	X	X
<i>Natural Environment</i>	27	Packers Creek		56°18'33.38"N, 158°32'11.54"W	--	X		X	X				X		
	28	Old Ladies Creek		56°19'8.03"N, 158°30'59.07"W	--	X		X	X				X		

**Table 5-12 (Continued): Risks to Vulnerable Assets**

Facility Type	Facility Number (See Fig. 1 - 3)	Facility Name	Number of Occupants	Location (Latitude, Longitude)	Estimated Value	Hazard Impacts									
						Drought	Earthquake	Erosion	Flood	Landslide	Severe Wind	Severe Winter Weather	Tsunami	Volcano	Wildfire
<i>Natural Environment (Continued)</i>	29	Second Bluff Rec Area		56°18'36.65"N, 158°31'41.08"W	--								X		X
	30	Chignik Lagoon		56°19'54.25"N, 158°33'18.46"W	--	X							X		
	36	Subsistence Areas		Community Wide	--	X							X	X	X

## 5.4 VULNERABILITY

The following lists the Community's overall vulnerability to the hazards that affect the planning area, 44 CFR 201.7(c)(2)(ii).

- Drought – Limited moisture increases dust emissions in the Community. Subsistence activities are impacted during seasons of little to no moisture.
- Earthquakes – The Community's power resources could be damaged due to earthquakes. Damage to older community structures and underground utilities could be caused due to seismic activity.
- Erosion – The airstrip has experienced erosion from the lagoon and Packers Creek. Property owners are unable to access land due to erosion. Homes and other critical infrastructure are at risk due to erosion.
- Flood – Structures in low lying areas near the lagoon and those along Packers Creek are at risk of flood. Access to the clinic could be limited or cut off due to flooding.
- Landslides – Access to the hydroelectric dam, which is the Community's power source, has been blocked due to landslides along Hydro Road.
- Severe Wind – Damage to structures, overhead power lines, and communication infrastructure have occurred due to severe wind speeds. Severe wind speeds have an impact on the delivery of supplies and travel via air transportation.
- Severe Winter Weather – The delivery of supplies is hindered via air transportation due to snow and ice on the runway. Power outages can occur during these events and can have an impact on refrigerated medical supplies.
- Tsunami – Critical infrastructure and residences could be impacted a tsunami. The Community does not have a shelter or stored supplies for residents should this occur.
- Volcano – Air quality decreases in the presence of ash and is detrimental to the health of residents and pets. The corrosive properties of the ash are harmful to equipment. Air transportation has stopped due to ash emissions from a volcanic eruption.
- Wildfire – Nearby subsistence areas and resources have been lost due to wildfires. The smoke from nearby wildfires and blown in smoke from distant wildfires decreases the air quality and poses a health risk to residents and pets.

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## 6.0 MITIGATION STRATEGY

The following section describes the Community’s mitigation strategy. This mitigation strategy will serve as a long-term plan for reducing the potential losses identified in the risk assessment. The THMP discusses the Community’s current pre- and post-disaster hazard management plan, and existing and potential funding sources. It also provides the Community’s mitigation goals, and actions. Along with these goals and actions this section provides an action plan, a tracking process for the mitigation actions, and a plan to implement these goals and actions into existing planning mechanisms.

### 6.1 PRE-/POST-DISASTER HAZARD MANAGEMENT

Pre- and post-disaster hazard management programs, policies, and mitigation capabilities of the Community were reviewed, 44 CFR 201.7(c)(3) and 201.7(c)(3)(iv). The Planning Team used this review to identify existing opportunities and challenges of existing capabilities of the Community. This information aided in the determination of mitigation actions for the identified hazards.

The Community is small with limited planning and land management tools. The resources available in the Community are listed below in Table 6-1 and Table 6-2. This THMP provides an opportunity to identify challenges and needs for additional programs and/or policies. It also provides an opportunity to work with other local agencies in the development of appropriate programs and policies.

The Community’s planning and regulatory tools are listed in Table 6-1 below. These tools aid in the prevention and reduction of impacts from hazards in the Community.

**Table 6-1: Planning and Regulatory Tools**

<b>Regulatory Tools (ordinances, codes, plans)</b>	<b>(Yes / No)</b>	<b>Comments</b>
Comprehensive Plan	No	--
Land Use Plan	No	--
Wildland Fire Protection Plan	No	--
Emergency Response Plan	Yes	June 2019, developed by the Council
Long Range Transportation Plan	Yes	October 2018, developed by the Council
Tribal Transportation Safety Plan	No	--
Other Special Plans (e.g., climate change adaptation, coastal zone management)	No	--

**Table 6-1 (Continued): Planning and Regulatory Tools**

<b>Regulatory Tools (ordinances, codes, plans)</b>	<b>(Yes / No)</b>	<b>Comments</b>
Building Code <sup>1</sup>	No	--
Zoning Ordinances	No	--
Subdivision Ordinances or Regulations	No	--
Other	No	--

<sup>1</sup> New public facilities are designed by licensed professionals using applicable state and federal codes and regulations present at the time of design.

The Community’s administrative and technical capabilities are listed in Table 6-2 below. These staff and their skills and tools can be used for mitigation planning and to implement specific mitigation actions.

**Table 6-2: Administrative and Technical Capability**

<b>Staff / Personnel Resources</b>	<b>(Yes / No)</b>	<b>Department / Agency and Position</b>
Administrator	Yes	Tribe
Environmental Program	Yes	Tribe
Fire Department	No	--
Librarian	Yes	School
Village Public Safety Officer	No	--
Health Aide	Yes	BBAHC
Planner or engineer with knowledge of land development and land management practices	No	The Tribe hires consultants with this knowledge
Engineer or professional trained in construction practices related to buildings and / or infrastructure	No	The Tribe hires consultants with this knowledge
Planner or engineer with an understanding of natural and / or human-caused hazards	No	The Tribe hires consultants with this knowledge
Surveyors	No	The Tribe hires consultants with this knowledge
Floodplain Manager	No	--
Staff with education or expertise to assess the jurisdiction’s vulnerability to hazards	No	The Tribe hires consultants with this knowledge

**Table 6-2 (Continued): Administrative and Technical Capability**

Staff / Personnel Resources	(Yes / No)	Department / Agency and Position
Personnel skilled in Geospatial Information System and / or HAZUS	No	The Tribe hires consultants with this knowledge
Finance (Grant Writers)	Yes	Tribe, BBNA <sup>1</sup> (Situation Dependent)

<sup>1</sup> BBNA provides post-disaster grant management staff who can assist the Tribe with grant applications for disaster recovery and long-term recovery plans.

## 6.2 FUNDING

The following identifies existing and potential funding sources to implement proposed mitigation activities and actions, 44 CFR 201.7(c)(3)(iv) and 201.7(c)(3)(v).

### 6.2.1 Existing Funding Sources

At the time of the development of the THMP the Tribe has not received or allocated any non-FEMA funds for hazard mitigation actions or projects. However, the Tribe received PDM grant funding for the development of the THMP.

### 6.2.2 Potential Funding Sources

There are federal, tribal, and private funding sources available to the Tribe for proposed mitigation activities and projects. Sections 6.2.2.1 thru 6.2.2.3 provides a brief list and description of a selection of potential funding sources. In addition to the funding sources listed below other funding sources can be found from the following resources:

- Grants.gov – [www.grants.gov](http://www.grants.gov) is a public website where all federal agency discretionary funding opportunities are posted for grantees to find and apply. Some grant postings close quickly, so it is important to frequently check for potential opportunities.
- Catalog of Federal Resilience Programs for Alaskan Communities – The Denali Commission published a catalog detailing programs that are available to Alaskan communities. A copy of the catalog is located in Appendix D. See Section 8.0 for a web link to the catalog to check for updates (Arctic Executive Steering Committee, 2015).

#### 6.2.2.1 Federal Funds

FEMA provides funding for eligible mitigation planning and projects that protect life and property from future disaster damages and reduces disaster losses. This funding is administered through three programs, the PDM, the Hazard Mitigation Grant Program



(HMGP), and the Flood Mitigation Assistance (FMA) Program. Below is a brief description of each of these funding sources.

### ***Pre-Disaster Mitigation (PDM) Program***

The PDM Program is authorized by Section 203 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. The goal of this programs is to reduce the overall risk to structures and population from future hazard events. Funds from the program provides opportunities to raise public awareness and reduce future losses before disasters occur. PDM provides funds on an annual basis for hazard mitigation planning and projects. This funding is dependent on the amount congress appropriates each year (FEMA, 2018).

### ***Hazard Mitigation Grant Program (HMGP)***

HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Following a Presidential Major Disaster Declaration HMGP supports post-disaster cost-effective projects. The purpose of the HMGP is to provide funding for long-term hazard mitigation planning and projects that will reduce the risk of loss of property and life from future disaster. HMGP provides funding up to 75% of mitigation projects. The remaining 25% of the mitigation project funding needs will come from other available funding sources (FEMA, 2018).

### ***Flood Mitigation Assistance (FMA) Program***

The FMA Program is authorized by Section 1366 of the National Flood Insurance Act of 1968. The goal of this program is to reduce or eliminate claims made under the National Flood Insurance Program (NFIP). FMA provides funding on an annual basis for planning and projects that reduce or eliminate the risk of flood damage to buildings that are insured under the NFIP. Funding for this program is dependent on the amount congress appropriates each year for this program (FEMA, 2018).

#### **6.2.2.2 Tribal Funds**

Tribal funds are available to the Community. One of the Tribal funds available is the Indian General Assistance Program (IGAP). The IGAP provides funding sources to help manage and maintain an environmental office. This office conducts environmental assessments for the Community and helps to prioritize environmental concerns, and educate the public.

#### **6.2.2.3 Private Funds**

In general, private funds are not readily available to the Tribe. However, the Tribe could potentially have access to funds through local non-profit organizations and regional corporations.

### 6.3 MITIGATION GOALS

The findings from the risk assessment were used to develop mitigation goals and actions. The mitigation goals in this THMP are general guidelines that describe Community goals, 44 CFR 201.7(c)(3)(i). These goals are broad, long-term statements that represent the Community’s vision for avoiding and reducing losses from the identified hazards. The Planning Team has identified the mitigation goals in Table 6-3.

**Table 6-3: Mitigation Goals**

Goal Number	Goal Description
1	Reduce the possibility of damages due to <b>drought</b> .
2	Reduce the possibility of damages due to <b>earthquakes</b> .
3	Reduce the possibility of damages due to <b>erosion</b> .
4	Reduce the possibility of damages due to <b>floods</b> .
5	Reduce the possibility of damages due to <b>landslides</b> .
6	Reduce the possibility of damages due to <b>severe wind</b> .
7	Reduce the possibility of damages due to <b>severe winter weather</b> .
8	Reduce the possibility of damages due to <b>tsunamis</b> .
9	Reduce the possibility of damages due to <b>volcanos</b> .
10	Reduce the possibility of damages due to <b>wildfires</b> .

### 6.4 POTENTIAL MITIGATION ACTIONS

Mitigation actions are specific activities, projects, actions, and processes that aid in achieving the mitigation goals. These actions are used to eliminate or reduce long-term risk to property and people from hazards and their impacts, 44 CFR 201.7(c)(3)(ii). There are four (4) types of mitigation actions that will help reduce long-term vulnerabilities. Mitigation actions fall under the following categories, local plans and regulations, infrastructure and structure projects, natural systems protections, and education and awareness programs. The Planning Team brainstormed and developed a comprehensive list of potential mitigation actions. The full list (Potential Mitigation Actions) is located in Appendix A.

Not all of the identified actions can be implemented in the final action plan. This could be due to a lack of political acceptance, technical feasibility, lack of funding, and other constraints. The Planning Team refined the list of potential mitigation actions (see Appendix A) using the criterion listed below (FEMA, March 2013). These criterion were used to facilitate discussions and to aid in the determination of mitigation actions to be implemented into the prioritized mitigation action plan (Section 6.5). The underlined and

bold action identification (IDs) in the potential mitigation actions list (see Appendix A) were selected by the Planning Team to be implemented in to the action plan. Each of these actions were more thoroughly analyzed using the Mitigation Action Evaluation Worksheet located in Appendix A (FEMA, March 2013).

- Life Safety – Analyzes how effective the action is at preventing injuries and protecting lives.
- Property Protection – Analyzes the significance of the action at eliminating or reducing damage to infrastructure and structures.
- Technical – Analyzes if the action is technically feasible and if it is a long-term solution.
- Political – Analyzes public and political support of the action.
- Legal – Analyzes if the Community has authority to implement the action.
- Environmental – Analyzes the actions impacts on the environment and if it complies with environmental regulations.
- Social – Analyzes the action based on its effect on one or more segments of the population.
- Administrative – Analyzes the Community’s personnel and administrative capabilities to implement and maintain action.
- Local Champion – Analyzes the action to determine if there is a strong advocate that will support the action’s implementation.
- Other Community Objectives – Analyzes if the action advances other community objectives or plans.

These identified and selected activities represent a comprehensive range that will lessen the need for preparedness or response resources when a natural hazard impacts the Community in the future.

## **6.5 MITIGATION ACTION PLAN**

The actions to be implemented into the mitigation action plan, identified by the Planning Team, were prioritized based on the importance of each item relative to the plan’s goals, risks, and capabilities of the Community, 44 CFR 201.7(c)(3)(iii). Table 6-4 provides a prioritized list of mitigation actions, the position, office, department or agency responsible for the implementation of the action, potential funding options, and the timeframe for the action to be implemented. The Mitigation Action Implementation Worksheet (THMP Form 6-1) is included in Appendix E.

**Table 6-4: Prioritized Mitigation Actions**

<b><sup>1</sup>Action ID</b>	<b>Description</b>	<b>Priority (High, Medium, Low)</b>	<b>Coordinating Department</b>	<b>Implementation Department/Role</b>	<b>Potential Funding Source</b>	<b>Timeframe</b>
1.A	Install water meters on homes and community buildings.	High	Utility Department	Installation Company	FEMA, ANTHC, Private	1 Year
1.E	Continue education efforts to remind residents of water use, and suggestions of how to conserve water (posters, flyers, radio announcements, mail flyers).	High	Administrator/Utility Department	Administrative Assistant will create & post flyers, mailers, etc.	*Compact Budget, Self governance funds	Monthly
1.F	Install pipes/hose in nearby creeks for water to use for fishing boats and subsistence use, and acquire proper permissions and permits.	High	Utility Department	Utility Department will help install / BBAHC Remote Maintenance Worker	FEMA, ANTHC, State, Private	1 Year
1.G	Increase the Community's water supply by adding a new well and associated equipment and storage, and update and/or replace water distribution equipment and infrastructure.	High	Administrator/Utility Department	Administrative Team/Utility Department	FEMA, ANTHC, State, Private	1 Year
2.A	Continue earthquake drills in school.	High	School Staff	School Staff	LPSD, Compact	2019
2.B	Educate residents about what to do in earthquakes.	High	Council	Administrative Team / Scholl Staff	*Compact, LPSD	2019
2.C	Acquire a backup generator for the clinic.	High	Admininstrator	Administrative Team	Clinic Maintenance Funds	2019

**Table 6-4 (Continued): Prioritized Mitigation Actions**

<b>1Action ID</b>	<b>Description</b>	<b>Priority (High, Medium, Low)</b>	<b>Coordinating Department</b>	<b>Implementation Department/Role</b>	<b>Potential Funding Source</b>	<b>Timeframe</b>
3.C	Apply armor rock for bank stabilization to reduce erosion on Hydro Road, hydro dam, and penstock.	High	Administrator	Utility & Road Maintenance	Bureau of Indian Affairs (BIA) Transportation	2-3 Years
3.D	Improve bank stability along Packers Creek from the lagoon to the hydroelectric dam by applying armor rock.	Medium	Administrator / Transportation	Transportation	BIA Transportation, DOT	2-3 Years
4.A	Perform regular bridge abutment inspections and repairs as needed.	Medium	Administrator / Transportation	Transportation	BIA Transportation	Yearly
4.B	Apply armor rock around bridge abutments and hydro dam.	High	Administrator / Transportation	Transportation	BIA Transportation, DOT	1 Year
4.E	Upgrade drainage features in the Community (prioritize around critical facilities).	Medium	Administrator / Transportation	Transportation	BIA Transportation, DOT	1-3 Years
4.G	Develop a maintenance plan for culvert maintenance.	Medium/High	Administrator / Transportation	Transportation	BIA Transportation, DOT	1 Year
4.H	Work with the DOT to improve drainage around the airport.	Medium	Administrator / Transportation	Transportation	BIA Transportation, DOT	1-2 Years
5.B	Close Hydro Road and restrict access to only operators.	Medium	Administrator / Utility	Utility / Transportation	Council Utility / Transportation	1 Year
6.C	Continue Community clean up effort.	Medium	IGAP	IGAP / School	IGAP	Bi-Annual

**Table 6-4 (Continued): Prioritized Mitigation Actions**

<b>1Action ID</b>	<b>Description</b>	<b>Priority (High, Medium, Low)</b>	<b>Coordinating Department</b>	<b>Implementation Department/Role</b>	<b>Potential Funding Source</b>	<b>Timeframe</b>
6.D	Conduct inspections of overhead power poles and replace and/or repair as needed.	Medium	Administrator / Utility	Utility	Utility, DOT	Yearly
6.E	Educate residents to have personal back up generator.	Medium	Administrative Team	Administrative Team	*Compact	1 Year
6.G	Acquire a portable community backup generator.	High	Administrator	Administrative Team	*Compact, Utility	1 Year
7.A	Provide education to residents about winter preparedness, and items to carry in skiffs.	High	Administrator	Administrative Team	*Compact, HUD/NAHSDA	1 Year
7.B	Improve winterization of homes.	High	Administrator	Administrative Team	HUD	1-3 Years
7.C	Provide Ice cleats to residents.	Medium	Administrator	Administrative Team	*Compact	1 Year
7.D	Provide training and recurrent training for road maintenance operators.	High	Administrator	BIA Transportation	BIA Transportation	1 Year
8.A	Educate residents about the ability to store a personal box of supplies in the Community Shop.	Medium	IGAP / Administrator	IGAP	IGAP	1 Year
8.B	Identify a suitable location for a community shelter, possibly by the water treatment plant.	High	Administrator	Administrative Team	*Compact	1-3 Years
8.C	Build a shelter on higher ground with an access road.	High	Administrator	Administrative Team	State, Federal, FEMA	1-3 Years

**Table 6-4 (Continued): Prioritized Mitigation Actions**

<b>1Action ID</b>	<b>Description</b>	<b>Priority (High, Medium, Low)</b>	<b>Coordinating Department</b>	<b>Implementation Department/Role</b>	<b>Potential Funding Source</b>	<b>Timeframe</b>
8.D	Acquire supplies for the shelter.	High	IGAP / Administrator	IGAP / Administrator	IGAP, *Compact	1 Year
8.E	Develop an evacuation plan.	High	Administrator	Administrative Team	*Compact	1 Year
8.F	Provide education in schools about tsunami safety.	High	Administrator	Administrative Team / LPSD	*Compact, LPSD	Yearly
9.A	Provide masks for the Community.	High	Administrator	Administrative Team	*Compact	1 Year
9.B	Educate residents about the hazards and impacts of running equipment during ash fall events.	Medium	Administrator	Administrative Team	*Compact	1 Year
9.C	Provide education of the impacts of ash on surface water when used as potable water.	Medium	Administrator	Administrative Team / School Staff	*Compact, LPSD	1 Year
9.D	Educate families to purchase bottled water for their family as backup.	High	Administrator	Administrative Team	*Compact	1 Year
9.E	Continue to provide communication about changing wind directions and levels of volcano activity.	Medium	Administrator	Administrative Team	*Compact	1 Year
10.B	Update or acquire new fire equipment.	High	Administrator	Administrative Team	*Compact	1 Year
10.C	Organize the volunteer fire department.	High	Administrator	Administrator / Utility	*Compact, State Fire Department	1 Year

**Table 6-4 (Continued): Prioritized Mitigation Actions**

<b>1Action ID</b>	<b>Description</b>	<b>Priority (High, Medium, Low)</b>	<b>Coordinating Department</b>	<b>Implementation Department/Role</b>	<b>Potential Funding Source</b>	<b>Timeframe</b>
10.D	Provide training for the volunteer fire department.	High	Administrator	Administrator / Utility	*Compact, State Fire Department	1 Year
10.E	Provide training for the maintenance of the fire equipment.	High	Administrator	Administrator / Utility	*Compact, State Fire Department	1 Year
10.F	Acquire a water tank for fire suppression, or identify another water source with equipment.	High	Administrator	Administrative Team / Utility	State, FEMA, ANTHC	1-2 Years
10.G	Continue fire drills at school.	High	School Staff	LPSD	LPSD	Yearly
10.H	Distribute fire extinguishers yearly to residents as needed.	High	Administrator	Administrative Team	*Compact, State Fire Department	Yearly
10.I	Evaluate and upgrade the Community's firefighting abilities and fire protection system to ensure year round use and prevent hydrant freeze ups.	High	Administrator/ Utility Dept	Administrative Team / Utility	*Compact, State Fire Department, Utility	1 Year

Notes:

<sup>1</sup> Action IDs are not in sequential order. For a full listing of potential mitigation action items see Appendix A.

\*Compact = Self-governance funding that is compacted currently through BBNA, but comes from BIA

ANTHC = Alaska Native Tribal Health Consortium

NAHSDA = Native American Housing Assistance and Self-Determination Act of 1966

LPSD = Lake and Peninsula School District

RMW = remote maintenance worker



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## 6.6 IMPLEMENTING ACTION PLAN INTO OTHER PLANNING MECHANISMS

After the adoption of the THMP by the Council, the Planning Team will work to incorporate the goals and actions of the THMP into other existing Community planning mechanisms, 44 CFR 201.7(c)(4)(iii). The Planning Team will accomplish this by performing the following activities:

- Review community-specific regulatory tools to establish where to incorporate the mitigation philosophy into other plans.
- Work with the community to increase awareness for implementing THMP philosophies and initiatives into other planning mechanisms. Provide assistance with incorporating the mitigation strategy (and Mitigation Action Plan) into relevant planning mechanisms (i.e., Utility Master Plans, Transportation Plans, Comprehensive Plan, Capital Improvement Project List, etc.)
- Update or amend other applicable planning mechanisms as necessary to include the THMP Action Plan.

## 6.7 REVIEWING PROGRESS GOALS

Tracking the progress of the mitigation actions and goals is important to the THMP, 44 CFR 201.7(c)(4)(ii) and 201.7(c)(4)(v). The Prioritized Mitigation Actions (Table 6-4) provides information pertaining to the tracking process for each mitigation action. It provides the following tracking process information:

- The estimated time to implement each action;
- The department, office, or agency responsible for coordinating and monitoring the implementation of each action; and
- The department, office, or agency and their respective roles in implementing each action.

The Mitigation Action Plan in Section 6.5 provides a description of the planned implementation timeframe for each Mitigation Action. A Mitigation Action Progress Report will be completed annually to monitor the progress of the Mitigation Actions, and any Mitigation Actions that require project closeout. The Mitigation Action Progress Report will address the current status of the mitigation project, any changes made to the project, implementation problems, and appropriate strategies to overcome them. The Mitigation Action Progress Report (THMP Form 6-2) is located in Appendix E.

When FEMA supported projects are completed, the project closeout documents will be prepared by the Tribe. Project closeout may include final invoicing, site inspections, and summary memorandums of the Mitigation Actions.

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## **7.0 PLAN ASSURANCES AND ADOPTION**

This section complies with the requirements of 44 CFR 201.7(c)(5) and 44 CFR 201.7(c)(6). The Tribe assures that it will comply with all applicable regulation and federal statutes in effect with respect to the periods for which it receives grant funding in compliance with 44 CFR Parts 200 and 3002. The Tribe will amend its plan whenever necessary to reflect changes in Federal or tribal laws and statutes.

The Council will formally adopt the THMP after receiving a letter from FEMA stating that the plan is approved pending adoption. The THMP adoption resolution will be signed by the Council and will be placed in Appendix F. This document will show the Tribe's commitment to implementing the mitigation strategies identified in the THMP and authorizes the responsible agencies to execute their actions.

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## 8.0 REFERENCES

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## FIGURES



AREA MAP INSET

**MAP NOTES**

This map was prepared by the Lake and Peninsula Borough (LPB) in cooperation with the Alaska Department of Community and Economic Development (DCEM) using funding from the Coastal Impact Assistance Program, Coastal Management Program, Bureau of Indian Affairs Transportation Planning and funding from the Initiative for Accelerated Infrastructure Development (IAID). The IAID is supported by grants from the Denali Commission, USDA Rural Development, Alaska Department of Transportation and Public Facilities and DCEM. The Alaska Native Tribal Health Consortium provided sanitation facility records. The LPB contracted with Global Positioning Services Incorporated in June of 2002 to prepare the map.

This map should not be construed as a survey. On-site surveys should be conducted prior to engineering or construction.

This map was compiled to meet horizontal and vertical accuracy in accordance with national map accuracy standards.

Property and utility information has been generated from readily available sources with limited accuracy checks. Property information is not intended to represent a title search of the Recorder's Office records. Utility location is approximate and shows only the main lines as the service lines have been omitted for clarity. Generally, the information is current as of December 2002.

This map is based on photography acquired on June 17, 2002, at a nominal scale of 1 in = 800 ft.

AeroMap U.S. prepared the Orthophoto and topographic mapping.

The orthophoto is an aerial photo which has been corrected, by rectification to ground control stations, to remove distortions and warpage due to ground topography and aircraft tilt and trim.

**HORIZONTAL AND VERTICAL CONTROL**

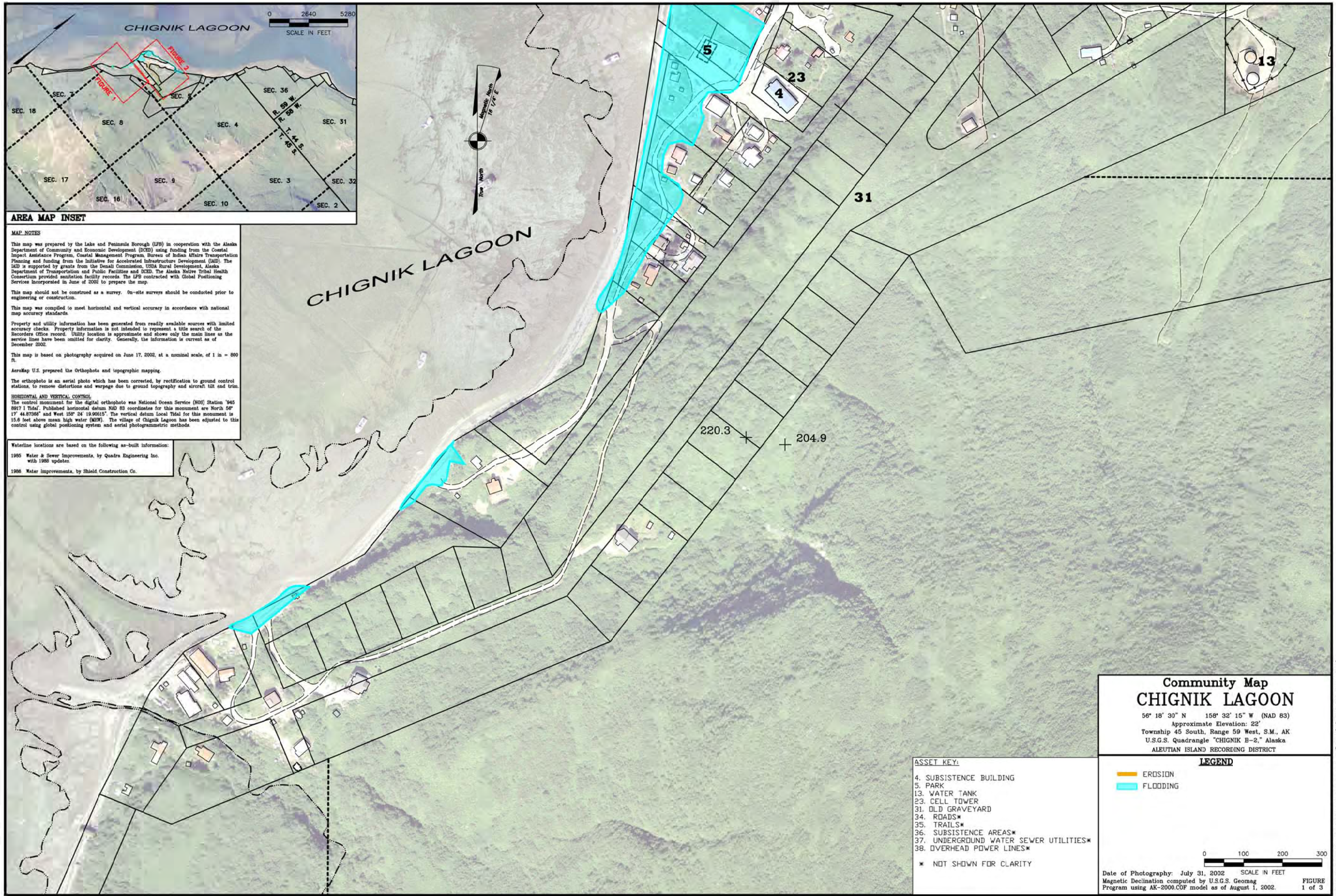
The control monument for the digital orthophoto was National Ocean Service (NOS) Station '945 8917 1 Tidal'. Published horizontal datum NAD 83 coordinates for this monument are North 56° 17' 44.87388" and West 150° 24' 19.90610". The vertical datum Local Tidal for this monument is 15.6 feet above mean high water (MHW). The village of Chignik Lagoon has been adjusted to this control using global positioning system and aerial photogrammetric methods.

Waterline locations are based on the following as-built information:

1985 Water & Sewer Improvements, by Quadra Engineering Inc. with 1988 updates.

1986 Water improvements, by Shield Construction Co.

CHIGNIK LAGOON



- ASSET KEY:**
- 4. SUBSISTENCE BUILDING
  - 5. PARK
  - 13. WATER TANK
  - 23. CELL TOWER
  - 31. OLD GRAVEYARD
  - 34. ROADS\*
  - 35. TRAILS\*
  - 36. SUBSISTENCE AREAS\*
  - 37. UNDERGROUND WATER SEWER UTILITIES\*
  - 38. OVERHEAD POWER LINES\*
- \* NOT SHOWN FOR CLARITY

**Community Map  
CHIGNIK LAGOON**

56° 18' 30" N 158° 32' 15" W (NAD 83)  
Approximate Elevation: 22'  
Township 45 South, Range 59 West, S.M., AK  
U.S.G.S. Quadrangle "CHIGNIK B-2," Alaska  
ALEUTIAN ISLAND RECORDING DISTRICT

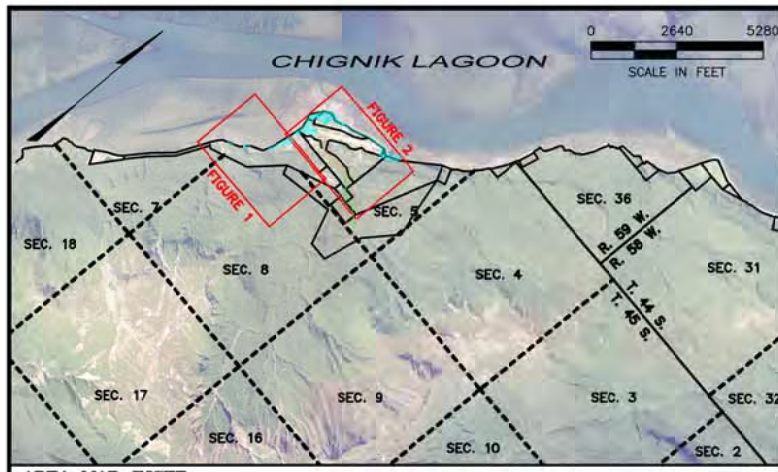
**LEGEND**

- EROSION
- FLOODING

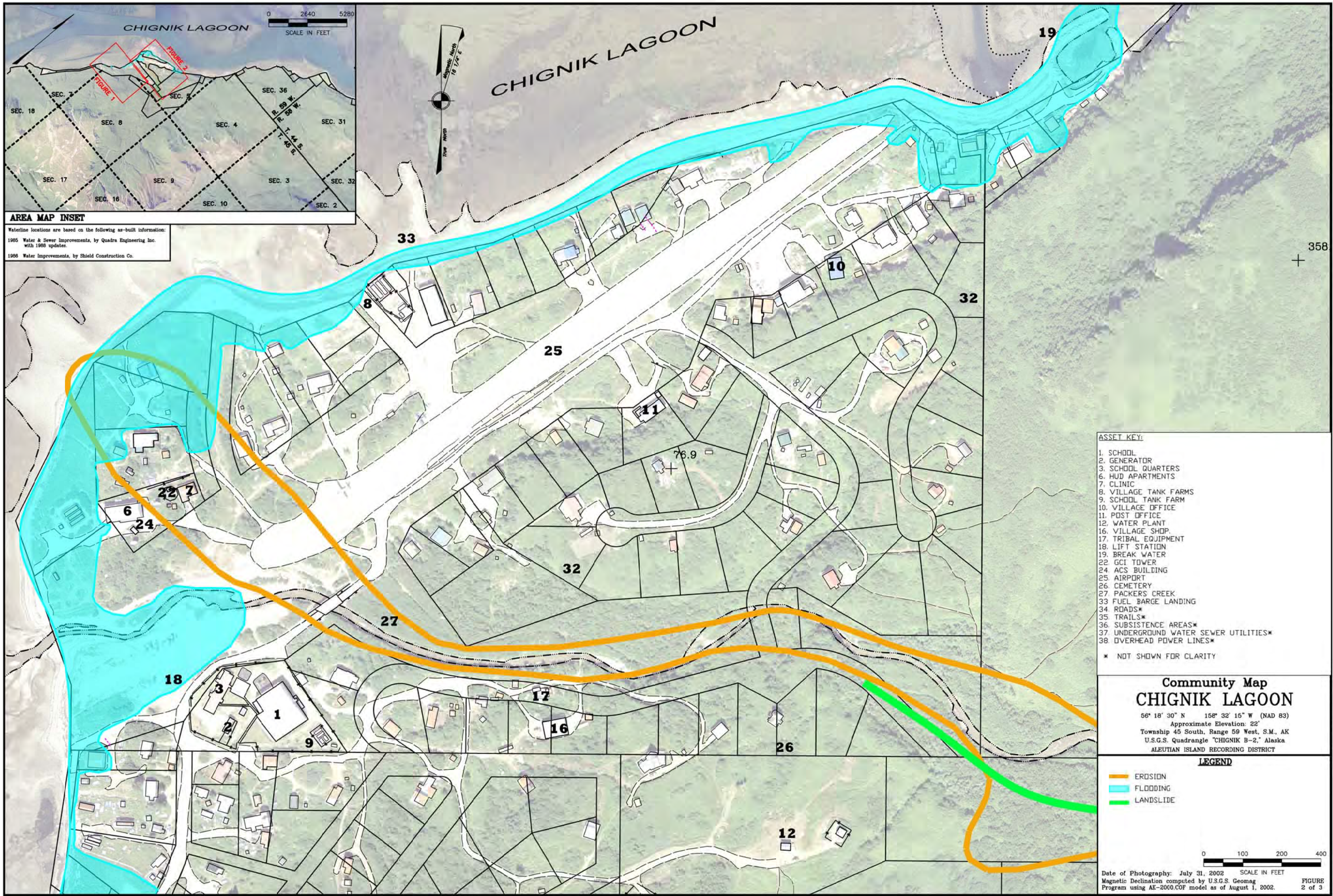
0 100 200 300  
SCALE IN FEET

Date of Photography: July 31, 2002  
Magnetic Declination computed by U.S.G.S. Geomag Program using AK-2000.COF model as of August 1, 2002.

FIGURE 1 of 3



**AREA MAP INSET**  
 Waterline locations are based on the following as-built information:  
 1985 Water & Sewer Improvements, by Quadra Engineering Inc. with 1988 updates.  
 1988 Water Improvements, by Shield Construction Co.



- ASSET KEY:**
1. SCHOOL
  2. GENERATOR
  3. SCHOOL QUARTERS
  6. HUD APARTMENTS
  7. CLINIC
  8. VILLAGE TANK FARMS
  9. SCHOOL TANK FARM
  10. VILLAGE OFFICE
  11. POST OFFICE
  12. WATER PLANT
  16. VILLAGE SHOP
  17. TRIBAL EQUIPMENT
  18. LIFT STATION
  19. BREAK WATER
  22. GCI TOWER
  24. ACS BUILDING
  25. AIRPORT
  26. CEMETERY
  27. PACKERS CREEK
  33. FUEL BARGE LANDING
  34. ROADS\*
  35. TRAILS\*
  36. SUBSISTENCE AREAS\*
  37. UNDERGROUND WATER SEWER UTILITIES\*
  38. OVERHEAD POWER LINES\*
- \* NOT SHOWN FOR CLARITY

**Community Map  
 CHIGNIK LAGOON**  
 56° 18' 30" N 158° 32' 15" W (NAD 83)  
 Approximate Elevation: 22'  
 Township 45 South, Range 59 West, S.M., AK  
 U.S.G.S. Quadrangle "CHIGNIK B-2," Alaska  
 ALEUTIAN ISLAND RECORDING DISTRICT

**LEGEND**

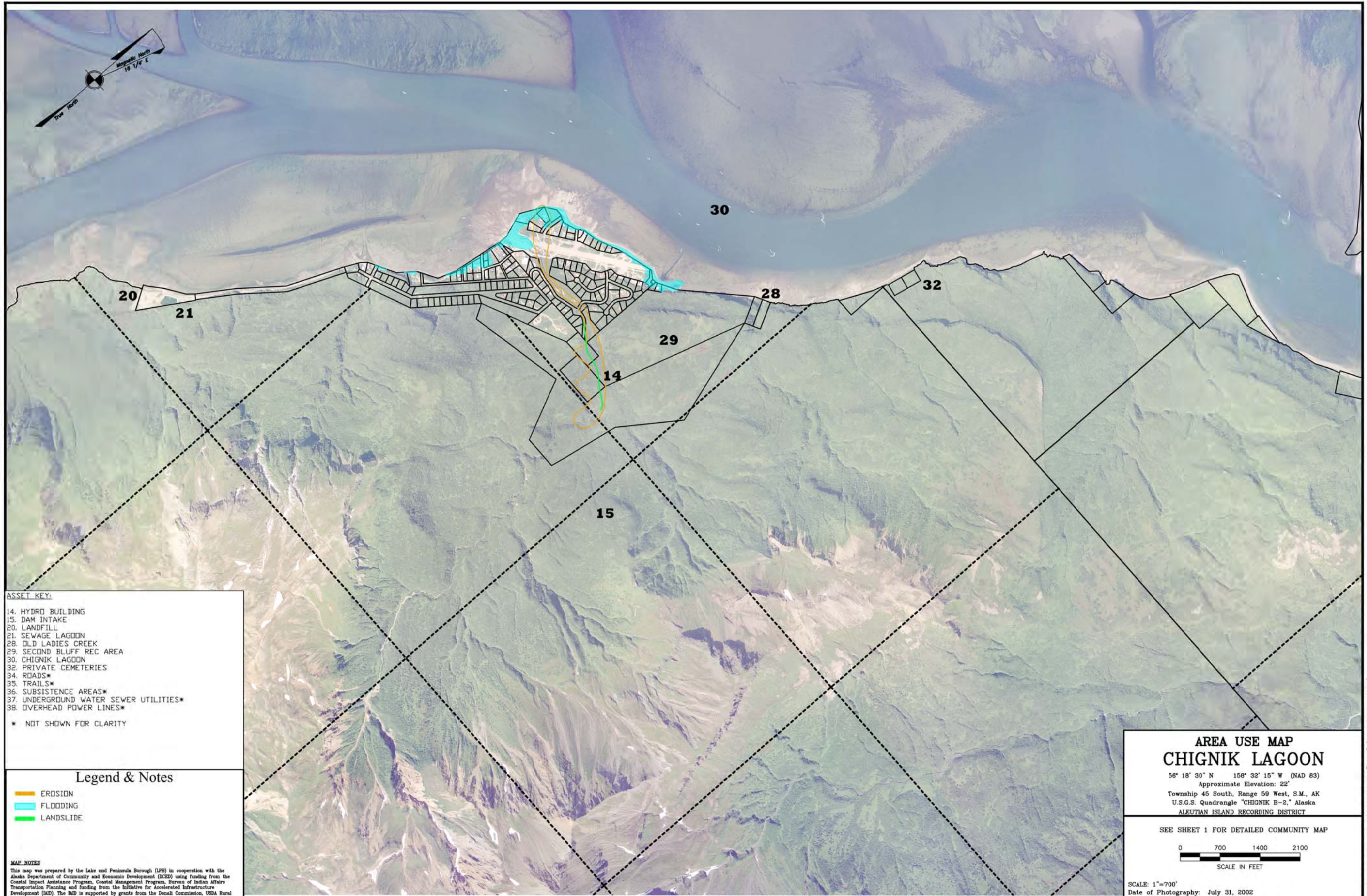
- EROSION
- FLOODING
- LANDSLIDE

0 100 200 400  
 SCALE IN FEET

Date of Photography: July 31, 2002  
 Magnetic Declination computed by U.S.G.S. Geomag  
 Program using AK-2000.COF model as of August 1, 2002.

FIGURE 2 of 3

CHIGNIK LAGOON COMMUNITY MAP SHEET 2 1"=100' (2002 PHOTOGRAPHY)



- ASSET KEY:**
- 14. HYDRO BUILDING
  - 15. DAM INTAKE
  - 20. LANDFILL
  - 21. SEWAGE LAGOON
  - 28. OLD LADIES CREEK
  - 29. SECOND BLUFF REC AREA
  - 30. CHIGNIK LAGOON
  - 32. PRIVATE CEMETERIES
  - 34. ROADS\*
  - 35. TRAILS\*
  - 36. SUBSISTENCE AREAS\*
  - 37. UNDERGROUND WATER SEWER UTILITIES\*
  - 38. OVERHEAD POWER LINES\*
- \* NOT SHOWN FOR CLARITY

- Legend & Notes**
- EROSION
  - FLOODING
  - LANDSLIDE

**MAP NOTES**  
 This map was prepared by the Lake and Peninsula Borough (LPB) in cooperation with the Alaska Department of Community and Economic Development (DCEd) using funding from the Coastal Impact Assistance Program, Coastal Management Program, Bureau of Indian Affairs Transportation Planning and funding from the Initiative for Accelerated Infrastructure Development (IAID). The IAID is supported by grants from the Denali Commission, USDA Rural Development, Alaska Department of Transportation and Public Facilities and DCEd. The Alaska Native Tribal Health Consortium provided sanitation facility records. The LPB contracted with Global Positioning Services Incorporated in June of 2002 to prepare the map.

**AREA USE MAP  
CHIGNIK LAGOON**

56° 18' 30" N 158° 32' 15" W (NAD 83)  
 Approximate Elevation: 22'  
 Township 45 South, Range 59 West, S.M., AK  
 U.S.G.S. Quadrangle "CHIGNIK B-2," Alaska  
 ALEUTIAN ISLAND RECORDING DISTRICT

SEE SHEET 1 FOR DETAILED COMMUNITY MAP

SCALE IN FEET

SCALE: 1"=700'  
 Date of Photography: July 31, 2002  
 Magnetic Declination computed by U.S.G.S. Geomag Program using AK-2000.COF model as of August 1, 2002.

FIGURE  
3 of 3

CHIGNIK LAGOON AREA USE MAP SHEET 3 1"=700' (2002 PHOTOGRAPHY)

## **APPENDIX A**

### Planning Process

- Meeting Minutes (September 13, 2018)
- Hazard Identification Worksheet
- Meeting Minutes (April 23-24, 2019)
- Sign-In Sheet
- Risk Analysis Worksheet
- Map Mark Ups
- Mitigation Action Types & Examples
- Potential Mitigation Actions
- Mitigation Action Evaluation Worksheet

## MEETING MINUTES

Project: **BBNA THMP & TTSP Project**

Bristol Project No: 32190013

Reference: Chignik Lagoon THMP Workgroup Packet 1

Date of Meeting, September 13, 2018 1:30 PM to 3:30 PM

Location of Meeting: Teleconference

Participants:

**Bristol:** Danielle Dance, Leslie Pheasant

**BBNA:** Annie Fritze, Dan Breedon

**Chignik Lagoon Planning Team:** Erin Petersen, Michelle Anderson, Oscar Mills (not present)

### Summary

A teleconference meeting was held to work through the first Tribal Hazard Mitigation Plan (THMP) Workshop Packet. Hazards to profile in the THMP were identified, and further instructions were provided to complete the remaining worksheets in the packet.

### Action Items

- Planning Team to fill out packet information (complete all 5 worksheets) and return to Bristol within 2 weeks of teleconference meeting
- Planning Team to return completed surveys to Bristol by September 14
  - Surveys can be passed out 1-2 per household, try to collect as many as possible
  - There are two surveys, one for the Safety Plan, one for the Hazard Mitigation Plan
- Planning Team to send email with list of Planning Team members, their names, contact phone, email, and role on the team
- Bristol to send resources such as wind graph, links, etc. to help with hazard analysis (Worksheet #2)
- Bristol will send out an electronic copy of Attachment 1.
- Will do some additional research regarding drought/mitigation actions pertaining to water resources (i.e. wells).

### General Notes

- An electronic copy of Attachment 1 was requested.

### Profiled Hazards

- Drought
  - Currently no incidents of drought.
  - Seasonal drought at times. Seasonal dry spells have happened two or three times and there is an effect on subsistence activities.
  - Water resources can be affected.

- Chignik Lagoon depends on hydro power, so lack of water can affect them. They have backup for power (diesel generator).
- It seems to happen once each summer.
- Backup for water but it did not work well this year. Used water from creeks.
- The village is looking for funding for deeper wells, etc. to protect their hydroelectric resource and availability of water for the residents.
- Earthquake
  - No earthquake damage recently.
  - Earthquake can damage power resources.
  - During the 1964 earthquake the lagoon emptied of water.
  - Lack of hydro; lack of power can be affected, no good safety shelter is available.
  - Lack of ability to leave if there is a serious earthquake. They would not be able to get to emergency services like hospitals, easily.
- Erosion
  - There is significant erosion issues.
  - There are quite a few people near the beach and the creek, so homes could be affected by erosion.
  - They are losing land and they have to try to build up areas so people don't lose their land.
  - There is a lot of exposed areas that don't have protection
  - There is armor rock around the airport, but some of it is eroding away. They have had to beef up a few areas to prevent erosion.
  - They had some major issues and damage a few years ago, homes, school, and bridge were affected.
  - Because of erosion some folks cannot get to their homes.
- Flood
  - The entire community can be impacted; the clinic would be affected, the school would be affected.
  - Essential services would be impacted by flooding.
  - Some people live on the hill, so they are not likely to be affected.
  - More than 75% of the community would be affected.
  - Flooding of buildings could happen.
  - Essential services (school, medical clinic) could be impacted by water surrounding the building, so it would not be accessible. None of the clinic area is protected by armor rock or anything.
  - Services could be impacted for a few days.
  - Flooding happens mostly in the fall; storm events.
- Landslides
  - Landslides specifically affect the hydro road;
  - Material slides above and below the road.
  - Material can block the road.
  - When landslides happen the hydro road is closed and needs to be repaired.
  - When road is blocked, depending on weather conditions, could lose access to Hydro Plant for up to a week.
  - It affects the power source for the village.



- The road has been open for 3 years and the road has been closed by landslide about 10 times.
- Can't always remove all of the debris so they remove enough to get a vehicle through. Eventually will need to do extensive repairs.
- Severe Wind
  - The entire village is affected by high winds.
  - The homes get damaged, boats drifting down the channels, debris flying around, power lines damaged, power can go out. Siding on buildings gets blown off. For medical, mail can be held up for weeks.
  - Planes cannot come in, so if there was a medical emergency, the person would not be able to be medivacked out. May take a day or two to get medivac out.
  - Mail might not come in for days to weeks depending on wind event.
  - Fall is when the winds happen most.
- Severe Winter Weather
  - The last few winters they have gotten a lot of sleet and rain.
  - They used to get several feet of snow, but not severe. It just takes a little time for the roads to be cleared.
  - The planes will not fly in really bad weather.
  - Really bad microclimates occur, so pilots are sensitive to the weather.
  - Freezing rain, low visibility, and wind prevent pilots from flying into the village. They can go without mail for two to three weeks, so supplies like medicine can be impacted. Need experienced pilots.
- Tsunami
  - Because they live on a lagoon and there is a sandbar; they do not have a deep port so the chances are low, but if there was an earthquake with tsunami the entire area would be affected by it.
  - If there was a tsunami tomorrow they are not prepared for it, so everyone would be affected. They do not live in a deep port, so the probability is low, but not impossible.
  - Had a tsunami warning last spring due to a larger, nearby earthquake.
- Volcano
  - There is an active volcano nearby, Mt. Veniaminof.
  - The lifestyle and fishing could be impacted by an eruption.
  - Not sure if lava could be an issue. Need more research. There might have been ash fall, but they will need to do some further research.
  - The entire community would be affected by an eruption.
  - Subsistence areas would be affected and transportation would be impacted; because of ash fall planes could not fly in.
  - The volcano is active right now.
  - Ash fall could be significant for people with breathing problems and elders.
  - The homes are somewhat spread apart, so house fires don't seem to spread to other homes.

### **Non-Profiled Hazards**

- Avalanche
  - They don't get much snowfall; so avalanche is not much of a concern. About once in 13 years they have had a lot of snow. Possible chance of this happening if they get a large amount of snowfall.
- Extreme Cold
  - In the last 13 years the temperature doesn't go much below zero.
  - In the past the lagoon froze over, but not recently.
  - The weather is pretty mild there.
  - Wind chill can make it colder than usual.
  - The entire village would be affected if extreme cold happens.
  - When there is colder temperatures some homes have pipes break.
  - If it's extremely cold fuel could freeze, water could freeze, and that could be a problem.
- Extreme Heat
  - In summer it can get really hot; 70s or 80s, which is not usual for their community.
- Subsidence
  - There are a few houses that are sinking or settling a bit, or tilt, but not a lot.
- Wildfire
  - Wildfire has not been a big issue.
  - It would impact the entire village, if it were to occur.
  - If there was a wildfire, it would be a high impact to the village because they have wooden homes and there are trees around the homes.

## WORKSHEET #1: HAZARD IDENTIFICATION

Use this worksheet to identify which hazards are most significant to your community planning area. Follow the instructions provided on pages 9 and 10.

Write “Blue” “Green” “Yellow” or “Red” in Columns A-D based on definitions in Tables 1-4 on Pages 9-10.

Write “Yes” or “No” in Column E depending on the outcome of Column D.

Hazard	Column A Location (Geographic Area Affected) <i>(Table 1)</i>	Column B Maximum Probable Extent (Magnitude / Strength) <i>(Table 2)</i>	Column C Probability of Future Events <i>(Table 3)</i>	Column D Overall Significance <i>(Table 4)</i>	Column E Profile (Yes/No)
*Avalanche	Blue	Blue	Green	Green	No
Drought	Red	Yellow	Yellow	Yellow	YES
Earthquake	Red	Yellow	Red	Red	YES
Erosion	Red	Red	Red	Red	YES
*Extreme Cold	Red	Green	Green	Yellow	No
*Extreme Heat	Red	Blue	Blue	Green	No
Flood	Red	Green	Red	Red	YES
*Landslide	Green	Yellow	Red	Red	YES
Severe Wind	Red	Yellow	Red	Red	YES
*Severe Winter Weather	Red	Yellow	Red	Red	YES
*Subsidence	Green	Green	Green	Green	No
Tsunami	Red	Red	Yellow	Red	YES
Volcano	Red	Green	Yellow	Red	YES
Wildfire	Red	Green	Blue	Red	No
Other					

\* Definitions for selected hazards are located on the back for clarification.

## **SELECT HAZARD DEFINITIONS**

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**Extreme Temperatures (i.e. Extreme Cold, Extreme Heat):** Extreme temperatures constitute different conditions in different parts of the country. In regions that are accustomed to winter weather, extreme cold temperatures involve temperatures between 20° F to -50° F. These temperatures can occur after a winter storm or during long durations of storm inactivity. Similarly, extreme heat is usually recognized as the condition where temperatures consistently stay ten or more degrees above the average high temperature for extended periods of time. Fatalities can occur from extreme temperatures by causing hyperthermia or frostbite in cold regions and hypothermia in warmer regions.

**Landslide / Avalanche:** A landslide is the movement of a mass of debris, rock, or earth by force of gravity down a slope. An avalanche is the movement of snow and debris down a slope by force of gravity. Landslides and avalanches occur when the stability of the slope changes from stable to unstable. This can be caused by storms, earthquakes, volcanic eruptions, fire, erosion, rapid temperature changes in the case of avalanches, and other human-induced activities. Steep slopes and long slopes have a higher probability to slide. High soil water content and/or slopes with low vegetative coverage are also likely to slide. Landslides and avalanches cause infrastructure and property damage, environmental disturbance, and possible injuries and fatalities.

**Severe Winter Weather:** Severe winter storms can include snow, freezing rain, sleet, or a mix of the previous forms of precipitation. Heavy snowfall occurs when large quantities of snow is produced in a short period of time. Drifting snow creates an uneven distribution of snow caused by strong winds. This weather can cause power outages, downed trees, and property damage. It can also cause deaths and injuries.

**Subsidence:** Subsidence is the settling over time or sudden sinking of surface soils due to subsurface movements. Some causes of subsidence are thawing permafrost, declining ground water levels, compactions, mining, and drainage of organic soils. Subsidence can destroy or damage infrastructure or buildings near areas affected by a sudden or gradual collapse of surface area.

**NOTE:** If you have any questions about the hazard definitions, or about Worksheet #1 in general, contact Danielle with Bristol at (907) 743-9394.

**INSTRUCTIONS FOR WORKSHEET #1**

Worksheet #1 is a tool to determine which hazards to include in the Tribal Hazard Mitigation Plan (THMP). Use these classifications / definitions to help identify the most significant hazards that affect your community. Give each hazard on Worksheet #1 a color code based on the definitions provided in Tables 1 – 4.

**1. Location (Geographic Area Affected) – [Column A]**

This classification describes where the hazard occurs, how often it occurs, and how much of the community was impacted.

**Table 1: Location (Geographic Area Affected)**

Color Code	Area Affected	Definition
<b>BLUE</b>	Negligible	<ul style="list-style-type: none"> <li>Only one small area or none</li> <li>Less than 10% of planning area</li> <li>Isolated single-point occurrences</li> </ul>
<b>GREEN</b>	Limited	<ul style="list-style-type: none"> <li>Only some of the community</li> <li>10% to 25% of planning area</li> <li>Limited single-point occurrences</li> </ul>
<b>YELLOW</b>	Significant	<ul style="list-style-type: none"> <li>Most of the community</li> <li>25% to 75% of planning area</li> <li>Frequent single-point occurrences</li> </ul>
<b>RED</b>	Extensive	<ul style="list-style-type: none"> <li>Almost all or All of the community</li> <li>75% to 100% of planning area</li> <li>Consistent single-point occurrences</li> </ul>

**2. Maximum Probable Extent (Magnitude / Strength) – [Column B]**

This classification describes how much damage was done, how fast and for how long the hazard impacted the community, and the strength or magnitude of the hazard on a scientific scale, if applicable.

**Table 2: Maximum Probable Extent (Magnitude/Strength)**

Color Code	Maximum Extent	Definition
<b>BLUE</b>	Weak	<ul style="list-style-type: none"> <li>Little to no damage done</li> <li>Slow speed of onset or short duration of event</li> <li>Limited classification on scientific scale (if applicable)</li> </ul>
<b>GREEN</b>	Moderate	<ul style="list-style-type: none"> <li>Some damage and loss of services for days</li> <li>Moderate speed of onset or moderate duration of event</li> <li>Moderate classification on scientific scale (if applicable)</li> </ul>
<b>YELLOW</b>	Severe	<ul style="list-style-type: none"> <li>Devastating damage and loss of services for weeks or months</li> <li>Fast speed of onset or long duration of event</li> <li>Severe classification on scientific scale (if applicable)</li> </ul>
<b>RED</b>	Extreme	<ul style="list-style-type: none"> <li>Catastrophic damage and uninhabitable conditions</li> <li>Immediate onset or extended duration of event</li> <li>Extreme classification on scientific scale (if applicable)</li> </ul>

**3. Probability of Future Events – [Column C]**

This classification describes the possibility of the hazard occurring in the next year, and how often the hazard will occur.

**Table 3: Probability of Future Events**

COLOR CODE	Probability of Future Event	Definition
BLUE	Unlikely	<ul style="list-style-type: none"> <li>Less than 1% probability of occurrence in the next year</li> <li>Recurrence interval of greater than every 100 years</li> </ul>
GREEN	Occasional	<ul style="list-style-type: none"> <li>1% to 10% probability of occurrence in the next year</li> <li>Recurrence interval of 11 to 100 years</li> </ul>
YELLOW	Likely	<ul style="list-style-type: none"> <li>10% to 90% probability of occurrence in the next year</li> <li>Recurrence interval of 1 to 10 years</li> </ul>
RED	Highly Likely	<ul style="list-style-type: none"> <li>90% to 100% probability of occurrence in the next year</li> <li>Recurrence interval of less than 1 year</li> </ul>

**4. Overall Significance – [Column D]**

This classification provides a way to determine how much impact the hazard has on the community. This classification is based on the classifications from Tables 1 – 3 (Columns A – C).

**Table 4: Overall Significance**

COLOR CODE	Impact	Definition
GREEN	Low	<ul style="list-style-type: none"> <li>Event has minimal impact on planning area</li> <li>Two or more criteria fall in lower classifications (2 or more BLUE)</li> <li>Profile – Likely doesn't need to be profiled but can</li> </ul>
YELLOW	Medium	<ul style="list-style-type: none"> <li>Event's impacts on the planning area are noticeable but not devastating</li> <li>Criteria fall mostly in the middle ranges of classifications (2 or more GREEN or YELLOW)</li> <li>Profile – Choice of the Planning Team</li> </ul>
RED	High	<ul style="list-style-type: none"> <li>Event is likely/highly likely to occur with severe strength over a significant or extensive portion of the planning area</li> <li>Criteria consistently fall in the high classifications (2 or more RED)</li> <li>Profile – Definitely profile</li> </ul>

**5. Profile (Yes OR No) – [Column E]**

For the purposes of the THMP, “profile” means to include the hazard in the plan and analyze in more detail. Not all hazards need to be profiled for your community. Only hazards with a moderate to high overall significance should be included in the plan, but the Planning Team can choose to profile any hazard as they see fit. Use Table 4 (Column D) to determine if the hazard should be profiled.

## TRIP REPORT & MEETING MINUTES

Project: **BBNA THMP Project**

Bristol Project No: 32190013

Reference: Chignik Lagoon Planning Team Meetings & Public Meetings

Date of Meeting: April 24-25, 2019

Location of Meeting: Chignik Lagoon Sub Building

Participants:

**Bristol:** Danielle Dance, Taylor Turney

**Planning Team:** See attached sign in sheet

**Public Meeting:** See attached sign in sheet

### Summary

Taylor and Danielle arrived in Chignik Lagoon around 3:00 PM on Wednesday, April 24th, 2019. From 4:30 PM to 5:30 PM, they hosted a public meeting in the Sub Building to discuss the THMP project. They discussed the items for the Hazard Mitigation Plan including community assets, vulnerability statements, mitigation goals, and potential mitigation strategies while collecting public comment. They stayed overnight in the Spruce Cove B&B, then met the next morning from 9:00 AM to 12:30 PM to discuss the project with the planning team.

### THMP Public Meeting Notes

#### *Community meeting*

- Safety minute – Let family member know travel plans when leaving to hunt, fish, etc.
- 1964 earthquake, everyone ran outside. Hard to stand up. Tide receded really low and came back. Then got to higher ground.
- Walked across Packers creek with small homemade bridge. Washed down creek. Had to cross via skiff. Creek floods frequently.
- Biggest concern? Water system. Studies show the village uses larger volumes of water than it should but can't find source of leak.
- Erosion – the entire lagoon is getting eaten away at. Roads in design phase were never constructed because the land disappeared.
- The landfill is difficult to access. Can't access because of ice and tides which causes trash to pile up in the village.
- Beach resident has noticed the beach erode 20-50ft in the last 40 years.
- Have tried to stabilize, but not completely successful. Tried by making breakwater but not enough material. 8-10 years ago, put jetties out that reduced erosion.
- Terrible salmon return, can FEMA help?
- Warm water related less clams in the lagoon
- Volcanic ash dispersing into lagoon have affect
- First year the clams have been completely gone

- Cranberries, ptarmigan, caribou, king crab, cod, halibut, are lessening or gone
- Smaller fish, 99% male
- Wards cove cannery fuel tanks stored on other side of lagoon spreading contamination(flooding)
- Sheet metal being spread from degrading cannery during high wind events
- Landslide of sediment taking out road to energy infrastructure
- \*look at erosion maps
- Crude oil contamination in the airport runway
- Need a gravel/rock source for road improvements
- Most effective way to be a part of process? Email communication

### **THMP Planning Team Meeting Notes**

*\*\*Add wildfire to hazards*

#### *Worksheet #6 – Mitigation Actions*

- Drought
  - Filling up tanks with water and water truck for dust control during drought
  - Running out of potable drinking water
  - Water meters to monitor water usage
  - Upgrade surface water system for backup water with treatment system
  - Educate about conservative water use
  - Continue distributing flyers/posters/mail to educate about water use
  - Reuse water from other sources to reduce village water use (Old Lady's creek)
  - Acquire permissions and permits to pull from other water sources
  - Fix residential water service/distribution system
- Earthquakes
  - Educate residents that they can store emergency supplies at temp shelter
  - Education for students to practice earthquake drills
  - Education on what to do during an earthquake
  - Backup generator for the clinic in case of losing power
  - Design/construction for new road access to hydroelectric dam/penstock
- Erosion
  - Improve drainage features in community to reduce erosion during heavy rain
  - Bank stabilization/armor rock protection for hydroelectric dam access road and penstock(along packers creek)
  - Bulkhead/sheet piling/armor rock for boat usage from landfill to B street
- Landslide
  - Geotech/soils study on clay material
  - Closing public access to hydroelectric plant
  - Lost a house from sloughing off hillside
  - Slope analysis for steep areas (road to landfill, homes)
  - Provide education for danger signs to look for
- Extreme Cold
  - Improve winterization of residential and community buildings



- Acquire fuel additive for extreme cold temps
- Education for winter preparedness during travel/hunting
- Winter shelter on hunting grounds
- Flooding
  - Move Diesel generator plant, clinic away from flood zone
  - Bridge abutment inspection/gets washed out
  - Armor rock for hydro plant
  - Armor rock source, permissions and permits and associated equipment
  - Update drainage features, new culverts in community
  - Work with DOT to improve airport drainage
  - Conduct Hydrology Report/Study
- Severe Winds
  - Demolishing abandoned buildings/permission from homeowners
  - Equipment for demolition
  - Continue community wide cleanup
  - Education for individuals to get backup generators/power
  - Replace/repair power poles as needed
  - Solar panels/battery banks
- Severe Winter Weather
  - Education for winter preparedness
  - Improve winterization of housing
  - Provide ice cleats for residents
  - Training for equipment operators
- Tsunami
  - Tsunami Emergency shelter on high ground (with access road)
  - Identify best location for shelter
  - Educate residents that they can store emergency supplies at temp shelter (village shop)
  - Get supplies for shelter
  - Develop/Educate residents on evacuation plan
  - Education in schools about what to do during tsunami
- Volcano
  - Provide masks for residents
  - Education/awareness about the impacts and how to protect equipment
  - Education about storing bottled because the pump would shut off without generators
  - Education on impacts of ash on surface water
  - Communication of pending ashfall to community

- Wildfire
  - Wildfire spray foam
  - Burn ban
  - Update/fix code red connex/get fire truck and hoses
  - Training on maintaining equipment
  - Better organized fire department
  - Water tank for fire suppression
  - Continue fire drills at the school
  - Provide fire extinguishers to residents

Attachments:

1. Planning Team Meeting Sign-in Sheet
2. Worksheet #3: Risk Assessment
3. Worksheet #6: Mitigation Strategies
4. Public Meeting Sign-in Sheet
5. Public Meeting Flyer
6. Public Meeting Handouts
7. Public Meeting Presentation Slides
8. Maps

Meeting Minute attachments included in Appendix A. The remaining attachments can be found in Appendix B.

End Meeting Minutes

CC: File

# Planning Team Meeting

Chignik Lagoon Tribal Hazard Mitigation Plan (2019 - 2024)

Date / Location: April 24 , 2019

## Sign In Sheet

Name/Title	Phone	Email
Michelle Anderson		
Village Administrator	907-840-2281	clvcoffice@gmail.com
Al L. Anderson	907 840 2239	alka@hughes.net

### Risk Analysis Worksheet *(Profiled Hazards Only)*

Facility Number	Column A Facility Name	Column B Number of Occupants	Column C Location	Column D Estimated Value	Column E: Hazard Impacts <i>(Fill in Hazards in Blank Columns Below)</i>											
					Drought	Earthquake	Erosion	Flood	Landslide	Severe Wind	Severe WinterWeather	Tsunami	Volcano			
1	School	15+			X	X	X	X		X	X	X	X			
2	Generator	1														
3	School Quarters	4														
4	Subsistence Building	50														
5	Park	10														
6	HUD Apartments	9														
7	Clinic	10														
8	Village Tank Farms															
9	School Tank Farm															
10	Village office	5														
11	Post Office	1														
12	Water Plant	1														
13	Water tank															
14	Hydro Building	1														
15	Dam Intake	1														
16	Village Shop	3														
17	Tribal Equipment															

### Risk Analysis Worksheet *(Profiled Hazards Only)*

Facility Number	Column A Facility Name	Column B Number of Occupants	Column C Location	Column D Estimated Value	Column E: Hazard Impacts <i>(Fill in Hazards in Blank Columns Below)</i>												
					Drought	Earthquake	Erosion	Flood	Landslide	Severe Wind	Severe WinterWeather	Tsunami	Volcano				
18	Lift Station																
19	Break Water																
20	Landfill																
21	Sewage Lagoon																
22	GCI Tower																
23	Cell Tower																
24	ACS Building																
25	Airport																
26	Cemetery																
27	Packers Creek																
28	Old Ladies Creek																
29	Second Bluff Rec Area																
30	Chignik Lagoon																

### Risk Analysis Worksheet *(Profiled Hazards Only)*

Facility Number	Column A Facility Name	Column B Number of Occupants	Column C Location	Column D Estimated Value	Column E: Hazard Impacts <i>(Fill in Hazards in Blank Columns Below)</i>												
					Drought	Earthquake	Erosion	Flood	Landslide	Severe Wind	Severe WinterWeather	Tsunami	Volcano				
31	Old Graveyard																
32	Private Cemeteries																
33	Fuel Barge Landing																
34	Roads																
35	Trails																
36	Subsistence Areas																
37	Underground water sewer utilities																
38	Overhead power lines																

# Mitigation Actions (Planning Meeting)

GOALS		ACTIONS	
No.	Goal	ID	Description
	Drought	x	Install water meters on homes and community buildings
			Water tanks for dust control
			upgrade to a surface water system
			Acquire tools and treatment facility to utilize the back up water source (surface water)
		x	Continue education effort to remind residents of water use (posters, flyers, radio announcements, mail flyers) suggests of how to conserve
		x	Install pipes/hose in nearby creeks for water use for fishing boats and subsistence use. Acquire proper permissions and permits.
			Repair water service and distribution lines
	Earthquake	x	Continue earthquake drills in school.
		x	Educate residents about what to do in earthquakes.
		x	Acquire back up generator for clinic
			Identify, design, construct alternative access to Hydroelectric dam
	Tsunami	x	Educate residents about ability to store a personal box of supplies in Community Shop.
		x	shelter on higher ground with access road
		x	Identify a suitable location for the shelter (shelter by the water treatment plant as a feasible idea)
		x	Acquire supplies for the shelter
		x	Develop an evacuation plan
		x	provide education in schools about tsunami safety

# Mitigation Actions (Planning Meeting)

GOALS		ACTIONS	
No.	Goal	ID	Description
	Flood	x	Bridge abutment inspections and repairs as needed
		x	armor rock around bridge abutments and hydro dam
			identify material source, agency permissions and permits and costs, equipment (rock screening plant)
			Relocate clinic and diesel power plant
		x	upgrade drainage features in community, prioritize around critical facilities
			Conduct a hydrology study/report
		x	Maintenance plan for culvert maintenance
		x	Work with DOT to improve airport drainage
	Erosion		Improve drainage
			bulkhead / sheet pilings (in high boat usage areas) and other areas with armor rock around lagoon
		x	Armor rock bank stabilization to reduce erosion on hydro road, hydro dam, penstock
		x	armor rock Packers Creek from lagoon to hydro dam
	Landslide		Soil study to harden clay (Research project) on hydro road
		x	closeing hydro road to only operator
			Soil slope analysis conducted for road to landfill
			Provide education materials to home owners in susceptible areas for landslides and suggest yearly inspections.
	Severe Wind		demolish abandoned buildings (getting permissions)
			Acquire equipment for demolition of old abandoned buildings
		x	Continue community clean up effort
		x	inspection of overhead power poles and replace/repair as needed
		x	educate residents to have personal back up generator
			Solar panels, battery banks
		x	Community back up generator (portable)



## Mitigation Actions (Planning Meeting)

GOALS		ACTIONS	
No.	Goal	ID	Description
	Severe Winter Weather	x	Education for winter preparedness, items to carry in skiffs
		x	Winterization of homes
		x	Provide Ice cleats
		x	Training for operators and recurrent training
	Volcano	x	masks for community
		x	educate people about hazards and impacts of running equipment
		x	education of impacts of ash to potable water (surface water)
		x	educating families to purchase bottled water for family as back up
		x	Continueing to provide communication about changing wind directions and levels of volcano
	Wildfire		Burn bans
		x	Acquire new or update fire equipment
		x	Organize the volunteer fire department
		x	Provide training for volunteer fire department
		x	Training for maintaining equipment
		x	Acquire water tank for fire suppression or identify other water source with equipment
		x	Continue fire drills at school
		x	Yearly fire extinguisher distribution



**MAP NOTES**

This map was prepared by the Lake and Peninsula Borough (LPB) in cooperation with the Alaska Department of Community and Economic Development (DCE) using funding from the Coastal Impact Assistance Program, Coastal Management Program, Bureau of Indian Affairs Transportation Planning and funding from the Initiative for Accelerated Infrastructure Development (IAID). The IAID is supported by grants from the Ombudsman, USDA Rural Development, Alaska Department of Transportation and Public Facilities and DCEI. The Alaska Native Tribal Health Consortium provided sanitation facility records. The LPB contracted with Global Positioning Services Incorporated in June of 2002 to prepare the map.

This map should not be construed as a survey. On-site surveys should be conducted prior to engineering or construction.

This map was compiled to meet horizontal and vertical accuracy in accordance with national map accuracy standards.

Property and utility information has been generated from readily available sources with limited accuracy checks. Property information is not intended to represent a title search of the Recorder's Office record. Utility location is approximate and shows only the main lines as the service lines have been omitted for clarity. Generally, the information is current as of December 2002.

This map is based on photography acquired on June 17, 2002, at a nominal scale of 1 in = 800 ft.

AeroMap U.S. prepared the Orthophoto and topographic mapping.

The orthophoto is an aerial photo which has been corrected, by rectification to ground control stations, to remove distortions and warpage due to ground topography and aircraft tilt and trim.

**HORIZONTAL AND VERTICAL CONTROL**

The central monument for the digital orthophoto was National Ocean Service (NOS) Station '845 8817' Tidal. Published horizontal datum NAD 83 coordinates for this monument are North: 59° 17' 44.87298" and West: 158° 32' 19.50515". The vertical datum Local Tidal for this monument is 15.8 feet above mean high water (MHW). The village of Chignik Lagoon has been adjusted to this control using global positioning system and aerial photogrammetric methods.

Waterline locations are based on the following as-built information:  
 1985 Water & Sewer Improvements, by Quadra Engineering Inc with 1986 updates.  
 1986 Water Improvements, by Shield Construction Co.



- BUILDING KEY**
1. Baseball Field
  2. Subsistence Building
  3. Old Village Post Office
  4. Water Tanks
  5. 100 Yr. Old Home/Private Power Plant

**Community Map  
CHIGNIK LAGOON**

56° 18' 30" N 158° 32' 15" W (NAD 83)  
 Approximate Elevation: 22'  
 Township 45 South, Range 59 West, S.M., AK  
 U.S.G.S. Quadrangle "CHIGNIK B-2," Alaska  
 ALEUTIAN ISLAND RECORDING DISTRICT

**LEGEND**

- Residential Building
- Commercial Building
- Public Building
- Edge of Water
- Electric Line w/pole
- Sewer Line
- Sewer Force Main
- Water Line
- Periodic Flood Line
- Erosion Area
- Fire Hydrant

SCALE: 1"=100'  
 Date of Photography: July 31, 2002  
 Magnetic Declination computed by U.S.G.S. Geomag Program using AK-2000.COF model as of August 1, 2002.

SHEET 1 of 3

CHIGNIK LAGOON COMMUNITY MAP SHEET 1 1"=100' (2002 PHOTOGRAPHY)



Waterline locations are based on the following as-built information:  
 1085 Water & Sewer Improvements, by Quadra Engineering Inc. with 1998 updates  
 1086 Water Improvements, by Shield Construction Co.



U.S. Survey No. 4898  
 Pat. No. 50-73-044

**BUILDING KEY**

- |                                   |                            |
|-----------------------------------|----------------------------|
| 1. Teacher Housing                | 10. GCI Phone Co.          |
| 2. Village Generator              | 11. Village Clinic         |
| 3. School                         | 12. New Post Office        |
| 4. Fire & Heavy Equipment Storage | 13. Chignik Bible Church   |
| 5. Pump House                     | 14. New Water Pump House   |
| 6. Village Water Source           | 15. Incinerator            |
| 7. ACS Phone Co.                  | 16. Store                  |
| 8. Old Tank Farm                  | 17. Village Council Office |
| 9. Hud Housing                    | 18. Anderson Graveyard     |
|                                   | 19. Fire Equipment Bldg.   |
|                                   | 20. Church                 |



**Community Map  
 CHIGNIK LAGOON**

56° 18' 30" N 158° 32' 15" W (NAD 83)  
 Approximate Elevation: 22'  
 Township 45 South, Range 59 West, S.M., AK  
 U.S.G.S. Quadrangle "CHIGNIK B-2," Alaska  
 ALEUTIAN ISLAND RECORDING DISTRICT

**LEGEND**

- |                      |                        |
|----------------------|------------------------|
| Residential Building | Periodic Flooding Line |
| Commercial Building  | Erosion Area           |
| Public Building      | Street Light           |
| Edge of Water        | Runway Marker          |
| Electric Line w/pole | Fire Hydrant           |
| Sewer Line           | Well                   |
| Sewer Force Main     |                        |
| Water Line           |                        |

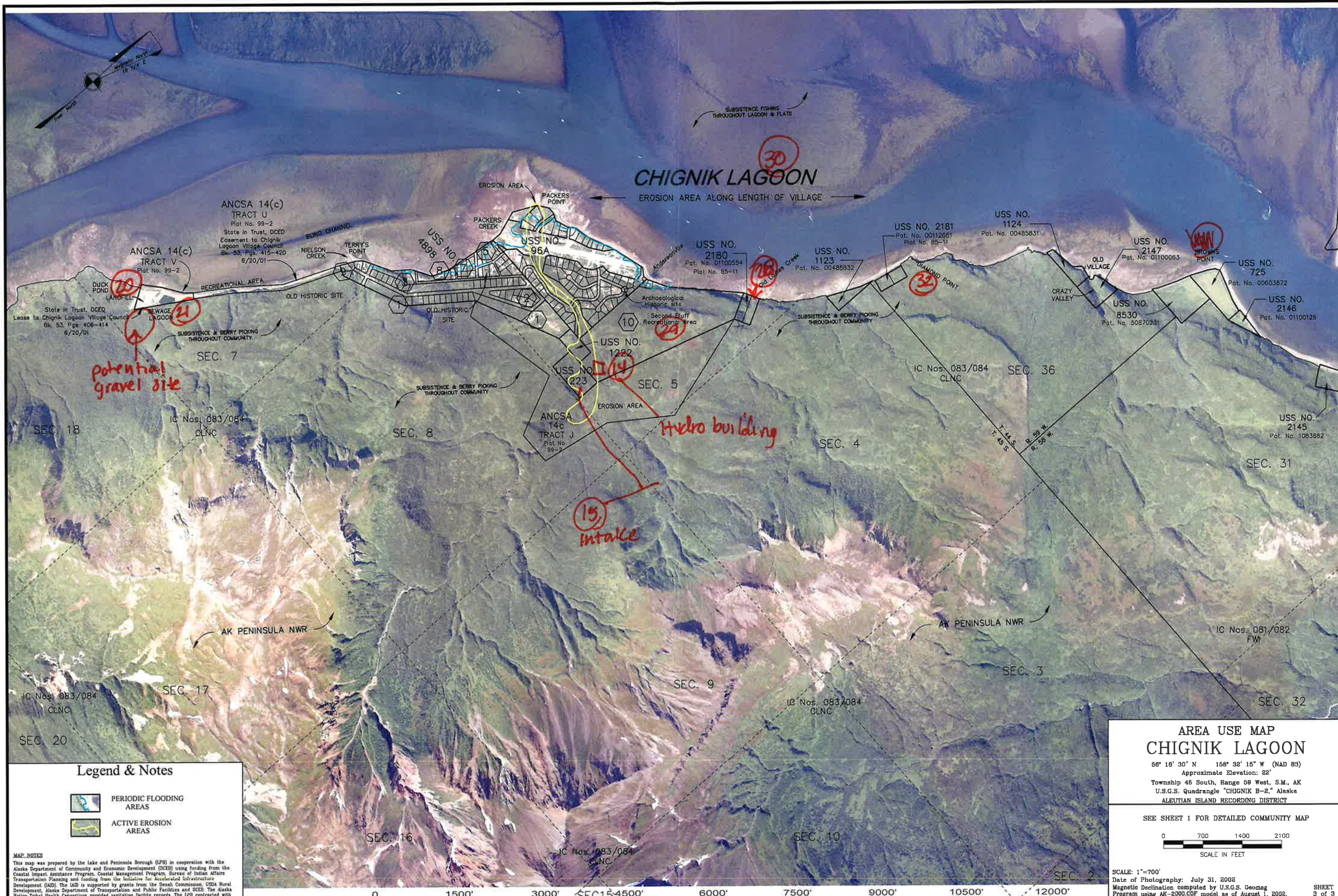
SCALE: 1"=100'  
 Date of Photography: July 31, 2002  
 Magnetic Declination computed by U.S.G.S. Geomag  
 Program using AK-2000.COF model as of August 1, 2002.

CHIGNIK LAGOON COMMUNITY MAP SHEET 2 1"=100' (2002 PHOTOGRAPHY)

Erosion  
 Flooding

Landfill  
 • Dinn → 1000ft

Hydro building




**Legend & Notes**

-  PERIODIC FLOODING AREAS
-  ACTIVE EROSION AREAS

**MAP NOTES**  
 This map was prepared by the Lake and Peninsula Borough (LPB) in cooperation with the Alaska Department of Community and Economic Development (DCEM) using funding from the Coastal Impact Assistance Program, Coastal Management Program, Bureau of Indian Affairs Transportation Planning and funding from the Initiative for Accelerated Infrastructure Development (IAD). The IAD is supported by grants from the Denali Commission, USDA Rural Development, Alaska Department of Transportation and Public Facilities and DCEM. The Alaska Native Tribal Health Consortium provided sanitation facility records. The LPB contracted with Global Positioning Services Incorporated in June of 2002 to prepare the map.

**AREA USE MAP  
 CHIGNIK LAGOON**  
 56° 18' 30" N 158° 32' 15" W (NAD 83)  
 Approximate Elevation: 22'  
 Township 46 South, Range 59 West, S.M., AK  
 U.S.G.S. Quadrangle "CHIGNIK B-2," Alaska  
 ALEUTIAN ISLAND RECORDING DISTRICT

SEE SHEET 1 FOR DETAILED COMMUNITY MAP  
  
 SCALE IN FEET

SCALE: 1"=700'  
 Date of Photography: July 31, 2002  
 Magnetic Declination computed by U.S.G.S. Geomag Program using AK-2000.COF model as of August 1, 2002. SHEET 3 of 3

CHIGNIK LAGOON AREA USE MAP SHEET 3 1"=700' (2002 PHOTOGRAPHY)

## MITIGATION ACTION TYPES AND EXAMPLES

Mitigation Type	Description	Examples
Local Plans and Regulations	These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built	<ul style="list-style-type: none"> <li>• Comprehensive plans</li> <li>• Land use ordinances</li> <li>• Subdivision regulations</li> <li>• Development review</li> <li>• Building codes and enforcement</li> <li>• NFIP Community Rating System</li> <li>• Capital improvement programs</li> <li>• Open space preservation</li> <li>• Stormwater management regulations and master plans</li> </ul>
Structure and Infrastructure Projects	<p>These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure.</p> <p>This type of action also involves projects to construct manmade structures to reduce the impact of hazards.</p> <p>Many of these types of action are projects eligible for funding through the FEMA Hazard Mitigation Assistance program.</p>	<ul style="list-style-type: none"> <li>• Acquisitions and elevations of structures in flood prone areas</li> <li>• Utility undergrounding</li> <li>• Structural retrofits</li> <li>• Floodwalls and retaining walls</li> <li>• Detention and retention structures</li> <li>• Culverts</li> <li>• Safe rooms</li> </ul>
Natural Systems Protections	These are actions that minimize damage and losses and also reserve or restore the functions of natural systems.	<ul style="list-style-type: none"> <li>• Sediment and erosion control</li> <li>• Stream corridor restoration</li> <li>• Forest management</li> <li>• Conservation easements</li> <li>• Wetland restoration and preservation</li> </ul>
Education and Awareness Programs	These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady or Firewise Communities. Although this type of mitigation reduces risk less directly than structural projects or regulation, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public is more likely to lead to direct actions.	<ul style="list-style-type: none"> <li>• Radio or television spots</li> <li>• Websites with maps and information</li> <li>• Real estate disclosure</li> <li>• Presentations to school groups or neighborhood organizations</li> <li>• Mailings to residents in hazard-prone areas</li> <li>• StormReady</li> <li>• Firewise Communities</li> </ul>
Emergency Response Actions	These are actions to identify emergency response or operational preparedness.	<ul style="list-style-type: none"> <li>• Create mutual aid agreements with neighboring communities to meet emergency response needs</li> <li>• Purchase radio communications equipment</li> <li>• Develop procedures for notifying citizens of available shelter locations during an event</li> </ul>

## Potential Mitigation Actions

GOALS		ACTIONS	
No.	Goal	ID	Description
1	Reduce the possibility of damages due to drought.	<u>1.A</u>	Install water meters on homes and community buildings.
		1.B	Acquire water tanks for dust control.
		1.C	Upgrade water system to a surface water system.
		1.D	Acquire tools and a treatment facility to utilize the back up surface water source.
		<u>1.E</u>	Continue education efforts to remind residents of water use, and suggestions of how to conserve water (posters, flyers, radio announcements, mail flyers).
		<u>1.F</u>	Install pipes/hose in nearby creeks for water to use for fishing boats and subsistence use, and acquire proper permissions and permits.
		<u>1.G</u>	Increase the Community's water supply by adding a new well and associated equipment and storage, and update and/or replace water distribution equipment and infrastructure.
2	Reduce the possibility of damages due to earthquakes.	<u>2.A</u>	Continue earthquake drills in school.
		<u>2.B</u>	Educate residents about what to do in earthquakes.
		<u>2.C</u>	Acquire a back up generator for the clinic.
		2.D	Identify, design, and construct an alternative access road to the hydroelectric dam.
3	Reduce the possibility of damages due to erosion.	3.A	Improve or update drainage throughout the Community.
		3.B	Install bank stabilization (bulkhead/sheet pilings/armor rock) around the lagoon in high boat usage areas and other areas susceptible to erosion.
		<u>3.C</u>	Apply armor rock for bank stabilization to reduce erosion on Hydro Road, hydro dam, and penstock.
		<u>3.D</u>	Improve bank stability along Packers Creek from the lagoon to the hydroelectric dam by applying armor rock.

## Potential Mitigation Actions

GOALS		ACTIONS	
No.	Goal	ID	Description
4	Reduce the possibility of damages due to floods.	<u>4.A</u>	Perform regular bridge abutment inspections and repairs as needed.
		<u>4.B</u>	Apply armor rock around bridge abutments and hydro dam.
		4.C	Identify a material source, and acquire agency permissions, permits, and equipment.
		4.D	Relocate the clinic and diesel power plant.
		<u>4.E</u>	Upgrade drainage features in the Community (prioritize around critical facilities).
		4.F	Conduct a hydrology study/report for the Community.
		<u>4.G</u>	Develop a maintenance plan for culvert maintenance.
		<u>4.H</u>	Work with the Alaska DOT to improve drainage around the airport.
5	Reduce the possibility of damages due to landslides.	5.A	Identify an agency or individual to conduct soil research on possible way to harden clay on hydro road.
		<u>5.B</u>	Close Hydro Road and restrict access to only operators.
		5.C	Conduct a soil slope analysis on the road to the landfill.
		5.D	Provide education materials to home owners in susceptible areas for landslides and suggest yearly inspections.
6	Reduce the possibility of damages due to severe wind.	6.A	Get landowner permissions and demolish abandoned buildings.
		6.B	Acquire equipment to demolish old abandoned buildings.
		<u>6.C</u>	Continue Community clean up effort.
		<u>6.D</u>	Conduct inspections of overhead power poles and replace and/or repair as needed.
		<u>6.E</u>	Educate residents to have personal back up generator.
		6.F	Install solar panels and battery banks.
<u>6.G</u>	Acquire a portable community back up generator.		

## Potential Mitigation Actions

GOALS		ACTIONS	
No.	Goal	ID	Description
7	Reduce the possibility of damages due to severe winter weather.	<u>7.A</u>	Provide education to residents about winter preparedness, and items to carry in skiffs.
		<u>7.B</u>	Improve winterization of homes.
		<u>7.C</u>	Provide Ice cleats to residents.
		<u>7.D</u>	Provide training and recurrent training for road maintenance operators.
8	Reduce the possibility of damages due to tsunamis.	<u>8.A</u>	Educate residents about the ability to store a personal box of supplies in the Community Shop.
		<u>8.B</u>	Identify a suitable location for a community shelter, possibly by the water treatment plant.
		<u>8.C</u>	Build a shelter on higher ground with an access road.
		<u>8.D</u>	Acquire supplies for the shelter.
		<u>8.E</u>	Develop an evacuation plan.
		<u>8.F</u>	Provide education in schools about tsunami safety.



## Potential Mitigation Actions

GOALS		ACTIONS	
No.	Goal	ID	Description
9	Reduce the possibility of damages due to volcanos.	<u>9.A</u>	Provide masks for the Community.
		<u>9.B</u>	Educate residents about the hazards and impacts of running equipment during ash fall events.
		<u>9.C</u>	Provide education of the impacts of ash on surface water when used as potable water.
		<u>9.D</u>	Educate families to purchase bottled water for their family as back up.
		<u>9.E</u>	Continue to provide communication about changing wind directions and levels of volcano activity.
10	Reduce the possibility of damages due to wildfires.	10.A	Develop community burn ban regulations.
		<u>10.B</u>	Update or acquire new fire equipment.
		<u>10.C</u>	Organize the volunteer fire department.
		<u>10.D</u>	Provide training for the volunteer fire department.
		<u>10.E</u>	Provide training for the maintenance of the fire equipment.
		<u>10.F</u>	Acquire a water tank for fire suppression, or identify another water source with equipment.
		<u>10.G</u>	Continue fire drills at school.
		<u>10.H</u>	Distribute fire extinguishers yearly to residents as needed.
		<u>10.I</u>	Evaluate and upgrade the Community's firefighting abilities and fire protection system to ensure year round use and prevent hydrant freeze ups.

## INSTRUCTIONS - MITIGATION ACTION EVALUATION WORKSHEET

---

Use this worksheet to help evaluate and prioritize each mitigation action that is going to be implemented in the Mitigation Action Plan. For each action, evaluate the potential benefits and / or likelihood of successful implementation for the criteria defined below.

Rank each of the criteria with a -1, 0 or 1 using the following scale:

- 1 = Highly effective or feasible
- 0 = Neutral
- -1 = Ineffective or not feasible

### EVALUATION CRITERIA

**Life safety** – How effective will the action be at protecting lives and preventing injuries?

**Property Protection** – How significant will the action be at eliminating or reducing damage to structures and infrastructure?

**Technical** – Is the mitigation action technically feasible? Is it a long-term solution? Eliminate actions that, from a technical standpoint, will not meet the goals.

**Political** – Is there overall public support for the mitigation action? Is there the political will to support it?

**Legal** – Does the community have the authority to implement the action?

**Environmental** – What are the potential environmental impacts of the action? Will it comply with environmental regulations?

**Social** – Will the proposed action adversely affect one segment of the population? Will the action disrupt established neighborhoods, break up voting districts, or cause the relocation of lower income people?

**Administrative** – Does the community have the personnel and administrative capabilities to implement the action and maintain it or will outside help be necessary?

**Local Champion** – Is there a strong advocate for the action or project among local departments and agencies that will support the action's implementation?

**Other Community Objectives** – Does the action advance other community objectives, such as capital improvements, economic development, environmental quality, or open space preservation? Does it support the policies of the comprehensive plan?

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Mitigation Action Evaluation Worksheet

Mitigation Action ID	Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Community Objectives	Total Score
1.A	1	1	1	1	1	1	1	1	1	1	10
1.E	1	1	1	1	1	1	1	1	1	1	10
1.F	1	1	1	1	1	1	1	1	1	1	10
1.G	1	1	1	1	1	1	1	1	1	1	10
2.A	1	0	1	1	0	1	1	0	1	1	7
2.B	1	0	1	1	1	1	1	1	1	1	9
2.C	1	1	1	1	1	1	1	1	1	1	10
3.C	1	1	1	1	1	1	1	1	1	1	10
3.D	1	1	1	1	1	1	1	1	1	1	10
4.A	1	1	1	1	1	1	1	1	1	1	10
4.B	1	1	1	1	1	1	1	1	1	1	10
4.E	1	1	1	1	1	1	1	1	1	1	10
4.G	1	1	1	1	1	1	1	1	1	1	10
4.H	1	1	1	1	1	1	1	1	1	1	10
5.B	1	1	1	1	1	1	1	1	1	1	10
6.C	0	1	1	1	1	1	1	1	1	1	9
6.D	1	1	1	1	1	1	1	1	1	1	10
6.E	1	1	1	1	1	1	1	1	1	1	10
6.G	1	1	1	1	1	1	1	1	1	1	10
7.A	1	0	1	1	1	1	1	1	1	1	9
7.B	1	1	1	1	1	1	1	1	1	1	10

Mitigation Action Evaluation Worksheet (*Continued*)

Mitigation Action ID	Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Community Objectives	Total Score
7.C	1	0	1	1	1	1	1	1	1	1	9
7.D	1	1	1	1	1	1	1	1	1	1	10
8.A	1	0	1	1	1	1	1	1	1	1	9
8.B	1	0	1	1	1	1	1	1	1	1	9
8.C	1	0	1	1	1	1	1	1	1	1	9
8.D	1	0	1	1	1	1	1	1	1	1	9
8.E	1	0	1	1	1	1	1	1	1	1	9
8.F	1	0	1	1	1	1	1	1	1	1	9
9.A	1	0	1	1	1	1	1	1	1	1	9
9.B	1	1	1	1	1	1	1	1	1	1	10
9.C	1	0	1	1	1	1	1	1	1	1	9
9.D	1	0	1	1	1	1	1	1	1	1	9
9.E	1	0	1	1	1	1	1	1	1	1	9
10.B	1	1	1	1	1	1	1	1	1	1	10
10.C	1	1	1	1	1	1	1	1	1	1	10
10.D	1	1	1	1	1	1	1	1	1	1	10
10.E	1	1	1	1	1	1	1	1	1	1	10
10.F	1	1	1	1	1	1	1	1	1	1	10
10.G	1	0	1	1	1	1	1	1	1	1	9
10.H	1	1	1	1	1	1	1	1	1	1	10
10.I	1	1	1	1	1	1	1	1	1	1	10

\*Source: Local Mitigation Planning Handbook, FEMA, March 2013, Worksheet 6.1

## **APPENDIX B**

### **Public Involvement**

- Public Meeting Comments
- Public Meeting Sign-In Sheet
- Public Meeting Flyer
- Public Meeting Handout
- Public Meeting Presentation
- Community Survey
- Community Survey Response Summary
- Newsletter #1 and Fax Transmittal
- Stakeholder Email
- Newsletter #2
- Stakeholder Response
- Letter to State Representative
- Letter to Senator

## TRIP REPORT & MEETING MINUTES

**Project:** **BBNA THMP Project**

**Bristol Project No:** 32190013

**Reference:** Chignik Lagoon Planning Team Meetings & Public Meetings

**Date of Meeting:** April 24-25, 2019

**Location of Meeting:** Chignik Lagoon Sub Building

**Participants:**

**Bristol:** Danielle Dance, Taylor Turney

**Planning Team:** See attached sign in sheet

**Public Meeting:** See attached sign in sheet

### Summary

Taylor and Danielle arrived in Chignik Lagoon around 3:00 PM on Wednesday, April 24th, 2019. From 4:30 PM to 5:30 PM, they hosted a public meeting in the Sub Building to discuss the THMP project. They discussed the items for the Hazard Mitigation Plan including community assets, vulnerability statements, mitigation goals, and potential mitigation strategies while collecting public comment. They stayed overnight in the Spruce Cove B&B, then met the next morning from 9:00 AM to 12:30 PM to discuss the project with the planning team.

### THMP Public Meeting Notes

#### *Community meeting*

- Safety minute – Let family member know travel plans when leaving to hunt, fish, etc.
- 1964 earthquake, everyone ran outside. Hard to stand up. Tide receded really low and came back. Then got to higher ground.
- Walked across Packers creek with small homemade bridge. Washed down creek. Had to cross via skiff. Creek floods frequently.
- Biggest concern? Water system. Studies show the village uses larger volumes of water than it should but can't find source of leak.
- Erosion – the entire lagoon is getting eaten away at. Roads in design phase were never constructed because the land disappeared.
- The landfill is difficult to access. Can't access because of ice and tides which causes trash to pile up in the village.
- Beach resident has noticed the beach erode 20-50ft in the last 40 years.
- Have tried to stabilize, but not completely successful. Tried by making breakwater but not enough material. 8-10 years ago, put jetties out that reduced erosion.
- Terrible salmon return, can FEMA help?
- Warm water related less clams in the lagoon
- Volcanic ash dispersing into lagoon have affect
- First year the clams have been completely gone

- Cranberries, ptarmigan, caribou, king crab, cod, halibut, are lessening or gone
- Smaller fish, 99% male
- Wards cove cannery fuel tanks stored on other side of lagoon spreading contamination(flooding)
- Sheet metal being spread from degrading cannery during high wind events
- Landslide of sediment taking out road to energy infrastructure
- \*look at erosion maps
- Crude oil contamination in the airport runway
- Need a gravel/rock source for road improvements
- Most effective way to be a part of process? Email communication

### **THMP Planning Team Meeting Notes**

*\*\*Add wildfire to hazards*

#### *Worksheet #6 – Mitigation Actions*

- Drought
  - Filling up tanks with water and water truck for dust control during drought
  - Running out of potable drinking water
  - Water meters to monitor water usage
  - Upgrade surface water system for backup water with treatment system
  - Educate about conservative water use
  - Continue distributing flyers/posters/mail to educate about water use
  - Reuse water from other sources to reduce village water use (Old Lady's creek)
  - Acquire permissions and permits to pull from other water sources
  - Fix residential water service/distribution system
- Earthquakes
  - Educate residents that they can store emergency supplies at temp shelter
  - Education for students to practice earthquake drills
  - Education on what to do during an earthquake
  - Backup generator for the clinic in case of losing power
  - Design/construction for new road access to hydroelectric dam/penstock
- Erosion
  - Improve drainage features in community to reduce erosion during heavy rain
  - Bank stabilization/armor rock protection for hydroelectric dam access road and penstock(along packers creek)
  - Bulkhead/sheet piling/armor rock for boat usage from landfill to B street
- Landslide
  - Geotech/soils study on clay material
  - Closing public access to hydroelectric plant
  - Lost a house from sloughing off hillside
  - Slope analysis for steep areas (road to landfill, homes)
  - Provide education for danger signs to look for
- Extreme Cold
  - Improve winterization of residential and community buildings



- Acquire fuel additive for extreme cold temps
- Education for winter preparedness during travel/hunting
- Winter shelter on hunting grounds
- Flooding
  - Move Diesel generator plant, clinic away from flood zone
  - Bridge abutment inspection/gets washed out
  - Armor rock for hydro plant
  - Armor rock source, permissions and permits and associated equipment
  - Update drainage features, new culverts in community
  - Work with DOT to improve airport drainage
  - Conduct Hydrology Report/Study
- Severe Winds
  - Demolishing abandoned buildings/permission from homeowners
  - Equipment for demolition
  - Continue community wide cleanup
  - Education for individuals to get backup generators/power
  - Replace/repair power poles as needed
  - Solar panels/battery banks
- Severe Winter Weather
  - Education for winter preparedness
  - Improve winterization of housing
  - Provide ice cleats for residents
  - Training for equipment operators
- Tsunami
  - Tsunami Emergency shelter on high ground (with access road)
  - Identify best location for shelter
  - Educate residents that they can store emergency supplies at temp shelter (village shop)
  - Get supplies for shelter
  - Develop/Educate residents on evacuation plan
  - Education in schools about what to do during tsunami
- Volcano
  - Provide masks for residents
  - Education/awareness about the impacts and how to protect equipment
  - Education about storing bottled because the pump would shut off without generators
  - Education on impacts of ash on surface water
  - Communication of pending ashfall to community

- Wildfire
  - Wildfire spray foam
  - Burn ban
  - Update/fix code red connex/get fire truck and hoses
  - Training on maintaining equipment
  - Better organized fire department
  - Water tank for fire suppression
  - Continue fire drills at the school
  - Provide fire extinguishers to residents

Attachments:

1. Planning Team Meeting Sign-in Sheet
2. Worksheet #3: Risk Assessment
3. Worksheet #6: Mitigation Strategies
4. Public Meeting Sign-in Sheet
5. Public Meeting Flyer
6. Public Meeting Handouts
7. Public Meeting Presentation Slides
8. Maps

Meeting Minute attachments included in Appendix B. The other attachments can be found in Appendix A.

End Meeting Minutes

CC: File





Photo Credit: Bristol Bay Regional Vision Project , www.lpsd.com

# CHIGNIK LAGOON FEMA TRIBAL HAZARD MITIGATION PLAN

## COMMUNITY MEETING

Come learn about the Native Village of Chignik Lagoon’s FEMA Tribal Hazard Mitigation Plan. The Plan identifies the natural hazards that impact your community, such as wildfires, floods, earthquakes, & more. It also proposes strategies to protect the community against future impacts from these natural hazards.

### **We want to hear from you!**

Attendees will have an opportunity to provide their experiences on how these hazards have impacted the community, and share ideas on ways to reduce future impacts from these hazards. The project planners will be available for any questions or feedback from the public.

Posting date 4/9/2019

Wednesday  
April 24, 2019  
4:30 PM

Subsistence  
Building

Door Prizes!

Snacks &  
Refreshments

Provide input  
about natural  
hazards in  
Chignik Lagoon!

For more information:

Danielle Dance  
(907) 563-0013  
ddance@bristol-  
companies.com

# Bristol



ENGINEERING  
SERVICES COMPANY, LLC

## Community Meeting for Chignik Lagoon Tribal Hazard Mitigation Plan April 24, 2019

Dear Participant;

Thank you for attending the public meeting for the Chignik Lagoon FEMA Tribal Hazard Mitigation Plan (THMP). Your comments and participation are very important to the planning process. We appreciate any feedback you may have on this meeting or the project in general.

Bristol Bay Native Association (BBNA) Department of Transportation and Infrastructure Development (DOTID) has contracted Bristol Engineering Services Company, LLC (Bristol) to assist with the preparation of the FEMA THMP. The THMP is a planning document used to identify hazards that your community is exposed to and ways to reduce potential losses of important assets from these hazards. A FEMA approved and community adopted THMP enables the Local government to apply for grants through disaster related assistance programs like the Hazard Mitigation Grant Program (HMGP), Pre-Disaster Mitigation (PDM), and others.

The purpose of this public meeting is to inform the community about the THMP, collect community feedback about the identified hazards and mitigation actions / projects. We are looking for personal experiences with the identified hazards, and assistance with identifying problem areas and issues of concern. We would also like input on the identified mitigation strategies and ways that the Planning Team can keep the public informed and involved in the process. This information will be used in the THMP. A draft copy will be available for review when completed.

Public comment is key to a successful project. Please feel free to contact me directly with any comments or concerns. My email is [ddance@bristol-companies.com](mailto:ddance@bristol-companies.com).

Sincerely,



Danielle Dance  
Civil Engineer I

Attachments:

- Newsletter
- List of Preparedness Resources
- 12 Ways to Prepare Postcard





*This newsletter describes the Bristol Bay Native Association Transportation and Infrastructure Department's Tribal Hazard Mitigation Planning project development processes to all interested agencies, stakeholders, and the public and to solicit comments. It can also be viewed on the BBNA's website at [www.bbna.com](http://www.bbna.com)*

Bristol Bay Native Association (BBNA) Transportation and Infrastructure Department (DOTID) was awarded a Pre-Disaster Mitigation Program grant from the Federal Emergency Management Agency (FEMA) to prepare your 2019 Tribal Hazard Mitigation Plan (THMP). Bristol Engineering Services Company, LLC (BESC) was contracted to assist the BBNA DOTID with preparing a 2019 FEMA approvable THMP plan.

The THMP will identify all natural hazards, such as earthquake, flood, erosion, severe weather, and wildland/tundra fire hazards, etc. The plan will also identify the people and facilities potentially at risk and ways to mitigate damage from future hazard impacts. We will document the public participation and planning process as part of this project.

#### **What is Hazard Mitigation?**

Hazard mitigation projects eliminate the risk or reduce the hazard impact severity to people and property. Projects may include short- or long-term activities to reduce exposure to or the effects of known hazards. Hazard mitigation activities could include relocating or elevating buildings, replacing insufficiently sized culverts, using alternative construction techniques, developing, implementing, or enforcing building codes, or developing, and implementing education programs.

#### **Why Do We Need A Hazard Mitigation Plan?**

Communities must have a State, FEMA approved, and community adopted mitigation plan to receive a project grant from FEMA's pre- and post- disaster grants identified in their Hazard Mitigation Assistance and other agency's mitigation grant programs. BBNA DOTID plans to apply for mitigation funds after our plan is complete.

A FEMA approved and community adopted THMP enables the Local government to apply for the Hazard Mitigation Grant Program (HMGP), a disaster related assistance program; the Pre-Disaster Mitigation (PDM), and the National Flood Insurance Program (NFIP) Flood Mitigation Assistance (FMA) grant programs.

#### **The Planning Process**

There are very specific federal requirements that must be met when preparing a FEMA approvable THMP. These requirements are commonly referred to as the planning process requirements of 44 CFR 201.7 (c)

The following steps describe the planning process in order to develop the THMP.

1. **Establish the Planning Team**
2. **Education of the Planning Team**
3. **Assess Risks**
4. **Assess Capabilities**
5. **Develop a Mitigation Strategy**
6. **Monitor, Evaluate, and Plan Updates**

We are currently in the very beginning stages of preparing the plan development. We will be conducting a Planning Team Meeting to introduce the project and planning team, to gather comments from community residents, identify hazards, and collect data to refine the vulnerability assessment.

#### **We Need Your Help**

BESC has prepared survey packets to begin collecting information for your THMP. Survey packets will be mailed to your village council and sent by email to your village administrator.

**Establishing a Planning Team** is a very important step.

We will need a point of contact (POC)/team leader from your community. This group will consist of 2-5 people that have good knowledge about land use, the transportation system, public facilities, and safety resources within the community. BBNA DOTID will be in contact with your tribe to determine a POC and your planning team.

Once the Planning Team has been developed, they will begin to work on the following items:

- Identifying the hazards that impact your community;
- Determining information about the hazards such as, location, history, extent, and the probability of future events;
- Completing a risk analysis, and;
- Developing problem statements and goals.

BBNA DOTID will be in contact with your tribe to set up an initial teleconference meeting with the Planning Team, BBNA DOTID, and BESC to continue to work on the THMP development.

The BBNA DOTID team will be led by Annie Fritze, DOTID Program Manager or Dan Breeden, Department Director with assistance from Bristol Engineering Service Company, LLC (contracted by BBNA). BESC will be developing materials and lead the planning process with guidance from BBNA DOTID staff.

**BBNA Tribal Hazard Planning Team**

<b>Team Member</b>	<b>Title</b>	<b>Involvement</b>
Annie Fritze	Program Manager	THMP Team Leader, data gathering and plan review
Dan Breeden	Department Director	THMP Team Leader, data gathering and plan review
Isaac Pearson, P.E.	Senior Engineer	THMP Consultant
Danielle Dance	Civil Engineer	THMP Consultant

**Public Participation**

The purpose of this newsletter is to keep you informed, and to allow you every opportunity to voice your opinion regarding these important projects. We want to encourage public involvement as a continuous effort throughout the project.

We encourage you to take an active part in the development effort, and preparation of the Tribal Hazard Mitigation Plan.

The goal is to receive comments, identify key issues or concerns, and improve mitigation ideas, and to guide the community.

Please contact BBNA DOTID program staff or BESC if you have any questions, comments, or requests for more information:

<p><b>Bristol Bay Native Association DOTID</b></p> <p><b>Annie Fritze OR Dan Breeden PO Box 310 Dillingham, Alaska 99576 (907) 842-6219</b></p>	<p><b>Bristol Engineering Services Company, LLC</b></p> <p><b>Danielle Dance, Consultant 111 W. 16<sup>th</sup> Avenue, Third Floor Anchorage, Alaska 99501 (907)563-0013</b></p>
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## Useful web links

### Volcano Information

- Visit the AVO website: [www.avo.alaska.edu](http://www.avo.alaska.edu)
- Sign up for the VNS: <https://volcanoes.usgs.gov/vns2/>
- Ash Impacts website: [https://volcanoes.usgs.gov/volcanic\\_ash](https://volcanoes.usgs.gov/volcanic_ash)
- Ashfall advisories come from the NWS: [www.weather.gov/afc/](http://www.weather.gov/afc/)
- AVO would \*love\* your volcano observations and ash samples
  - Find us at [www.avo.alaska.edu/contact.php/](http://www.avo.alaska.edu/contact.php/)
  - Is Ash Falling: [www.avo.alaska.edu/ashfall/ashreport.php](http://www.avo.alaska.edu/ashfall/ashreport.php)
  - Collection instructions: <https://avo.alaska.edu/ashfall.php>
  - Facebook: <http://facebook.com/alaska.avo>
  - Twitter: [http://twitter.com/alaska\\_avo](http://twitter.com/alaska_avo)
- Air Quality Advisories, DEC: <http://dec.alaska.gov/air>
- Airborne ash hazards to aircraft, NOAA: <http://aawu.arh.noaa.gov>
- Local Notice to Mariners, USCG: [www.navcen.uscg.gov](http://www.navcen.uscg.gov)

### Weather Information

- Watches and Warnings: <https://alerts.weather.gov/cap/ak.php?x=1>
- Any forecast: <http://www.weather.gov/afc>
- Mobile information (low bandwidth): <http://www.weather.gov/source/afc/mobile/>
- River Information: <http://www.weather.gov/aprhc>
- Rainfall: <http://www.weather.gov/aprhc>
- Breakup Info: <http://www.weather.gov/aprhc/breakupESRIMap>
- River Conditions: <http://www.weather.gov/aprhc/riverConditions>
- Alaska Weather T.V. Maps: <http://www.weather.gov/afc/tv>
- Sea Ice forecasts: <http://www.weather.gov/afc/ice>
- Outlook (temperatures and precipitation): <http://www.cpc.noaa.gov>
- Send us a storm report:  
[http://www.srh.noaa.gov/StormReport\\_new/SubmitReport.php?site=AFC](http://www.srh.noaa.gov/StormReport_new/SubmitReport.php?site=AFC)



## WEBSITES

- Alaska DHS&EM: <http://ready.alaska.gov>
- Ready, Department of Homeland Security: <https://www.ready.gov/>
- Department of Commerce, Community and Economic Development (DCCED), State of Alaska Floodplain Management: <http://www.commerce.state.ak.us/dca/nfip/nfip.htm>
- Flood information for Alaskans: <http://www.flood.alaska.gov>
- Association of State Floodplain Managers: <http://www.floods.org/>
- Alaska-Pacific River Forecast Center (APRFC): <http://aprfc.arh.noaa.gov>
- Natural Resources Conservation Service (NRCS), Alaska Snow, Water and Climate Services: <http://ambcs.org>
- National Weather Service (NWS), Alaska Region Headquarters: <http://www.arh.noaa.gov/>
- Federal Aviation Administration (FAA), Alaskan Region's Weather Cameras: <http://avcams.faa.gov/>
- U.S. Department of the Interior—Bureau of Land Management (BLM), Alaska Fire Service: <http://fire.ak.blm.gov/>
- Alaska Energy Authority (AEA): <http://www.akenergyauthority.org/>
- Department of Commerce, Community and Economic Development (DCCED), Community Profiles: <http://www.commerce.state.ak.us/dca>
- Alaska Department of Public Safety, Rural Fire Training Office: <http://www.dps.state.ak.us/fire/TEB/ruralfireprotection.aspx>
- Department of Environmental Conservation (DEC): <http://www.state.ak.us/dec/>
- National Weather Service, Forecast Office Alaska Ice Desk: <http://pafc.arh.noaa.gov/ice.php>
- Federal Emergency Management Agency (FEMA): <http://www.fema.gov/>
- American Red Cross of Alaska: <http://www.alaska.redcross.org>
- Small Business Administration: <http://www.sba.gov/localresources/disasteroffices/focwest/index.html>



**FEMA**

FEMA V-1021  
Catalog No. 1872-3

April 2018

There are many ways to take action and prepare before a disaster occurs. The actions on this card include some of the most important ways to help yourself, your family, and your community increase your preparedness. Simple actions at home and in your neighborhood can make a big difference!



@Readygov  
[Twitter.com/readygov](https://twitter.com/readygov)



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[Fema.gov/mobile-app](https://fema.gov/mobile-app)



[Ready.gov/prepare](https://Ready.gov/prepare)



**FEMA**

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@Readygov  
[Twitter.com/readygov](https://twitter.com/readygov)



@Readygov  
[Facebook.com/readygov](https://facebook.com/readygov)



[Fema.gov/mobile-app](https://fema.gov/mobile-app)



[Ready.gov/prepare](https://Ready.gov/prepare)



# 12 WAYS TO PREPARE



Sign up  
for Alerts  
and Warnings



Make a Plan



Save for a  
Rainy Day



Practice  
Emergency  
Drills



Test Family  
Communication  
Plan



Safeguard  
Documents



Plan with  
Neighbors



Make Your  
Home  
Safer



Know  
Evacuation  
Routes



Assemble or  
Update  
Supplies



Get Involved in  
Your Community



Document and  
Insure Property



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Make Your  
Home  
Safer



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Assemble or  
Update  
Supplies



Get Involved in  
Your Community



Document and  
Insure Property

**Bristol** Native Village of Chignik Lagoon Public Meeting April 24, 2019

# Chignik Lagoon FEMA Tribal Hazard Mitigation Plan

Bristol Engineering Services Company, LLC  
Danielle Dance & Taylor Turney

**Bristol** Native Village of Chignik Lagoon Public Meeting April 24, 2019

## Safety Minute



Code Zero means, zero incidents, zero injuries, and zero losses. Code Zero positively influences how we think and act. **Code Zero is the Bristol Way!**

**Bristol** Native Village of Chignik Lagoon Public Meeting April 24, 2019

## Presentation Overview

- Project Background
- FEMA Tribal Hazard Mitigation Plan (THMP)
- Funding
- Identified Hazards
- Assets
- Mitigation Goals
- Mitigation Action Plan






Photo Credit: Bristol Bay Regional Vision Project, www.lpsd.com

**Bristol** Native Village of Chignik Lagoon Public Meeting April 24, 2019

## Project Background

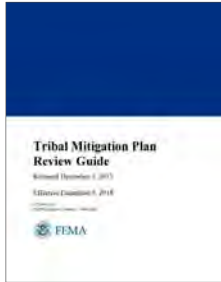
- BBNA DOTID awarded Pre-Disaster Mitigation Program grant from FEMA
  - Develop the Tribal Hazard Mitigation Plan
  - Contracted BESC
- Hazard Mitigation
  - eliminates risk to or reduces hazard impact severity to community assets
  - Projects can be long or short term
- Purpose of Plan
  - Identify ways to make community safer and more prepared
  - Provides opportunity for funding options through FEMA

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## FEMA Tribal Hazard Mitigation Plan (THMP)

- Follows Code of Federal Regulations (CFR)
  - 44 CFR Part 201
- Identifies
  - Planning Process / Planning Team
  - Plan to keep the THMP current
  - Natural hazards in your community
  - Community assets
  - Mitigation strategy / action plan
  - Funding Opportunities



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## Funding

- Eligibility Requirement for FEMA Pre- and Post- Disaster Grants
  - FEMA approved and community adopted Hazard Mitigation Plan
    - Plan identifies mitigation projects for the community
- Other Grant Opportunities
  - State
  - Tribal
- Grants
  - Hazard Mitigation Grant Program (HMGP)
  - Pre-Disaster Mitigation (PDM)
  - National Flood Insurance Program (NFIP)
  - Flood Mitigation Assistance (FMA)



U.S. Army Corps of Engineers Alaska District  
Alaska Baseline Erosion Assessment  
Erosion Information Paper - Chignik Lagoon, Alaska  
January 5, 2008

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### Identified Hazards


- ▶ Hazards Identified Based on
  - Location
  - Extent
  - Probability of Future Event
  - Overall Significance
- ▶ Hazards Detailed in Plan
  - Location
  - Extent
  - History
  - Probability of Future Events
- ▶ Hazards
  - Drought
  - Earthquake
  - Erosion
  - Flood
  - Landslide
  - Severe Wind
  - Severe Winter Weather
  - Tsunami
  - Volcano
- ▶ What experiences have you had?

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### Community Assets

- ▶ Asset
  - People
  - Economy
  - Built Environment
- ▶ Major Community Assets
  - Subsistence Building
  - School
  - Clinic
  - Post Office
  - Church / Cemetery
  - Roads
  - Trails
  - Utilities
  - Others




U.S. Army Corps of Engineers Alaska District  
Alaska Baseline Erosion Assessment  
Erosion Information Paper - Chignik Lagoon, Alaska  
January 5, 2008

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### Mitigation Goals

- ▶ Goals Based on Vulnerability Statements
  - The bridge to the school has been impacted and repaired due to the erosion of Packers Creek.



FEMA Local Mitigation Planning Handbook  
March 2013

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### Mitigation Goals


- ▶ Community Goals
  - Reduce possibility of damages due to:
    - Drought
    - Erosion
    - Landslide
    - Severe Winter Weather
    - Volcano
    - Earthquake
    - Flood
    - Severe Wind
    - Tsunami

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### Mitigation Actions

- ▶ Mitigation Actions Reduce Long-Term Vulnerability
- ▶ Types
  - Local plans and regulations
  - Structure and infrastructure projects
  - Natural systems protection
  - Education and awareness programs
  - Additional – Preparedness and Response Actions
- ▶ Actions Will be Used to Create a Mitigation Action Plan



FEMA Local Mitigation Planning Handbook  
March 2013

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### Mitigation Actions (Continued)

- ▶ Mitigation Actions
  - To be identified at the Planning Meeting
- ▶ What suggestions do you have?




Photo Credit: Department of Commerce, Community and Economic Development; Division of Community and Regional Affairs' Community Photo Library.


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**Bristol** CONSULTING ENGINEERS ARCHITECTS

Native Village of Chignik Lagoon  
Public Meeting  
April 24, 2019

### Continued Public Involvement

- ▶ Public Involvement is Important
  - Next Steps
- ▶ How can the Planning Team keep you informed and involved in this process?



Contact	
<b>BBNA DOTID</b>	<b>Bristol Engineering (BESC)</b>
Annie Fritze (907) 842-6143 afritze@bbna.com	Danielle Dance (907) 563-0013 ddance@bristol-companies.com

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**Bristol** CONSULTING ENGINEERS ARCHITECTS

Native Village of Chignik Lagoon  
Public Meeting  
April 24, 2019

## Questions or Comments

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**Bristol** CONSULTING ENGINEERS ARCHITECTS

Native Village of Chignik Lagoon  
Public Meeting  
April 24, 2019

## Thank You!



Photo Credit: *Bristol Bay Regional Vision Project*, [www.lpsd.com](http://www.lpsd.com)

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## COMMUNITY SURVEY

This is a public opinion survey regarding natural hazards in your community. The results from this survey will help the Tribal Hazard Mitigation Plan Planning Team improve public/private coordination, mitigation, and risk reduction efforts in your community. Additionally we would like information regarding the methods and techniques you prefer for reducing the risks and losses associated with these hazards.

### NATURAL HAZARD INFORMATION

We would like to know about your experience involving natural hazards and your exposure to preparedness information.

1. In the last five (5) years, have you or someone in your household directly experienced any of the natural disasters listed below?

**(Please check all that apply)**

- |  |  |
|--|--|
| <input type="checkbox"/> Coastal Ice<br><input type="checkbox"/> Drought<br><input type="checkbox"/> Earthquake<br><input type="checkbox"/> Erosion<br><input type="checkbox"/> Extreme Temperatures<br><input type="checkbox"/> Flood | <input type="checkbox"/> Landslide/Avalanche<br><input type="checkbox"/> Severe Winter Weather<br><input type="checkbox"/> Tsunami<br><input type="checkbox"/> Volcano Eruption<br><input type="checkbox"/> Wildfire<br><input type="checkbox"/> Other (specify):<br><hr style="width: 200px; margin-left: 0;"/> |
|--|--|

2. How concerned are you about the following natural disasters affecting your community?

**(Check the corresponding box for each hazard)**

Natural Disaster	Very Concerned	Somewhat Concerned	Neutral	Not Very Concerned	Not Concerned
Coastal Ice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drought	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Earthquake	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Erosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extreme Temperatures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Flood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landslide/Avalanche	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Severe Winter Weather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tsunami	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Volcano Eruption	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wildfire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Have you received information about how to make members of your household and home safer from natural disasters?

- Yes
- No (**IF NO Skip to Question 5**)

If “**YES**”, how recently?

- Within the last 6 months
- Between 6 and 12 months
- Between 1 and 2 years
- Between 2 and 5 years
- 5 years or more

4. Who provided the last received information about how to make members of your household and home safer from natural disasters?

**(Please check only ONE)**

- |   |  |
|---|--|
| <input type="checkbox"/> News Media                         | <input type="checkbox"/> Tribe                             |
| <input type="checkbox"/> Government Agency                  | <input type="checkbox"/> Neighbor / Friend / Family Member |
| <input type="checkbox"/> Utility Company                    | <input type="checkbox"/> Non-Profit Organization           |
| <input type="checkbox"/> University or Research Institution | <input type="checkbox"/> Not Sure                          |
|   | <input type="checkbox"/> Other (specify):                  |
- 

5. What is the most effective way for you to receive information about how to make your household and home safer from natural disasters?

**(Please check UP TO THREE)**

- |  |  |
|--|--|
| <input type="checkbox"/> Newspapers                                | <input type="checkbox"/> Books                               |
| <input type="checkbox"/> Radio                                     | <input type="checkbox"/> Mail                                |
| <input type="checkbox"/> Schools                                   | <input type="checkbox"/> Fact Sheet / Brochure / Newsletters |
| <input type="checkbox"/> Internet (News Outlets/Email Newsletters) | <input type="checkbox"/> Public Workshops / Meetings         |
|  | <input type="checkbox"/> Other (specify):                    |
-



**COMMUNITY VULNERABILITIES AND HAZARD MITIGATION STRATEGIES**

We need to understand which community assets may be vulnerable to natural hazards in order to assess community risk. Vulnerable assets are those community features, characteristics, or resources that may be impacted by natural hazards (e.g. populations with functional needs, environmental resources, economic components, and others). The next set of questions will focus on the vulnerable assets in your community and your preferred strategies to mitigate risk to those assets.

6. Community assets are characteristics, features, or resources that either allow the community to function or make a community unique. In your opinion, which of the following categories are most vulnerable to the impacts caused by natural hazards in your community?

**(Rank the community assets in order [from 1 to 6] of vulnerability, 1 being most vulnerable and 6 being least vulnerable)**

Community Assets	Potential Natural Hazard Impact	Order of Vulnerability
Human	Loss of life and/or injuries	_____
Economic	Business closures and/or job losses	_____
Infrastructure	Damage or loss of bridges, utilities, schools, etc.	_____
Cultural / Historic	Damage or loss of fish dry racks, cemeteries, etc.	_____
Environmental	Damage or loss of forests, rangeland, waterways, subsistence areas, etc.	_____
Governance	Ability to maintain order and/or provide public amenities and services	_____

7. We would like to know what specific types of community assets are most important to you.  
 (Check the corresponding box for each hazard)

Community Assets	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important
School	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clinic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Churches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
City Buildings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tribal Buildings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Store	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Post Office	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Transportation Systems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Major Employers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Utilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Homes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Subsistence Areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. A number of activities can reduce your community’s risk from natural hazards. These activities can be both regulatory and non-regulatory.  
 (Check the corresponding box that best represents your opinion on how to best reduce the risk and loss associated with natural disasters.)

Strategies	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Sure
I support a planning and regulatory approach to reducing risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I support a non-regulatory approach to reducing risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I support a mix of both regulatory and non-regulatory approaches to reducing risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I support structure and infrastructure projects to reduce risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I support natural systems protection projects to reduce risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I support education and awareness programs to reduce risk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I support protecting historical and cultural structures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would be willing to make my home more disaster-resistant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I support steps to safeguard the local economy following a natural disaster	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I support improving the disaster preparedness of local schools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Natural hazards can have a significant impact on a community. However, planning for these events can help reduce the impacts. The following statements will help determine community priorities regarding planning for natural hazards in your community.

**(Check the corresponding box to show us how important each one is to you.)**

Statements	Very Important	Somewhat Important	Neutral	Not Very Important	Not Important
Protecting private property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protecting critical facilities (e.g. roads, bridges, clinic, schools, store, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enhancing function of natural features (e.g. streams, wetlands)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protecting historical and cultural resources and landmarks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protecting and reducing damage to utilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Strengthening emergency services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**MITIGATION AND PREPAREDNESS ACTIVITIES IN YOUR HOUSEHOLD**

Households can prepare and mitigate for natural hazards in order to prevent property damage, injuries, and loss of life. Any precautions taken or training received can make a big difference in your ability to recover from an emergency or natural disaster. Emergency care or access to basic services (e.g. electricity, gas, water, communications) may be temporarily cutoff. Or you may be asked to quickly evacuate. The following questions focus on your household’s preparedness for natural hazards or emergencies.

10. Please check the activities that you have done in your household, plan to do in the near future, have not done, or are unable to do.

**(Check one answer for each preparedness activity.)**

Have you or someone in your household:	Have Done	Plan To Do	Not Done	Unable To Do
Attended a meeting or received written information on natural disasters or emergency preparedness?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Talked with members in your household about what to do in case of an emergency or natural disaster?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Developed a “Household/Family Emergency Plan” in order to decide what everyone would do in the event of an emergency or disaster?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prepared a “Disaster Supply Kit” (stored extra food, water, batteries, or other emergency supplies)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

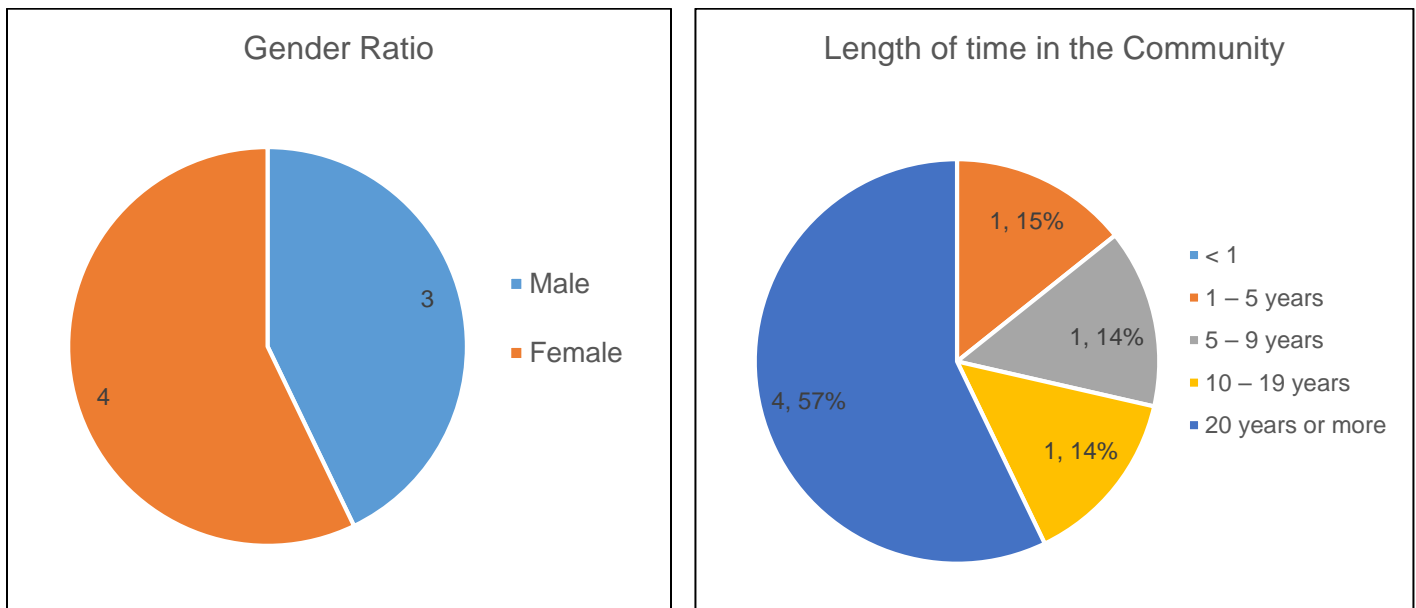


## SUMMARY - COMMUNITY SURVEY

A survey was distributed to the community members of Chignik Lagoon, Alaska. This was done in an effort to collect public opinion regarding natural hazards that impact the community and preferred methods of reducing risk and losses associated with these hazards. Below is a summary of the data collected from the survey.

### GENERAL RESPONDENT INFORMATION

Seven questionnaires were completed and returned. Question 12 asked about the gender of the respondents. Three respondents were male, and four were female (Figure 1). Question 13 asked about the length of time in the Community. Fifty-seven percent (4 replies) of the questionnaires came from longtime residents that have lived in the community for 20 or more years (See Figure 2).



The residents that responded, ranged in age (Question 11) from 32 to 67 (Figure 3).

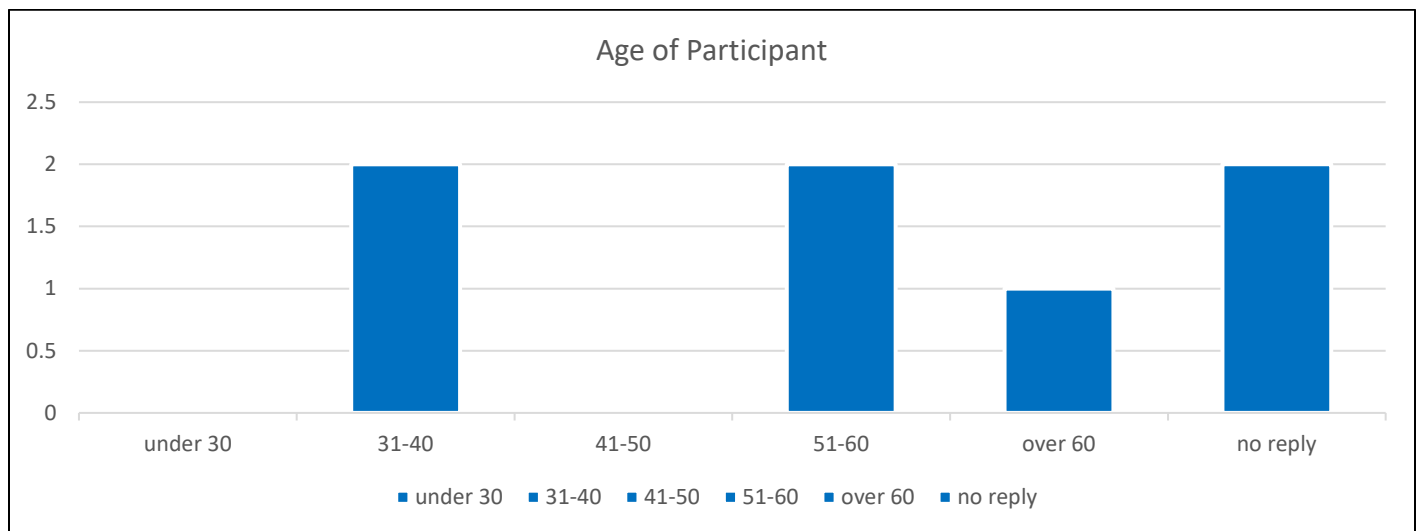


Figure 1: Age of Participant (Question #11)

### NATURAL HAZARD INFORMATION

Information regarding experiences and concerns about natural hazards in the Community was gathered (Question 1) from the survey. The survey respondents identified hazards that they have personally experienced (Figure 4).

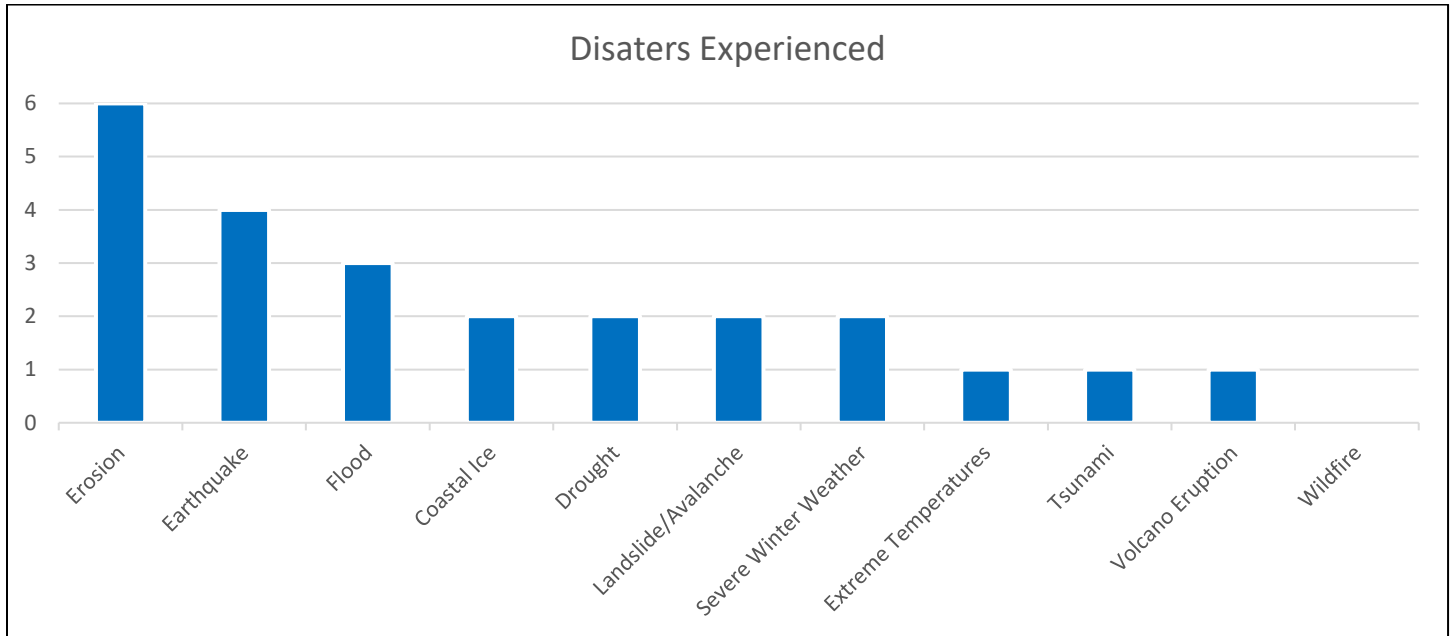


Figure 2: Disasters Experienced (Question #1)

Question #2 identified specific hazards that concerned the community members. The Community is most concerned about Erosion and Earthquakes. All seven of the individuals replying expressed that they were somewhat or very concerned about both erosion and earthquakes. Other disasters of concern are, floods, tsunamis and volcanos. Figure 5 identifies the concerns for the Community.

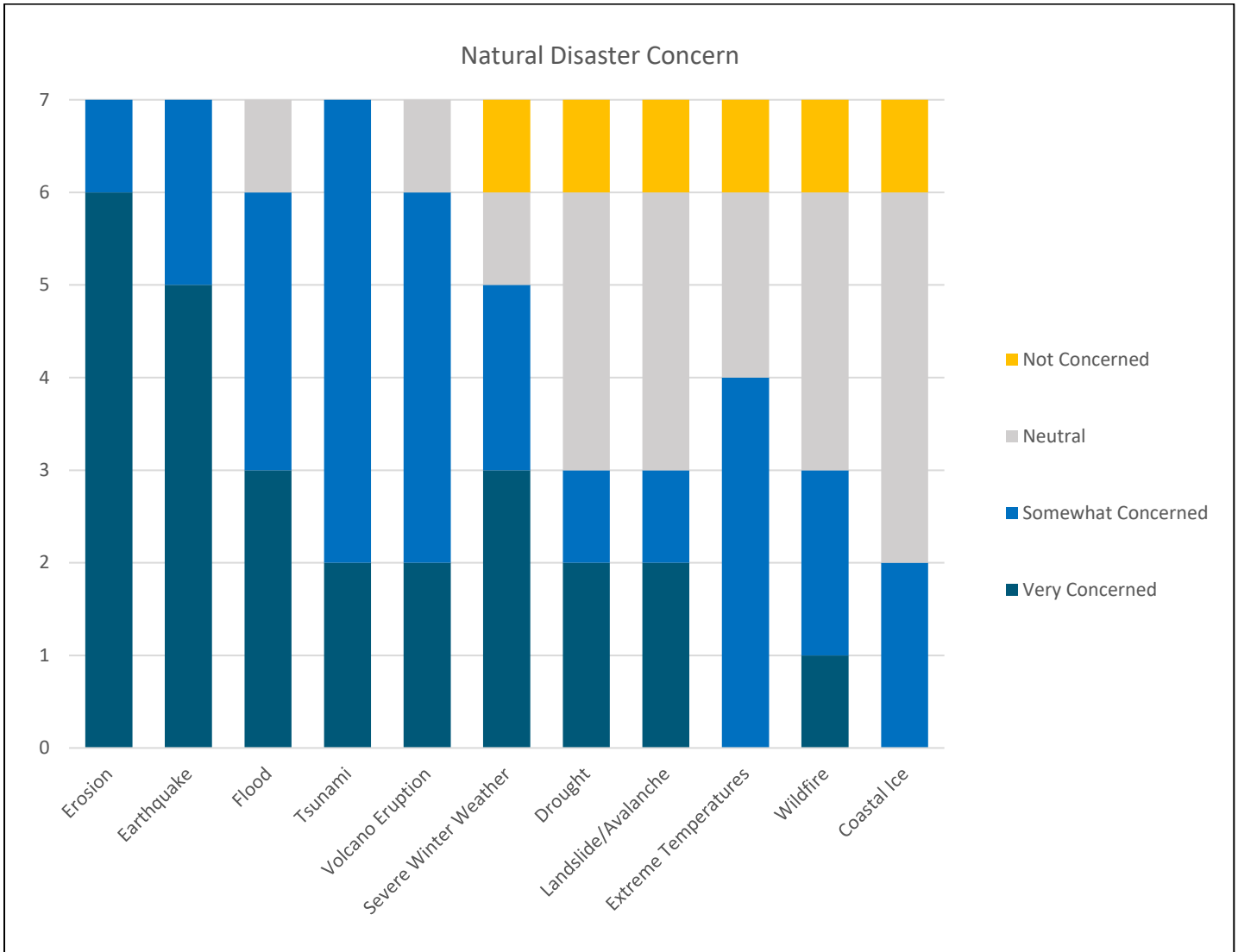
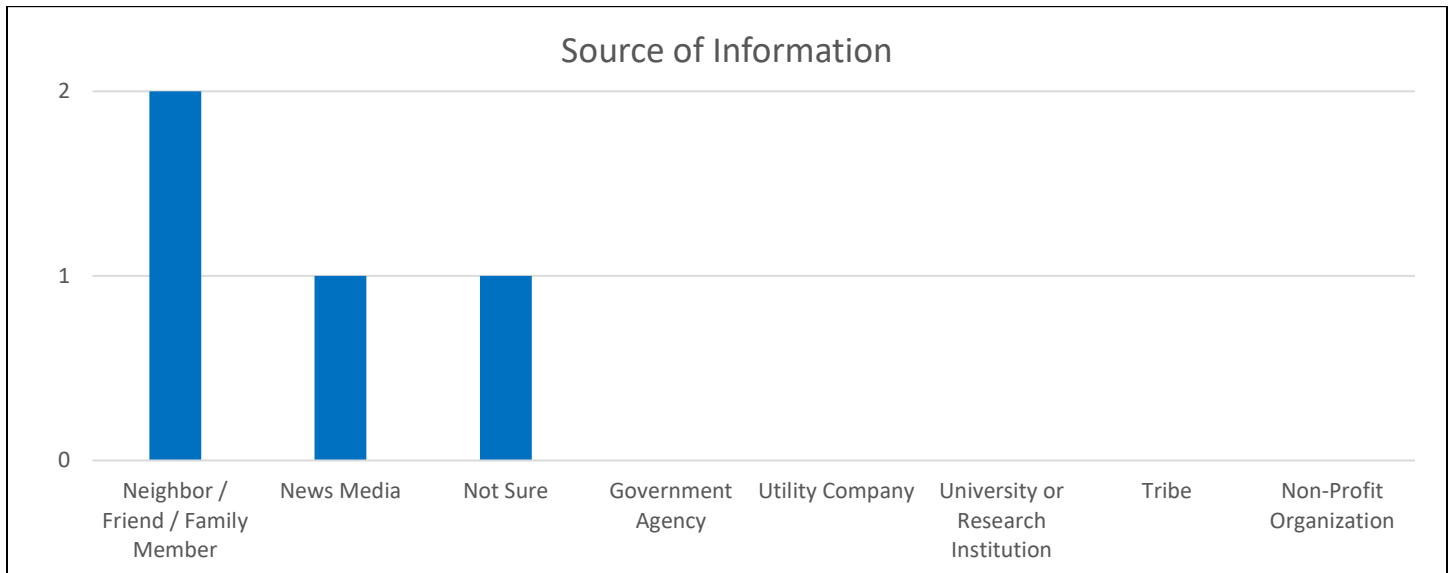


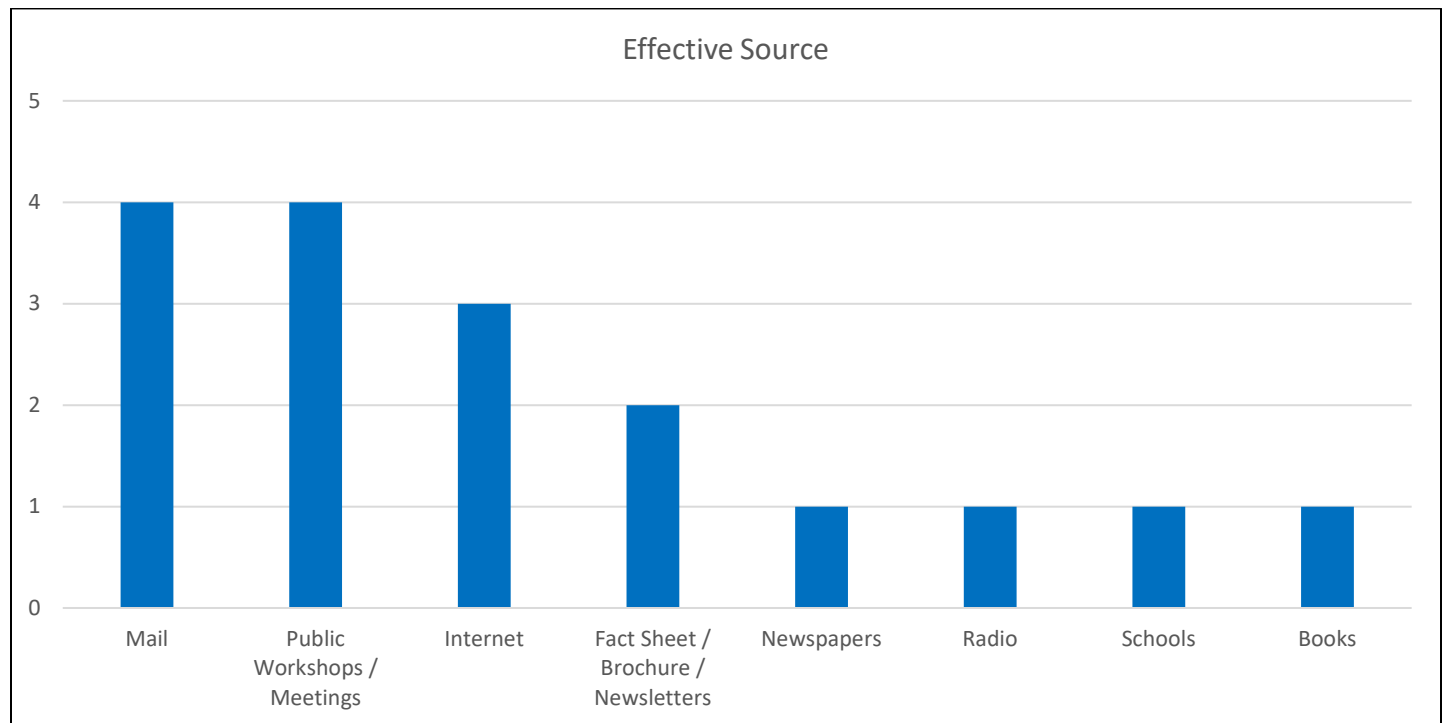
Figure 3: Natural Disaster Concern (Question #2)

The residents were asked if they received any information on how to make their homes and members of their household safe from a natural disaster and the source of that information (Question 3 and 4). Four respondents did receive this type of information. Figure 6 indicates the source of the information obtained by the residents.



**Figure 4: Source of Information (Question #4)**

The residents were asked about the most effective way for them to receive information to protect their household and homes (Question 5). For those that responded, Mail and Public Meetings / Workshops were considered the two most effective ways of receiving this information. Figure 7 provides the respondents preferred method of receiving information about how to protect their homes and households. Four respondents suggested telephone and one said television as preferred methods.

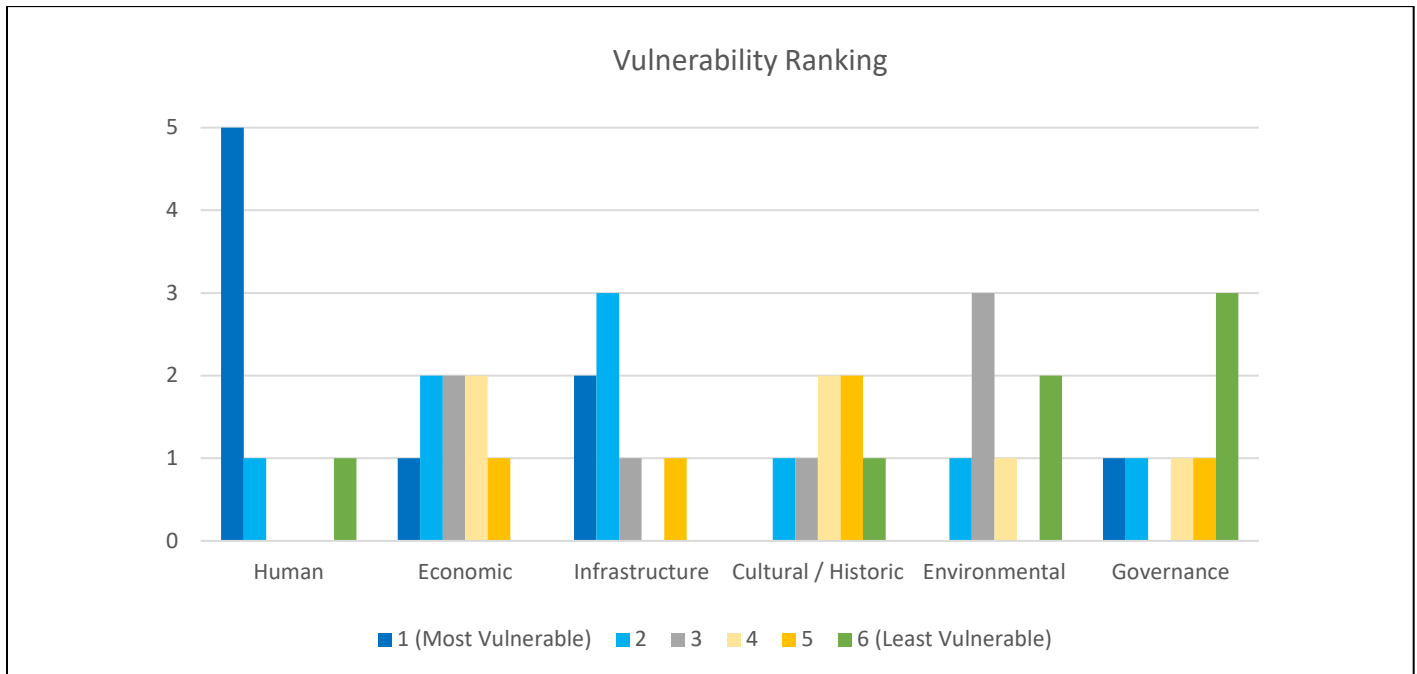


**Figure 5: Effective Source (Question #5)**



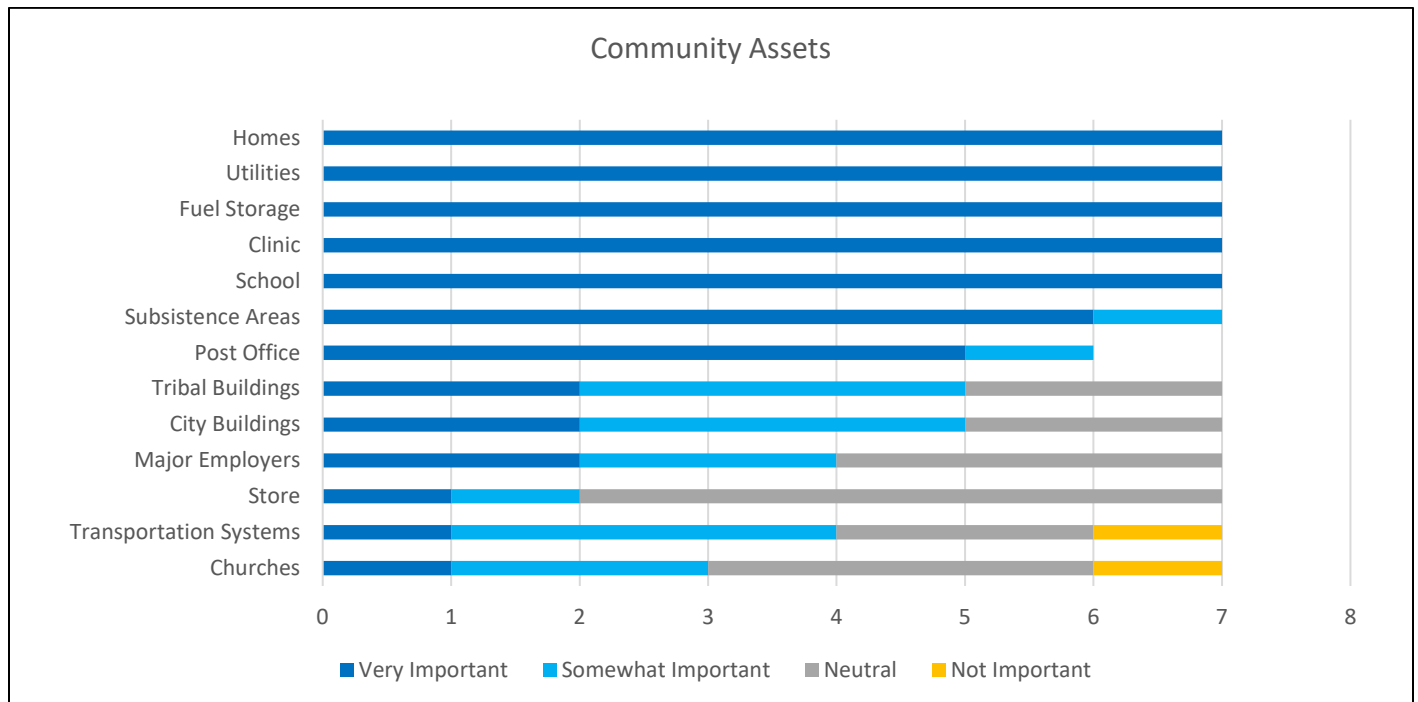
## COMMUNITY VULNERABILITIES AND HAZARD MITIGATION STRATEGIES

The residents were asked to identify the categories of community assets that were most vulnerable to natural hazards (Question 6). Figure 8 portrays the opinions of those that responded to the survey.



**Figure 6: Vulnerability Ranking (Question #6)**

Figure 9 shows to respondents' opinion of the importance of specific community assets (Question 7).



**Figure 7: Community Assets (Question #7)**

The survey respondents were asked to indicate agreement / disagreement with different mitigation strategies (Question 8). Figure 10 depicts the survey answers.

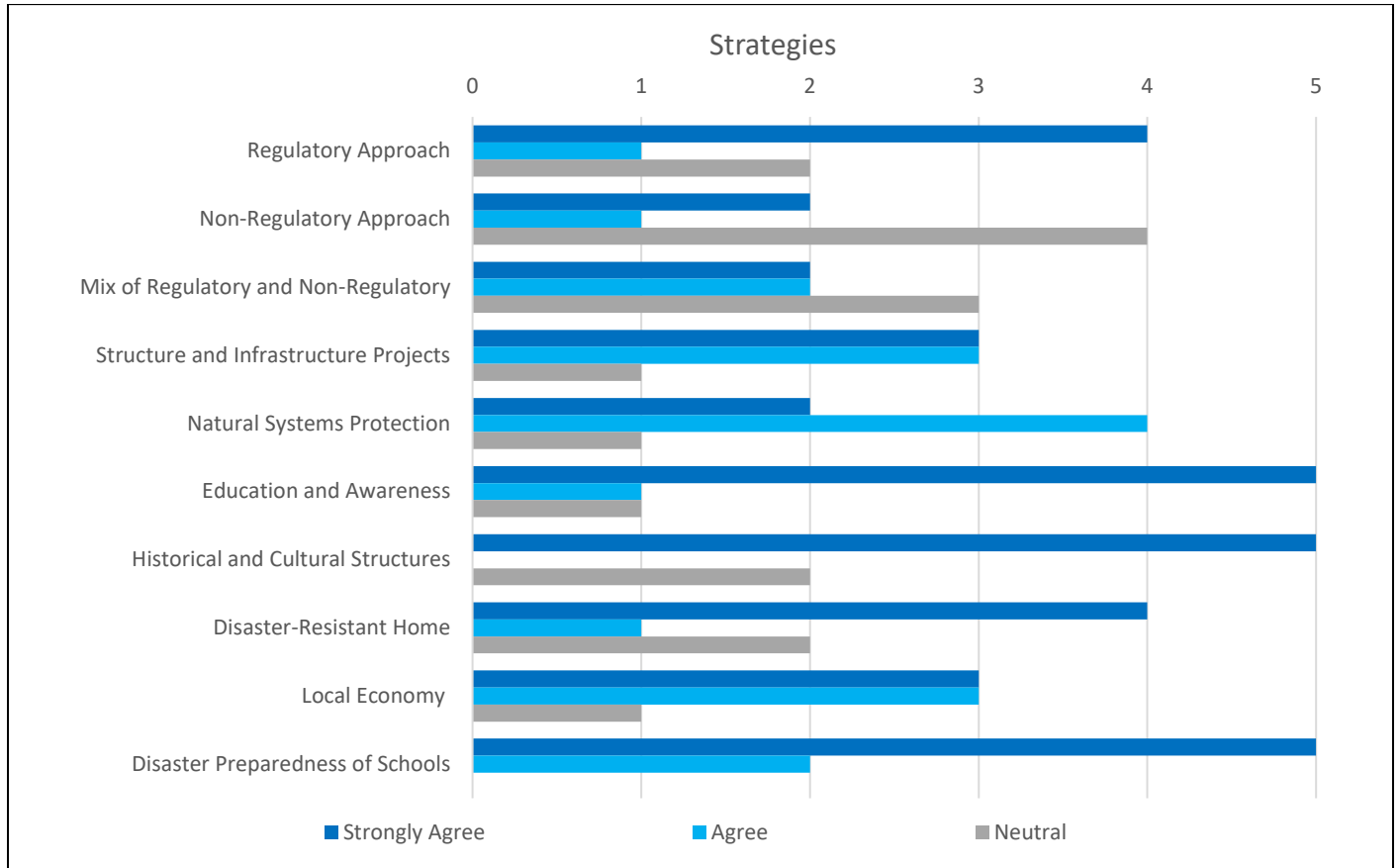


Figure 8: Mitigation Strategies (Question #8)

Question 9 asked community residents to identify community priorities regarding planning for natural hazards in their community (See Figure 11).

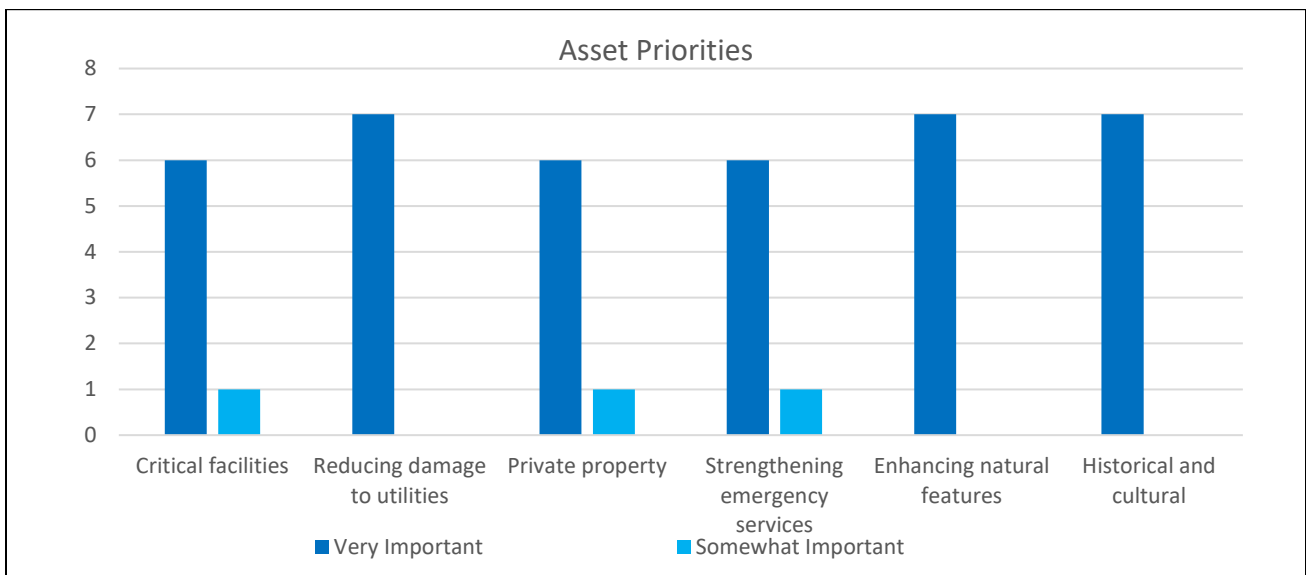


Figure 9: Asset Priorities (Question #9)

## MITIGATION AND PREPAREDNESS ACTIVITIES IN THE HOUSEHOLD

Residents can protect themselves, their household members, and their own private property. Question 10 asked residents to identify preparedness activities they have personally done (See Figure 12)

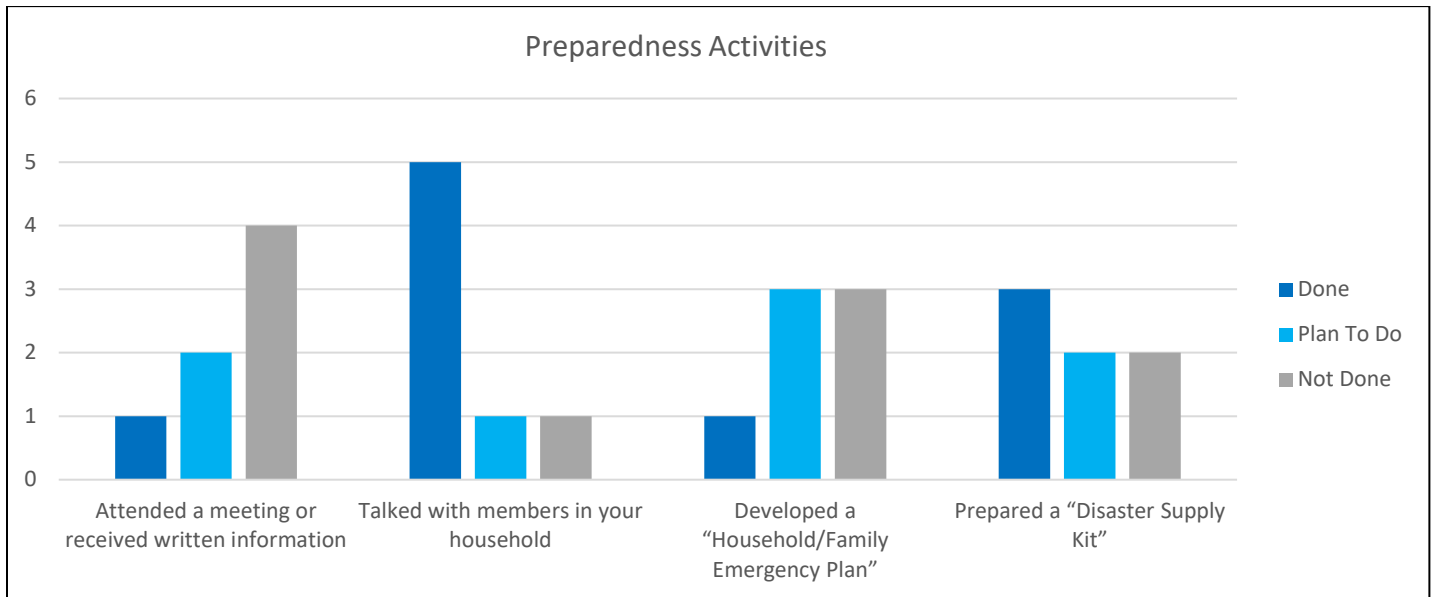


Figure 10: Preparedness Activities (Question #10)

## GENERAL COMMENTS

The following is a list of comments made by some of the respondents.

- This Village needs better service ASAP for our Hydro Plant if we are unable to use the generators and same with the wells for the water.
- Would like to see a disaster shelter on higher ground for the community and a place to store each families emergency supplies/ every family have their own tote with their needs stored inside such as meds /groceries / clothing / water.
- Community is in need of disaster kits also an evacuation shelter needs to be built in all communities. I think stabilizing utilities like the hydro power plant should be considered a top priority, as well as making sure the generators would be able to keep the village power going if something happens to hydro. Another thing to be considered is erosion in the village, resources along the banks and those need to be monitored.

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*This newsletter describes the Bristol Bay Native Association Transportation and Infrastructure Department's Tribal Hazard Mitigation Planning project development processes to all interested agencies, stakeholders, and the public and to solicit comments. It can also be viewed on the BBNA's website at [www.bbna.com](http://www.bbna.com)*

Bristol Bay Native Association (BBNA) Transportation and Infrastructure Department (DOTID) was awarded a Pre-Disaster Mitigation Program grant from the Federal Emergency Management Agency (FEMA) to prepare your 2019 Tribal Hazard Mitigation Plan (THMP). Bristol Engineering Services Company, LLC (BESC) was contracted to assist the BBNA DOTID with preparing a 2019 FEMA approvable THMP plan.

The THMP will identify all natural hazards, such as earthquake, flood, erosion, severe weather, and wildland/tundra fire hazards, etc. The plan will also identify the people and facilities potentially at risk and ways to mitigate damage from future hazard impacts. We will document the public participation and planning process as part of this project.

#### **What is Hazard Mitigation?**

Hazard mitigation projects eliminate the risk or reduce the hazard impact severity to people and property. Projects may include short- or long-term activities to reduce exposure to or the effects of known hazards. Hazard mitigation activities could include relocating or elevating buildings, replacing insufficiently sized culverts, using alternative construction techniques, developing, implementing, or enforcing building codes, or developing, and implementing education programs.

#### **Why Do We Need A Hazard Mitigation Plan?**

Communities must have a State, FEMA approved, and community adopted mitigation plan to receive a project grant from FEMA's pre- and post- disaster grants identified in their Hazard Mitigation Assistance and other agency's mitigation grant programs. BBNA DOTID plans to apply for mitigation funds after our plan is complete.

A FEMA approved and community adopted THMP enables the Local government to apply for the Hazard Mitigation Grant Program (HMGP), a disaster related assistance program; the Pre-Disaster Mitigation (PDM), and the National Flood Insurance Program (NFIP) Flood Mitigation Assistance (FMA) grant programs.

#### **The Planning Process**

There are very specific federal requirements that must be met when preparing a FEMA approvable THMP. These requirements are commonly referred to as the planning process requirements of 44 CFR 201.7 (c)

The following steps describe the planning process in order to develop the THMP.

1. **Establish the Planning Team**
2. **Education of the Planning Team**
3. **Assess Risks**
4. **Assess Capabilities**
5. **Develop a Mitigation Strategy**
6. **Monitor, Evaluate, and Plan Updates**

We are currently in the very beginning stages of preparing the plan development. We will be conducting a Planning Team Meeting to introduce the project and planning team, to gather comments from community residents, identify hazards, and collect data to refine the vulnerability assessment.

#### **We Need Your Help**

BESC has prepared survey packets to begin collecting information for your THMP. Survey packets will be mailed to your village council and sent by email to your village administrator.

**Establishing a Planning Team** is a very important step.

We will need a point of contact (POC)/team leader from your community. This group will consist of 2-5 people that have good knowledge about land use, the transportation system, public facilities, and safety resources within the community. BBNA DOTID will be in contact with your tribe to determine a POC and your planning team.

Once the Planning Team has been developed, they will begin to work on the following items:

- Identifying the hazards that impact your community;
- Determining information about the hazards such as, location, history, extent, and the probability of future events;
- Completing a risk analysis, and;
- Developing problem statements and goals.

BBNA DOTID will be in contact with your tribe to set up an initial teleconference meeting with the Planning Team, BBNA DOTID, and BESC to continue to work on the THMP development.

The BBNA DOTID team will be led by Annie Fritze, DOTID Program Manager or Dan Breeden, Department Director with assistance from Bristol Engineering Service Company, LLC (contracted by BBNA). BESC will be developing materials and lead the planning process with guidance from BBNA DOTID staff.

**BBNA Tribal Hazard Planning Team**

<b>Team Member</b>	<b>Title</b>	<b>Involvement</b>
Annie Fritze	Program Manager	THMP Team Leader, data gathering and plan review
Dan Breeden	Department Director	THMP Team Leader, data gathering and plan review
Isaac Pearson, P.E.	Senior Engineer	THMP Consultant
Danielle Dance	Civil Engineer	THMP Consultant

**Public Participation**

The purpose of this newsletter is to keep you informed, and to allow you every opportunity to voice your opinion regarding these important projects. We want to encourage public involvement as a continuous effort throughout the project.

We encourage you to take an active part in the development effort, and preparation of the Tribal Hazard Mitigation Plan.

The goal is to receive comments, identify key issues or concerns, and improve mitigation ideas, and to guide the community.

Please contact BBNA DOTID program staff or BESC if you have any questions, comments, or requests for more information:

<p><b>Bristol Bay Native Association DOTID</b></p> <p><b>Annie Fritze OR Dan Breeden</b>  <b>PO Box 310</b>  <b>Dillingham, Alaska 99576</b>  <b>(907) 842-6219</b></p>	<p><b>Bristol Engineering Services Company, LLC</b></p> <p><b>Danielle Dance, Consultant</b>  <b>111 W. 16<sup>th</sup> Avenue, Third Floor</b>  <b>Anchorage, Alaska 99501</b>  <b>(907)563-0013</b></p>
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\*\*\*\*\*  
\*\*\* TX REPORT \*\*\*  
\*\*\*\*\*

JOB NO. 2587  
DEPT. ID 1244  
ST. TIME 08/20 09:34  
SHEETS 3  
FILE NAME  
TX INCOMPLETE 819078402217  
819078452217  
TRANSACTION OK 88422081  
ERROR 819072664327

Chignik Lagoon Village  
chignik lake vc  
Aleknagik Trad. Council  
Chignik Bay Tribal Council

*-sent*  
*-need to resend*



**BRISTOL BAY NATIVE ASSOCIATION**

PO BOX 310 DILLINGHAM ALASKA 99576

PHONE: (907) 842-5257

TOLL FREE 1-800-478-5257 FAX: (907) 842-5932

FAX TRANSMISSION COVER SHEET

DATE: August 20, 2018  
TO: Vlg Admin  
FAX: \_\_\_\_\_  
SENDER: Annie Fritze  
RE: Please Post and  
Share w/in your community -  
I will email and follow up  
with a phone call -

*Quyana -*  
*af*

*8/20/2018*  
*All but*  
*Chignik Bay faxed -*  
*will re fax -*  
*af*

3 PAGE (S), INCLUDING THIS COVER SHEET  
If you do not receive all the pages please call

\_\_\_ HARD COPY WILL FOLLOW IN THE MAIL ON THIS DATE 8/20/2018  
\_\_\_ HARD COPY WILL NOT FOLLOW.

\*\*\*\*\*  
\*\*\* FAX MULTI TX REPORT \*\*\*  
\*\*\*\*\*

JOB NO. 2588  
DEPT. ID 1244  
PGS. 3  
TX INCOMPLETE -----  
TRANSACTION OK -----  
ERROR 819077492423ppppp702925  
819077492423ppppp702925

*Chignik Bay*



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email 8/20/2018

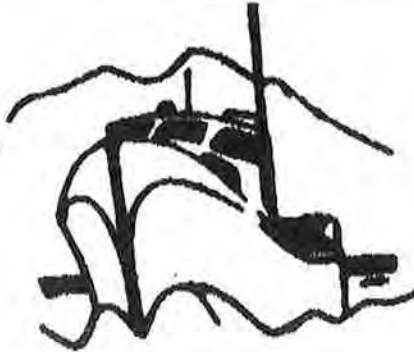


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\*\*\* FAX MULTI TX REPORT \*\*\*  
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JOB NO. 2589  
DEPT. ID 1244  
PGS. 3

TX INCOMPLETE -----

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819072332312ppppp702925  
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819077972258ppppp702925  
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819072771104ppppp702925  
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ERROR Chigniklake 819078452217ppppp702925  
819072361428ppppp702925  
819078502221ppppp72925  
819078532230ppppp702925  
819074935005ppppp702925



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SENDER: Annie Fritze

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with a phone call -

Quyenana

## Dance, Danielle

---

**From:** Annie Fritze <afritze@bbna.com>  
**Sent:** Thursday, June 27, 2019 11:27 AM  
**To:** endurancefisheries@hughes.net; jmetrokin@bbnc.net; tmase@lpsd.com; jward@lpsd.com; clpu.office@gmail.com; bakelkok@bbha.org; rclark@bbahc.org; Gayla Hoseth; rgregorio@bbahc.org; canderson@bbahc.org; kateconley@lakeandpen.com; manager@lakeandpen.com; Carla Akelkok; Kristina Andrew; lwoods@gci.com; Senator.Lyman.Hoffman@akleg.gov; Representative.Bryce.Edgmon@akleg.gov; Program Managers  
**Cc:** Dance, Danielle; Dan Breeden; Pearson, Isaac; Thomas Woods  
**Subject:** Chignik Lagoon THMP Public comment  
**Attachments:** Bristol Bay Native Association FEMA Newsletter2 Final A newsletter for BBNA Chignik Lagoon.docx

[External Email]

Chignik Lagoon Community Stakeholders:

Bristol Bay Native Association (BBNA) was awarded a Federal Emergency Management Agency (FEMA) grant to develop Tribal Hazard Mitigation Plans (THMP's) for twenty (20) tribes in the Bristol Bay Region. We would like to take this time to acquaint you to the project, with the BBNA THMP Team, and to welcome your input and participation.

BBNA represents all tribes within the Bristol Bay Region, and as such provides support for the Federal Emergency Management Agency (FEMA) pre-disaster mitigation planning project. On behalf of the twenty tribes in this region, BBNA contracted Bristol Engineering Services Company, LLC (Bristol) for the development of their Tribal Hazard Mitigation Plan (THMP). The THMP was prepared to meet the requirements of the Stafford Act and Title 44 of the Code of Federal Regulations (CFR). By meeting these requirements, it makes the Tribal communities eligible for funding through state and federal mitigation grant programs.

We are excited to announce that the draft THMP for the Tribal Council of Chignik Lagoon will be made available to the Tribal offices for public review and comment June 27-July 9, 2019. This plan is available on BBNA's web page for public comment at:

<https://www.bbna.com/wp-content/uploads/DRAFT-FEMA-THMP-Chignik-Lagoon-June-2019.pdf>

The goal is to receive comments, identify key issues or concerns, and improve ideas for mitigation. When the draft plan is complete, the results will be presented to the community

before submitting to FEMA for their preliminary approval and returned back to the Tribal Council for formal adoption.

Public comments should be received no later than July 9, 2019. Comments can be made via email, fax, or phone to Danielle Dance, Bristol Engineering Services Company, LLC at [ddance@bristol-companies.com](mailto:ddance@bristol-companies.com), (907)563-0013 or by fax at (907)563-6713. If no comments are received by the end of the comment period it will be assumed that there were no comments on the draft.

Please contact me should you have any additional questions at [afritze@bbna.com](mailto:afritze@bbna.com), (907)842-6143 or Danielle Dance at [ddance@bristol-companies.com](mailto:ddance@bristol-companies.com), (907)563-0013

**Annie Fritze**

Transportation and Infrastructure Program Manager

[afritze@bbna.com](mailto:afritze@bbna.com)

907-842-6143



*This newsletter discusses the Bristol Bay Native Association Transportation and Infrastructure Department's Tribal Hazard Pre-Mitigation Plan for your Tribal Council. This newsletter has been prepared to inform interested agencies, stakeholders, and the public about the project and to solicit comments. This newsletter and the draft mitigation plan can also be viewed on the BBNA's website at [www.bbna.com](http://www.bbna.com)*

---

Bristol Bay Native Association was awarded a Federal Emergency Management Agency (FEMA) grant to develop Tribal Hazard Mitigation Plans (THMP's) for twenty (20) tribes in the Bristol Bay Region. On behalf of the twenty tribes, BBNA contracted Bristol Engineering Services Company, LLC (Bristol) to prepare your THMP.

The THMP identifies all natural hazards that affect the community, including earthquake, flood/erosion, severe weather, and wildland/tundra fire hazards, etc. The plan identifies the people and facilities potentially at risk and ways to mitigate damage from future hazard impacts. The public participation and planning process is documented as part of this project.

#### **Why Do We Need A Hazard Mitigation Plan?**

A FEMA approved and community adopted THMP enables your Tribal council's eligibility to apply for funding through state and federal mitigation grant programs.

The purpose of hazard mitigation is to reduce potential losses from future disasters. The intent of mitigation planning is to maintain a process that leads to hazard mitigation actions. This THMP identifies the natural hazards that affect the Tribal communities, identifies actions to reduce losses from those hazards, and develops long-term strategies to reduce the impacts of future events on people, property, and the environment, and establishes a coordinated process to implement the plan.

The THMP establishes goals and objectives and associated actions to reduce and mitigate the threat of natural hazards to life, property, infrastructure, economic stability and emergency response capabilities in the Tribal communities while encouraging the protection and restoration of cultural and natural resources.

#### **We Need Your Help**

We are excited to announce that the draft THMP for the New Stuyahok Tribal Council is available at the Tribal office for public review and comment. This plan is also available on BBNA's web page at [www.bbna.com](http://www.bbna.com) for public comment. The goal is to receive comments, identify key issues or concerns and improve ideas for mitigation. When the draft plan is complete, the results will be presented to the community before submitting to FEMA for their preliminary approval and returned back to the Tribal Council for formal adoption.

Public comments should be received no later than **April 9, 2019**. Comments can be made via email, fax, or phone to Danielle Dance, Bristol Engineering Services Company, LLC at: [ddance@bristol-companies.com](mailto:ddance@bristol-companies.com), (907)563-0013 or by fax at (907)563-6713.

#### **Public Participation**

Public involvement is important to the planning process of the THMP. This meets the requirements of 44 CFR 201.7(c)(1)(i).

The purpose of this newsletter is to encourage public involvement as a continuous effort throughout the project. The goal is to receive comments, identify key issues or concerns, and improve mitigation ideas from all stakeholders in your community.

We encourage you to take an active part in preparing the Tribal Hazard Mitigation Plan development effort. The purpose of this newsletter is to keep you informed and to allow you every opportunity to voice your opinion regarding these important projects.

***If you have any questions, comments or requests for more information, please contact:***

**Danielle Dance, THMP Consultant**  
111 W. 16<sup>th</sup> Avenue, Third Floor  
Anchorage, Alaska 99501  
(907)563-0013  
[ddance@bristol-companies.com](mailto:ddance@bristol-companies.com)

**Annie Fritze, BBNA DOTID**  
PO Box 310  
Dillingham, Alaska 99576  
(907)842-6143  
[afritze@bbna.com](mailto:afritze@bbna.com)

## Dance, Danielle

---

**From:** Rexford E. Spofford <rspofford@bbahc.org>  
**Sent:** Tuesday, July 9, 2019 5:22 PM  
**To:** Blahut, Kim E; Dance, Danielle  
**Cc:** Annie Fritze; Bryan G. Reed  
**Subject:** FW: Chignik Lagoon THMP Public comment  
**Attachments:** Bristol Bay Native Association FEMA Newsletter2 Final A newsletter for BBNA Chignik Lagoon.docx

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

[External Email]

Good day Kim,

It was good to have the surprise visit from you today, thanks for stopping by the office.  
:)

In addressing the easy part of business, after reading the email from BBNA concerning the FEMA grant, my thoughts went towards both Chignik Lagoon and Perryville given their ongoing water quality/production/storage/and distribution issues.

While the specific issues differ between the communities, the common thread is the continued need for funding assistance to address the aforementioned as well as provide drought protection/fire fighting measures, a clearly accepted/promoted use of FEMA funds. Chignik Lagoon has clearly targeted their need for assistance in the aforementioned areas, water production interests have been identified as a critical need in their FEMA plan. Perryville has not been as specific in the need for assistance in this area, or so I recall in conversation with Ms. Dance earlier today.

In any event...what I am hopeful of is having additional conversation as to options available (if any) where FEMA grant funding could possibly be used to improve water production/containment/and distribution conservation in both of these communities and do such in a way that would clearly meet the FEMA grant guidelines (re drought protection/firefighting measures).

As discussed earlier, I am wondering if perhaps the FEMA funds could also be used to cover the project (x2) ineligible costs for Perryville understanding the vast majority of funds are approved.

Perhaps you, Ms. Dance, and I could have some additional conversation on the aforementioned in very short order given the time sensitive nature of the matter at hand.

Looking forward to working with all.

Respectfully and in haste...

Rex Spofford  
EH Dept Manager

---

**From:** Annie Fritze <[afritze@bbna.com](mailto:afritze@bbna.com)>  
**Sent:** Tuesday, July 09, 2019 9:17 AM  
**To:** Rexford E. Spofford <[rspofford@bbahc.org](mailto:rspofford@bbahc.org)>  
**Subject:** FW: Chignik Lagoon THMP Public comment

[EXTERNAL EMAIL]

## **Annie Fritze**

Transportation and Infrastructure Program Manager  
[afritze@bbna.com](mailto:afritze@bbna.com)  
907-842-6143

---

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**Sent:** Thursday, June 27, 2019 11:27 AM  
**To:** [endurancefisheries@hughes.net](mailto:endurancefisheries@hughes.net); [jmetrokin@bbnc.net](mailto:jmetrokin@bbnc.net); [tmase@lpsd.com](mailto:tmase@lpsd.com); [jward@lpsd.com](mailto:jward@lpsd.com); [clpu.office@gmail.com](mailto:clpu.office@gmail.com); [bakelkok@bbha.org](mailto:bakelkok@bbha.org); [rclark@bbahc.org](mailto:rclark@bbahc.org); Gayla Hoseth <[ghoseth@bbna.com](mailto:ghoseth@bbna.com)>; [rgregorio@bbahc.org](mailto:rgregorio@bbahc.org); [canderson@bbahc.org](mailto:canderson@bbahc.org); [kateconley@lakeandpen.com](mailto:kateconley@lakeandpen.com); [manager@lakeandpen.com](mailto:manager@lakeandpen.com); Carla Akelkok <[cakelkok@bbna.com](mailto:cakelkok@bbna.com)>; Kristina Andrew <[krandrew@bbna.com](mailto:krandrew@bbna.com)>; [lwoods@gci.com](mailto:lwoods@gci.com); [Senator.Lyman.Hoffman@akleg.gov](mailto:Senator.Lyman.Hoffman@akleg.gov); [Representative.Bryce.Edgmon@akleg.gov](mailto:Representative.Bryce.Edgmon@akleg.gov); Program Managers <[ProgramManagers@bbna.com](mailto:ProgramManagers@bbna.com)>  
**Cc:** Dance, Danielle <[ddance@bristol-companies.com](mailto:ddance@bristol-companies.com)>; Dan Breeden <[dbreeden@bbna.com](mailto:dbreeden@bbna.com)>; [ipearson@bristol-companies.com](mailto:ipearson@bristol-companies.com); Thomas Woods <[twoods@bbna.com](mailto:twoods@bbna.com)>  
**Subject:** Chignik Lagoon THMP Public comment

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Transportation and Infrastructure Program Manager

[afritze@bbna.com](mailto:afritze@bbna.com)

907-842-6143

CONFIDENTIALITY NOTICE: This e-mail message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail and destroy all copies of the original message.

# BRISTOL BAY NATIVE ASSOCIATION

P.O. BOX 310  
DILLINGHAM, ALASKA 99576  
PHONE (907) 842-5257

*Aleknagik*

*Chignik Bay*

*Chignik Lagoon*

*Chignik Lake*

*Clarks Point*

*Curyung*

*Egegik*

*Ekuk*

*Ekwok*

*Igiugig*

*Iliamna*

*Ivanof Bay*

*Kanatak*

*King Salmon*

*Kokhanok*

*Koliganek*

*Levelock*

*Manokotak*

*Naknek*

*New Stuyahok*

*Newhalen*

*Nondalton*

*Pedro Bay*

*Perryville*

*Pilot Point*

*Port Heiden*

*Portage Creek*

*South Naknek*

*Togiak*

*Twin Hills*

*Ugashik*

January 9, 2019

The Honorable Bryce Edgmon  
State Capitol Room 208  
Juneau, AK 99801

RE: Introducing BBNA's Tribal Hazard Mitigation Planning Project

Dear Representative Edgmon:

Bristol Bay Native Association (BBNA) was awarded a Federal Emergency Management Agency (FEMA) grant to develop Tribal Hazard Mitigation Plans (THMP's) for twenty (20) tribes in the Bristol Bay Region. We would like to take this time to acquaint you to the project, with the BBNA THMP Team, and to welcome your input and participation.

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We are excited to announce that the draft THMP for the Tribal Councils of **Aleknagik, Chignik Bay, Chignik Lagoon, Chignik Lake, Clarks Point, Egegik, Ekuk, Kanatak, Levelock, Manokotak, New Stuyahok, Nondalton, Perryville, Pilot Point, Port Heiden, Portage Creek, Togiak and Twin Hills** will be made available to their Tribal offices for public review and



comment in the next few months. These plans will also be made available on BBNA's web page for public comment at [www.bbna.com](http://www.bbna.com). The goal is to receive comments, identify key issues or concerns and improve ideas for mitigation. When the draft plan is complete, the results will be presented to the community before submitting to FEMA for their preliminary approval and returned back to the Tribal Council for formal adoption.

A FEMA approved and community adopted THMP enables the Tribal council's eligibility to apply for funding through state and federal mitigation grant programs.

Sincerely,  
Bristol Bay Native Association

A handwritten signature in black ink that reads "Ralph Andersen". The signature is written in a cursive style with a prominent initial "R" and a flourish at the end.

Ralph Andersen,  
President/Chief Executive Officer

cc: Dan Breeden, BBNA DOTID Director  
Annie Fritze, BBNA DOTID Program Manager  
Isaac Pearson, BESC Senior Engineer  
Danielle Dance, BESC Civil Engineer

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Ekuk  
Ekwok  
Igiugig  
Iliamna  
Ivanof Bay  
Kanatak  
King Salmon  
Kokhanok  
Koliganek  
Levelock  
Manokotak  
Naknek  
New Stuyahok  
Newhalen  
Nondalton  
Pedro Bay  
Perryville  
Pilot Point  
Port Heiden  
Portage Creek  
South Naknek  
Togiak  
Twin Hills  
Ugashik

January 9, 2019

The Honorable Lyman Hoffman  
PO Box 886  
Bethel, AK 99559

RE: Introducing BBNA's Tribal Hazard Mitigation Planning Project

Dear Senator Hoffman:

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Sincerely,  
Bristol Bay Native Association

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Ralph Andersen,  
President/Chief Executive Officer

cc: Dan Breeden, BBNA DOTID Director  
Annie Fritze, BBNA DOTID Program Manager  
Isaac Pearson, BESC Senior Engineer  
Danielle Dance, BESC Civil Engineer

## **APPENDIX C**

### Plan Maintenance

- Maintenance Monitoring Form (THMP Form 4-1)
- Plan Update Evaluation Form (THMP Form 4-2)

## MAINTENANCE MONITORING FORM

Use this form to track the status of implementation of the identified mitigation actions, once a year. Use the information to provide the Council with a brief status report.

Date	Evaluator	Comments <i>(Brief Status Overview of Mitigation Actions)</i>

Date	Evaluator	Comments <i>(Brief Status Overview of Mitigation Actions)</i>

## PLAN UPDATE EVALUATION FORM

Plan Section	Considerations	Explanation
Planning Process	Have any internal or external agencies been invaluable to the mitigation strategy?	
	Can any procedures (e.g., meeting announcements, plan updates) be done differently or more efficiently?	
	Has the Planning Team undertaken any public outreach activities?	
	How can public participation be improved?	
Capability Assessment	Have jurisdictions adopted new policies, plans, regulations, or reports that could be incorporated into this plan?	
	Are there different or additional administrative, human, technical, and financial resources available for mitigation planning?	
	Are there different or new education and outreach programs and resources available for mitigation activities?	

Plan Section	Considerations	Explanation
Plan Maintenance Procedures	Was the plan monitored and evaluated as anticipated?	
	What are needed improvements to the procedures?	
Hazard Profile	Has a natural and/or technical or human-caused disaster occurred?	
	Should the list of hazards addressed in the plan be modified? What hazards need to be addressed? Are there hazards that need to be added or removed? If so, list the hazards.	
	Are there new data sources and/or additional maps and studies available? If so, what are they and what have they revealed? Should the information be incorporated into future plan updates?	
Risk Analysis	Do any new critical facilities or infrastructure need to be added to the asset lists?	
	Have any changes in development trends occurred that could create additional risks?	



Plan Section	Considerations	Explanation
Mitigation Strategy	Are the goals still applicable?	
	Should new mitigation actions be added to the community's Mitigation Action Plan?	
	Do existing mitigation actions listed in the community's Mitigation Action Plan need to be reprioritized?	
	Have elements of the plan been incorporated into other planning mechanisms?	

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**APPENDIX D**  
Funding Sources

# CLIMATE RESILIENCE IN ALASKAN COMMUNITIES

## *Catalog of Federal Programs*

PRODUCT OF THE  
Coastal Erosion Working Group  
OF THE ARCTIC EXECUTIVE STEERING COMMITTEE



September 2, 2015

In February 2015, the newly established Arctic Executive Steering Committee (AESC), in one of its first actions, established a Coastal Erosion Working Group (CEWG). The CEWG, which included representatives from the Executive Office of the President as well as ten Federal agencies, was tasked with examining opportunities for Federal action to address the imminent threats that coastal erosion and flooding pose to Alaskan Arctic coastal communities. Representation on the working group drew from both headquarters and the Alaska region, ensuring good knowledge of State and local stakeholders' needs.

One of the recommendations that the CEWG presented at the June meeting of the AESC, was to catalog Federal programs that could be useful for Alaskan coastal communities seeking to address erosion, flooding, and other resilience challenges. The following "Catalog of Federal Resilience Programs for Alaskan Communities" was developed by the CEWG in response to this recommendation. We hope this resource will support communities in Alaska in identifying Federal resources available to help address some of great challenges they are facing.

Ambassador Mark Brzezinski  
Executive Director, Arctic Executive Steering Committee

## **Overview**

According to the U.S. National Climate Assessment, over the past 60 years, climate change has caused the Alaskan Arctic to warm twice as rapidly as the rest of the United States, and accelerated rates of erosion caused by the combination of repeated extreme weather events, thawing permafrost, and decreased arctic sea ice are threatening the way of life in native villages.

Developed under the leadership of the Arctic Executive Steering Committee's (AESC) Coastal Erosion Work Group (CEWG), this catalog of Federal technical assistance programs and funding resources is the result of collaboration across Federal agencies to identify existing programs that may be used to assist coastal communities in Alaska facing challenges associated with climate-related risks. Although a variety of Federal programs are available to provide assistance, lack of information about the full range of resources available can present a barrier to communities securing assistance. This compendium is intended to help Alaskan communities identify Federal resources that can be used to support local efforts to gather and evaluate information about the risks posed by coastal erosion and other hazards; building capacity to mitigate those risks; advance onsite measures; and, if necessary, relocate community assets.

Each program's entry describes its purpose and funding potential, eligible applicants, and activities typically undertaken with its support. The Quick Reference Program Matrix serves to identify which programs can support the following activities:

**Information Gathering and Evaluation:** Risk assessment and monitoring activities, including assessing hazards like coastal erosion, mapping subsistence patterns, and tracking natural climate variability;

**Capacity Building:** Training, education, and community planning efforts, including digital access to tools and development of administrative needs to inform resilience planning;

**On-site Measures:** Maintaining and strengthening infrastructure, land, and livelihoods within a community. Examples include redesigning roads and evacuation routes due to climate change impacts and investing in infrastructure that generates economic returns; and

**Relocation:** Activities that support the relocation of entire communities or certain community assets, including new site identification and development.

Contributing agencies include the Departments of Agriculture, Energy, Health and Human Services, Housing and Urban Development, the Interior, Transportation, Homeland Security, Commerce, the Environmental Protection Agency, and the U.S. Army Corps of Engineers. While this guide attempts to be as comprehensive as possible in describing relevant Federal grant programs, programs are continually evolving and are subject to change.

## **About the Arctic Executive Steering Committee**

President Obama established the AESC in his January 2015 [Executive Order 13689](#) on *Enhancing Coordination of National Efforts in the Arctic*. The Executive Order directed Federal agencies to strengthen international cooperation to mitigate the greenhouse gas emissions driving climate change, understand more fully and manage more effectively the adverse effects of climate change, protect life and property, develop and manage resources responsibly, enhance the quality of life of Arctic inhabitants, and serve as stewards for valuable and vulnerable ecosystems. The AESC was charged with guiding executive departments and agencies and enhancing coordination of Federal Arctic policies across agencies and offices, and with State, local, and Alaska Native tribal governments and stakeholders.

The CEWG, co-chaired by the Department of Housing and Urban Development (HUD) and the Department of the Interior (DOI), was created to examine opportunities for improving Federal actions to address the imminent threat of coastal erosion and flooding impacting Alaskan Arctic coastal communities.

## Quick Reference Programs Matrix

Agency	Program	Page	Information Gathering		Capacity Building				On-Site Measures				Relocation		
			Risk Assessment	Monitoring	Technical Training	Environmental Education	Preserving Traditional Lifestyles	Strategic Planning	Infrastructure Strengthening	Coastal Erosion Control	Recovery of Critical Infrastructure	Economic Development	Site Evaluation	Development	Infrastructure
Department of Homeland Security - Federal Emergency Management Agency	Flood Mitigation Assistance	12						X	X						
	Hazard Mitigation Grant Program	12						X	X	X	X				
	Pre-Disaster Mitigation Grant Program	13						X	X	X	X				
	Risk Mapping, Assessment, and Planning	13	X	X	X			X							
Department of Commerce - Economic Development Authority	Economic Adjustment Assistance Program	14	X					X	X		X	X	X	X	X
	Public Works Program	14							X		X	X		X	X

Agency	Program	Page	Information Gathering		Capacity Building				On-Site Measures				Relocation		
Department of Commerce – National Oceanic and Atmospheric Administration	Alaska Center for Climate Assessment and Policy	15	X					X							
	Alaska Ocean Observing System	15	X	X											
	Analyze, Forecast, and Support	16	X	X											
	Integrated Ocean and Coastal Mapping Program	16	X	X											
	National Oil and Hazardous Substances Pollution Contingency Plan	16	X	X					X						
	Climate Program	17	X		X	X									
	Observations	17	X	X											
Department of Energy	Alaska START Program	17			X	X		X	X		X	X			X
	Tribal Energy Program	18			X	X		X	X		X	X			X



Agency	Program	Page	Information Gathering		Capacity Building			On-Site Measures				Relocation			
Department of the Interior	Alaska Climate Science Center	19	X	X	X			X					X		
	ANILCA Sec. 1318 Historic Assistance	19						X							
	Landscape Conservation Cooperatives	19	X	X											
	North Slope Science Initiative	20	X	X			X								
	Subsistence – ANLICA Title VIII	20						X	X						
Department of the Interior - Bureau of Indian Affairs	Cooperative Landscape Conservation	20					X								
	Indian Energy Resource Development Program	21					X					X			X
	Tribal Transportation Program	21								X			X		X
Department of Transportation	Transportation Investment Generating Economic Return	22							X	X			X		X

Agency	Program	Page	Information Gathering		Capacity Building				On-Site Measures				Relocation			
Department of Transportation - Federal Aviation Administration	Airport Improvement Program	22								X						X
Department of Transportation - Federal Highway Administration	Federal-aid Highway Apportioned Funds	23								X			X			X
	Tribal Transportation Program	23						X	X				X			X
Department of Transportation - Federal Transit Administration	Public Transportation on Indian Reservations Program Tribal Transit Program	24						X	X			X				X
Environmental Protection Agency	Alaska Native Villages Grant	24			X					X						X
	Clean Water Act Indian Set-Aside Program	25						X	X							X

Agency	Program	Page	Information Gathering		Capacity Building				On-Site Measures				Relocation			
Environmental Protection Agency	Environmental Justice Collaborative Problem-Solving Cooperative Agreement Program	25								X					X	
	Environmental Justice Small Grants	26						X								
	Indian General Assistance Program	26	X	X												
	Office of Water Climate Ready Water Utilities Program	27	X					X								
	Safe Drinking Water Act (SDWA) Tribal Set-Aside Program	27						X	X							X
Health and Human Services	ACF/ANA Environmental Regulatory Enhancement	28			X		X	X					X			
	CDC/NCID/ Arctic Investigations Program	29	X	X			X									

Agency	Program	Page	Information Gathering		Capacity Building				On-Site Measures				Relocation		
Health and Human Services	CDC/NIOSH American Indian/ Alaska Native Program	29			X	X									
	CDC/NIOSH Climate Change Initiative	30	X												
	NIH/NIEHS Alaska Community Action on Toxics	30	X	X	X	X	X	X							
	NIH/NIEHS Research to Action	31	X	X	X	X	X	X							
	NIH/NIEHS The Center for Indigenous Environmental Health Research	31	X	X	X	X	X	X							
Department of Housing and Urban Development	Community Development Block Grant	32	X	X	X						X			X	X
	Emergency Solutions Grants Program	33								X	X				
	Indian Community Development Block Grant	33								X	X	X		X	X

Agency	Program	Page	Information Gathering		Capacity Building				On-Site Measures				Relocation		
Department of Housing and Urban Development	Mortgage Insurance for Disaster Victims – 203(h)	34												X	
	Native American Housing and Self-Determination Act - Indian Housing Block Grant Program	34	X	X	X	X		X	X	X		X	X	X	
	Section 184 Loan Guarantee Program	35												X	
	Title VI Loan Guarantee Program	35							X	X	X			X	X
US Army Corps of Engineers	Continuing Authorities Program	35							X	X					
	International and Interagency Support Services	36	X	X			X	X	X	X	X		X	X	X
	Planning Assistance to States	36	X					X					X		
	Tribal Partnership Program	37	X						X	X	X		X	X	X

Agency	Program	Page	Information Gathering		Capacity Building				On-Site Measures				Relocation		
US Department of Agriculture	Business and Industry Loan Guarantee	37										X			
	Community Facilities Loans and Grants	38												X	
	Electric Loans	38							X						X
	Rural Business Development Grant	38										X			
	Rural Energy for America Loans and Grants	39							X						X
	Sewer, Water, Solid Waste Loans and Grants	39							X						X
	Single Family Direct and Guaranteed Loans	40												X	
	Single Family Repair Loans and Grants	40									X				
	Telecom Loans	41							X						

## Department of Homeland Security (DHS) – Federal Emergency Management Agency (FEMA)

### **Program Name: Flood Mitigation Assistance (FMA)**

Purpose: Authorized to reduce or eliminate claims under the National Flood Insurance Program (NFIP) by eliminating the long-term risk of flood damage to structures insured under the NFIP.

Eligible Applicants: States, U.S. territories, Federally-recognized tribes apply on behalf of local communities, who must be participating in the NFIP.

Funding Range: Severe Repetitive Loss structures can be funded at 100% federal cost; repetitive loss structures can be cost-shared at 90% federal cost. Insured structures and planning grants are cost-shared at 75 percent federal, 25 percent non-federal. Maximum Federal share for planning sub-applications per Applicant is \$50,000 for State plans and \$25,000 for local plans. Technical assistance up to \$50,000 is available for states who were awarded FMA grant funds totaling at least \$1million in FY 2014.

Program Activities: Projects include the elevation, relocation and acquisition of flood prone structures, and projects to address minor, localized flooding issues, such as upgrading culverts, building detention ponds, and otherwise improving local stormwater management facilities.

Because this program is funded by resources collected from NFIP policyholders, the recent focus of the program has been on mitigating severe repetitive loss structures in order to reduce the drain on the National Flood Insurance Fund (NFIF).

Severe repetitive loss structures and repetitive loss structures are prioritized for funding to maximize cost-effectiveness and reduce claims to the NFIF.

Additional Information: <http://www.fema.gov/media-library-data/1432854343618-674f4cfd5dd49813a9aef429e5d49c7d/FMAFactSheetFY2015.pdf>

### **Program Name: Hazard Mitigation Grant Program (HMGP)**

Purpose: Provides grants to states, Indian tribal governments and local governments to implement long-term hazard mitigation measures after a major disaster declaration. The purpose of the program is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the recovery from a disaster.

Eligible Applicants: Funds become available only after a disaster is declared. The Governor of the state determines availability, however it is frequently available anywhere within the state or tribe in which the declaration was made.

Funding Range: The amount of assistance available under the HMGP is a percentage of FEMA's assistance made available under the response and recovery programs for the declared major disaster.

HMGP funds are generally 15 percent of assistance under these programs for states with a Standard State Mitigation Plan and 20 percent of assistance under these programs for those with an Enhanced State Mitigation Plans. Small impoverished communities may be eligible for up to a 90% Federal cost share in accordance with the Stafford Act.

Program Activities: Some examples of projects eligible for HMGP and the PDM grant funds include the development of all-hazards mitigation plans at the tribal, state and local levels, the seismic retrofitting of critical public buildings, and acquisition, relocation or elevation of flood-prone properties located in the floodplain.

Additional Information: <http://www.fema.gov/hazard-mitigation-grant-program>

### **Program Name: Pre-Disaster Mitigation Grant Program (PDM)**

Purpose: Designed to assist States, territories, Federally-recognized tribes, and local communities in implementing a sustained pre-disaster natural hazard mitigation program.

Eligible Applicants: States, U.S. territories, Federally-recognized tribes.

Funding Range: In 2015, each state is eligible to receive a set aside of 1 percent of the total appropriated PDM funding, or \$250,000; \$5 million is set aside for Federally-recognized Tribal governments to receive a set aside of 1 percent of the total appropriated PDM funding, or \$250,000; The balance of PDM Grant Program funds will be distributed on a competitive basis to all eligible applicants.

Program Activities: Elevation, acquisition, or floodproofing structures, seismic or wind retrofit of structures, major or minor flood hazard reduction activities, mitigation planning

Additional Information: <http://www.fema.gov/media-library-data/1432847398289-878c470e718239eedcaadc8d52ea1823/PDMFactSheetFY2015.pdf>

### **Program Name: Risk Mapping, Assessment, and Planning (Risk MAP)**

Purpose: Not only is flooding one of the most common and costly disasters, flood risk can also change over time because of new building and development, weather patterns and other factors. FEMA is working with federal, state, tribal and local partners across the nation to identify flood risk and help reduce that risk through the Risk Mapping, Assessment and Planning (Risk MAP) program.

Eligible Applicants: State, regional, Tribal, and local communities can use enhanced hazard data to make more informed decisions regarding risk.

Funding Range: Varies.

Program Activities: Risk MAP provides high quality flood maps and information, tools to better assess the risk from flooding and planning and outreach support to communities to help them take action to



reduce (or mitigate) flood risk. Each Risk MAP flood risk project is tailored to the needs of each community and may involve different products and services.

Additional Information: <http://www.fema.gov/risk-mapping-assessment-and-planning-risk-map>

## Department of Commerce (DOC) – Economic Development Administration (EDA)

### **Program Name: Economic Adjustment Assistance Program**

Purpose: Helps communities design and implement strategies to address evolving economic changes that are causing or threaten to cause serious structural damage to the underlying economic base or undermining locally-developed development goals.

Eligible Applicants: (1) District Organization of a designated Economic Development District; (2) Indian Tribe or a consortium of Indian Tribes; (3) State, county, city, or other political subdivision of a State, including a special purpose unit of a State or local government engaged in economic or infrastructure development activities, or a consortium of political subdivisions; (4) institution of higher education or a consortium of institutions of higher education; or (5) public or private non-profit organization or association acting in cooperation with officials of a political subdivision of a State.

Funding Range: Investments range from \$100,000 to \$1,250,000; the average is approximately \$829,000.

Program Activities: Can be used to conduct feasibility or environmental studies, capitalize revolving loan funds, and to fund the construction of publicly-owned infrastructure, such as water and sewer facilities, access roads, rail spurs, and broadband, to support the expansion of area businesses; business incubators; job training facilities; and other infrastructure investments.

Additional Information: <http://www.eda.gov/pdf/about/Economic-Adjustment-Assistance-Program-1-Page1.pdf>

### **Program Name: Public Works Program**

Purpose: The Public Works Program provides strategic-investments to help communities build or expand access to the infrastructure assets that are the most basic building blocks of an economy and are required to support the growth and economic development of distressed regions.

Eligible Applicants: (1) District Organization of a designated Economic Development District; (2) Indian Tribe or a consortium of Indian Tribes; (3) State, county, city, or other political subdivision of a State, including a special purpose unit of a State or local government engaged in economic or infrastructure development activities, or a consortium of political subdivisions; (4) institution of higher education or a consortium of institutions of higher education; or (5) public or private non-profit organization or association acting in cooperation with officials of a political subdivision of a State.

Funding Range: Investments range from \$200,000 to \$3,000,000, the average is approximately \$1.4 million.

Program Activities: Traditional infrastructure through this program including water and sewer system improvements, industrial parks, business incubator facilities, expansion of port and harbor facilities, skill-training facilities, and the redevelopment of brownfields. Also, technology-based facilities; research and development commercialization centers; facilities for workforce development; wet labs; multi-tenant manufacturing facilities; research, business and science parks with fiber optic cable; and telecommunications infrastructure and development facilities.

Additional Information: <http://www.eda.gov/pdf/about/Public-Works-Program-1-Pager.pdf>

## DOC – National Oceanic and Atmospheric Administration (NOAA)

### **Program Name: Alaska Center for Climate Assessment & Policy**

Purpose: NOAA’s Regional Integrated Sciences & Assessments (RISA) program supports research teams that help expand and build the nation’s capacity to prepare for and adapt to climate variability and change.

Eligible Applicants: NOAA 5 year funding agreement with ACCAP; ACCAP awards funding to other entities to accomplish its five year goals.

Funding Range: Varies.

Program Activities: Partner with stakeholders to inform realistic community plans and climate adaptation strategies using the most scientifically accurate, reliable, and up-to-date information.

Additional Information:

<http://cpo.noaa.gov/ClimatePrograms/ClimateandSocietalInteractions/RISAProgram/RISATeams/ACCA.P.aspx>

### **Program Name: Alaska Ocean Observing System**

Purpose: Address regional and national needs for ocean information, gather specific data on key coastal and ocean variables, and ensure timely and sustained dissemination and availability of these data.

Eligible Applicants: AOOS Funding is based on a five year plan focusing on: safe marine operations; coastal hazard mitigation; tracking ecosystem and climate trends; and monitoring water quality.

Funding Range: \$0-\$500k.

Program Activities: (1) Enables advances in scientific understanding to support the sustainable use, conservation, management, and understanding of healthy ocean and coastal resources.

(2) Improves the Nation’s capability to measure, track, explain, and predict events related directly and indirectly to weather and climate change, natural climate variability, and interactions between the oceanic and atmospheric environments.

Additional Information: <http://www.ioos.noaa.gov/regions/aos.html>

**Program Name: Analyze, Forecast, and Support**

Purpose: Field forecast and warnings, facilities supporting the mission and programmatic leadership in the provision of life saving decision support services.

NWS has initiated Impact Based Decision Support Services (IDSS) to provide better, more useful information to partners, emergency managers, and decision makers to foster an appropriate public response.

Eligible Applicants: None, work is performed by NOAA.

Funding Range: N/A

Program Activities: Provides decision support services, warning coordination, and Arctic environmental intelligence (timely, reliable, and actionable information to help plan for and adapt to economic and ecological impacts, including disasters) to the State of Alaska and Alaska Native partners, industry and community stakeholders, and federal and other local officials.

Addresses mitigation science and technology gaps in the Arctic as well as forecast challenges to improve IDSS), such as: scarcity of in-situ observations (e.g., wave, ocean, and ice buoys, weather observation platforms, river gauge) in the Arctic; performance concerns with weather, water, ocean and wave prediction models in the Arctic region as compared to the rest of the US; and the lack of maturity of tactical and medium range weather and sea ice modeling capabilities.

Additional Information: <http://www.weather.gov/organization/afs>

**Program Name: Integrated Ocean & Coastal Mapping Program**

Purpose: Planning, acquiring, integrating, and disseminating ocean and coastal geospatial data and derivative products in a manner that permits easy access to and use by the greatest range of users.

Eligible Applicants: Participation in the IOCM approach (map used many times) is voluntary but coordination with and leveraging of other partner efforts are encouraged.

Funding Range: N/A

Program Activities: Federal mapping coordination.

Additional Information: <http://iocm.noaa.gov/>

**Program Name: National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**

Purpose: Area Committees -- composed of federal, state, and local government officials -- must develop detailed, location-specific Area Contingency Plans.

Eligible Applicants: Federal, state, and local government officials serve on the committees. Participation and input by Alaska Native entities to the committees is encouraged.

Funding Range: N/A

Program Activities: Planning, preparedness, and exercises support resiliency to oil spills. Environmental Sensitivity Indices (ESI) maps and other tools assess the risk from oil spills and would also be useful potential species impacts.

Additional Information: <http://response.restoration.noaa.gov/>

### **Program Name: Climate Program**

Purpose: Fund high-priority climate science, assessments, decision support research, outreach, education, and capacity-building activities designed to advance our understanding of Earth's climate system, and to foster the application of this knowledge in risk management and adaptation efforts.

Eligible Applicants: None, work is performed by NOAA.

Funding Range: Varies.

Program Activities: Varies.

Additional Information: <http://cpo.noaa.gov/>

### **Program Name: Observations**

Purpose: Collection of space, atmosphere, water, and climate observational data owned or leveraged by National Weather Service. The Office is responsible for the development, acquisition and management of cost-effective observing technologies, hardware and software enhancements, maintenance and repairs, logistics, cost management, technical data verification, and life-cycle replacements of NWS observational platforms.

Eligible Applicants: None, work is performed by NOAA.

Funding Range: N/A

Program Activities: Weather and sea ice observations.

Additional Information: <http://www.nws.noaa.gov/om/osd/portal.shtml>

## Department of Energy (DOE)

### **Program Name: Alaska Strategic Technical Assistance Response Team (START) Program**

Purpose: To provide technical assistance in strategic energy planning to accelerate clean energy and energy efficiency projects and move projects closer to implementation.

Eligible Applicants: Any Indian Tribe, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act (43 U.S.C. 1601 et seq.).

Funding Range: Varies.

Program Activities: The START team, which consists of DOE, including its national laboratories, and the Denali Commission, along with DOE's national laboratories and other local and national experts, assists rural Alaska Native communities in developing strategic energy plans to help mitigate the impacts of climate change by conducting energy awareness and training programs, and pursuing new renewable energy and energy efficiency opportunities. As a competitive technical assistance opportunity, Alaska START is aimed at achieving the following goals:

- Reducing the cost and use of energy for rural Alaska consumers and communities
- Increasing local capacity, energy efficiency, and conservation through training and public education
- Increasing renewable energy deployment and financing opportunities for communities and utilities.

Additional Information: <http://www.energy.gov/indianenergy/office-indian-energy-start-team>

### **Program Name: Tribal Energy Program**

Purpose: To provide financial and technical assistance that enables tribes to evaluate and develop their renewable energy resources and reduce their energy consumption through efficiency and weatherization.

Eligible Applicants: Federally recognized Indian tribes, bands, nations, Alaska Native villages; other organized tribal groups and communities – including Alaska Native regional and village corporations; tribal energy resource development organizations.

Funding Range: Varies.

Program Activities: DOE's Tribal Energy Program promotes tribal energy sufficiency and fosters economic development and employment of energy efficiency on tribal lands through the use of renewable energy and energy efficient technologies through government-to-government partnerships. The Tribal Energy program provides financial opportunities through a competitive process; technical assistance through DOE's national laboratories; and education and training through webinars, student internships, and workshops to help build the knowledge and skills essential to developing, implementing and sustaining energy efficiency and renewable energy efficiency and renewable energy projects.

Additional Information: <http://apps1.eere.energy.gov/tribalenergy/>

## Department of the Interior (DOI)

### **Program Name: Alaska Climate Science Center**

Purpose: The Alaska Climate Science Center (AK CSC) provides scientific information, tools, and techniques that managers and other parties interested in land, water, wildlife and cultural resources can use to anticipate, monitor, and adapt to climate change.

Eligible Applicants: Any

Funding Range: No specific funding levels or deadlines.

Program Activities: The Center and its partners provide expertise in climate science, ecology, environmental impacts assessment, modeling, cultural impacts, and advanced information technology.

Additional Information: <https://www.doi.gov/csc/alaska/>

### **Program Name: Alaska National Interest Lands Conservation Act (ANILCA) Sec. 1318 Historic Assistance**

Purpose: Technical assistance in preserving cultural resources.

Eligible Applicants: All Tribes and Corporations in Alaska.

Funding Range: No specific funding levels or deadlines.

Program Activities: Wide variety of activities related to cultural resources.

Additional Information: Telephone: (907) 644-3456

### **Program Name: Landscape Conservation Cooperatives**

Purpose: Science and technical assistance.

Eligible Applicants: Any village or other entity.

Funding Range: No specific funding levels or deadlines.

Program Activities: Examples: provide tools to assess coastal hazards, including accelerated coastal erosion associated with climate change. Specific projects include: acquisition and analysis of imagery to quantify historical erosion rates and enable communities to consider the stability of existing and future infrastructure; data and modeling needed to predict the severity of flooding based on the circumstances and magnitude of storms; community vulnerability assessments that incorporate coastal erosion as well as other aspects of coastal change.

These projects are underway or are newly completed. A shared effort is planned by LCCs in Alaska to work with partners and communities to utilize these tools and information during the winter of 2015-16.

Additional Information: Arctic Landscape Conservation Cooperative: <http://arcticlcc.org/>

Western Alaska Landscape Conservation Cooperative:  
<https://westernalaskalcc.org/SitePages/Western%20Alaska%20LCC.aspx>

**Program Name: North Slope Science Initiative**

Purpose: To facilitate and improve collection and dissemination of ecosystem information pertaining to the Alaskan North Slope region, including coastal and offshore regions. To improve scientific and regulatory understanding of terrestrial, aquatic, and marine ecosystems for consideration in the context of resource development activities and climate change.

Eligible Applicants: Any.

Funding Range: No specific funding levels or deadlines.

Program Activities: Provide resource managers with the data and analyses they need to help evaluate multiple simultaneous goals and objectives related to each agency's mission on the North Slope. The NSSI uses and complements the information produced under other North Slope science programs. The NSSI also facilitates information sharing among agencies, non-governmental organizations, industry, academia, international programs, and members of the public to increase communication and reduce redundancy among science programs.

Additional Information: <http://www.northslope.org/>

**Program Name: Subsistence – ANLICA Title VIII**

Purpose: Technical assistance related to subsistence.

Eligible Applicants: Any Tribe or village in Alaska.

Funding Range: No specific funding levels or deadlines.

Program Activities: Examples: 1) subsistence mapping in coastal communities to document where people go for particular resources at particular times of the year; and 2) document the flow of resources through sharing networks, which could be greatly disrupted if whole communities and groups of families are relocated.

Additional Information: Telephone (907) 644-3596.

**DOI – Bureau of Indian Affairs (BIA)**

**Program Name: Cooperative Landscape Conservation (shifting to Tribal Climate Resilience in FY16)**

Purpose: Funding for tribal climate adaptation, and ocean & coastal planning. Engagement and technical support, not operational funds.

Eligible Applicants: Federally Recognized Tribes.

Funding Range: Current administrative limit is \$250k per award.

Program Activities: BIA is investing in technical assistance to support adaptation planning, including coordination, training, travel support for relevant training, and digital access to data and tools.

Additional Information: <http://www.indianaffairs.gov/WhoWeAre/BIA/climatechange/index.htm>

### **Program Name: Indian Energy Resource Development Program**

Purpose: Assist tribes in development of tribal energy resources. This includes the Tribal Energy Development Capacity (TEDC) grant program to build capacity to develop conventional or renewable energy resources on Indian lands.

Eligible Applicants: Federally Recognized Tribes.

Funding Range: Varies depending on appropriations.

Program Activities: The TEDC grant program helps tribes in assessing, developing, or obtaining the managerial, organizational and technical capacity needed to develop energy resources on Indian land and to account properly for resulting energy production and revenues.

Additional Information: <http://www.bia.gov/WhoWeAre/AS-IA/IEED/DEMD/TEDCP/index.htm>

### **Program Name: Tribal Transportation Program**

Purpose: To provide funding to tribes for access to basic community services that enhance the quality of life in Indian country, such as construction and/or reconstruction of roads, bridges, docks and trails. The TTP replaces the former Indian Reservation Roads (IRR) program. Note that this program is the same as the Department of Transportation's (DOT) TTP, although DOT can additionally provide strategic planning.

Eligible Applicants: Federally Recognized Tribes.

Funding Range: TTP is formula funded.

Program Activities: New roads can be built based on the specific needs for evacuation routes, or redesigning if impacted roads by changes due to climatic variances (flooding, snow fences and road shelters, etc.). TTP funds can also be used for facility preservation, road maintenance and bridge maintenance, as well as "emergency relief for federally owned roads" (this includes tribal or native roads and facilities that are transportation related). Equipment storage, material storage, equipment purchase are other allowable uses.

Additional Information: BIA: <http://www.bia.gov/WhoWeAre/BIA/OIS/Transportation/index.htm>;

DOT: <http://flh.fhwa.dot.gov/programs/ttp/>



## Department of Transportation (DOT)

### **Program Name: Transportation Investment Generating Economic Return (TIGER)**

Purpose: Discretionary grants that focus on capital projects that generate economic development and improve access to reliable, safe and affordable transportation for disconnected communities, while emphasizing improved connection to employment, education, services and other opportunities, workforce development, or community revitalization.

Eligible Applicants: State, local and tribal governments, including U.S. territories, transit agencies, port authorities, metropolitan planning organizations (MPOs), and other political subdivisions of State or local governments.

Funding Range: \$500M nationwide funds. Funding cannot exceed \$200M and no more than \$125M in a single state. TIGER can cover up to 80% in an urban area and 100% in a rural area. Minimum award for urban is \$10M and rural is \$1M. The annual funding for TIGER changes annually based on the appropriations and authorizations.

Program Activities: Eligible projects for TIGER Discretionary Grants are capital projects that include, but are not limited to: highway or bridge projects eligible, (including bicycle and pedestrian related projects); public transportation projects; passenger and freight rail transportation projects; port infrastructure investments (including inland port infrastructure); and intermodal projects. Eligibility requirements must be satisfied.

Additional Information: <http://www.transportation.gov/tiger>

## DOT – Federal Aviation Administration (FAA)

### **Program Name: Airport Improvement Program**

Purpose: Airport improvement planning and development.

Eligible Applicants: Public-use airports included within the National Plan of Integrated Airport Systems (NPIAS).

Funding Range: State of Alaska: 93.75% Federal, 6.25% cost sharing.

Program Activities: The AIP is authorized to provide grant funding for eligible airport improvements as requested by eligible airport sponsors. This would potentially include measures to safeguard airport infrastructure from erosion.

Additional Information: <http://www.faa.gov/airports/aip/>

## DOT – Federal Highway Administration (FHWA)

### **Program Name: Federal-aid Highway Apportioned Funds**

Purpose: Planning, preventive maintenance, infrastructure preservation, construction of highways and bridges, safety, congestion mitigation, and air quality improvement.

Eligible Applicants: State of Alaska Department of Transportation and Public Facilities.

Funding Range: Alaska receives approximately \$480M in apportionment funds annually. Federal share is typically 80%.

Program Activities: In Alaska, Federal-aid highway apportioned funds may be used for roads, pedestrian facilities, and snowmobile trails. Funding may be available to assist villages with improving or repairing roads and boardwalks.

Additional Information: <http://www.fhwa.dot.gov/federalaid/projects.cfm>

### **Program Name: Tribal Transportation Program (TTP)**

Purpose: To provide funding to tribes for access to basic community services that enhance the quality of life in Indian country, such as construction and/or reconstruction of roads, bridges, docks and trails. The TTP replaces the former Indian Reservation Roads (IRR) program. Note that this program is the same as the DOI BIA TTP, although DOT can additionally provide strategic planning.

Eligible Applicants: Federally recognized Tribes.

Funding Range: In MAP-21, the TTP is authorized at \$450 million/year and funds are distributed through a statutory formula. The federal share is 100%.

Program Activities: Eligible uses for TTP funds are identified in 23 USC 202(a). These include transportation planning, design, construction, and maintenance of roads and bridges as well as any other project that would be eligible under Title 23. The project must be on or for a facility that provides access to or is located within tribal land. The planning and construction of emergency escape or relocation routes are eligible activities.

Additional Information: DOT: <http://flh.fhwa.dot.gov/programs/ttp/>;  
BIA: <http://www.bia.gov/WhoWeAre/BIA/OIS/Transportation/index.htm>

## DOT – Federal Transit Administration (FTA)

### **Program Name: Public Transportation on Indian Reservations Program Tribal Transit Program (TTP)**

Purpose: Provide grants to Indian tribes for program activities eligible under FTA’s Rural Areas Formula Program, 49 U.S.C. 5311.

Eligible Applicants: Federally recognized Indian Tribes and Alaskan Native villages, groups, or communities.

Funding Range: \$25 million formula program and \$5 million discretionary program. Discretionary funds are made available annually on a competitive basis.

Program Activities: Operating assistance to enable tribes to start new transit services; capital to enable tribal investment in new or replacement equipment; and funding for tribal transit planning studies. Examples of eligible resilience projects may include elevating or relocating transit assets that are located in a special flood hazard area, protecting transit assets vulnerable to high winds, installing mitigation measures that prevent the intrusion of floodwaters into underground segments of a public transportation system, strengthening systems that remove rainwater from public transportation facilities, and other projects that address identified vulnerabilities. However, relocating non-transit assets would not be considered an eligible resilience project.

Additional Information: [http://www.fta.dot.gov/grants/15926\\_3553.html](http://www.fta.dot.gov/grants/15926_3553.html)

## Environmental Protection Agency (EPA)

### **Program Name: Alaska Native Village Grant**

Purpose: To assist Alaska Native Villages and Alaska rural communities with the construction of new or improved drinking water and wastewater systems.

Eligible Applicants: The applicant must be an unincorporated community that has between 25 and 600 people; a second-class city (no population limits); or a first class city with not more than 600 residents.

Funding Range: Funding varies.

Program Activities: The program is planning, designing and constructing new and or improved water and wastewater infrastructure in various communities throughout the State of Alaska to improve the health and sanitation conditions in rural Alaska.

The ANV Program provides technical support to communities to design and construct water and wastewater systems. It is meant to assist Alaska Native Villages and Alaska rural communities with the construction of new or improved drinking water and wastewater systems. This funding can also be used to provide training and technical assistance in the operations and maintenance of these systems.

Additional Information: <http://water.epa.gov/type/watersheds/wastewater/Alaska-Native-Village-and-Rural-Communities-Grant-Program.cfm>

### **Program Name: Clean Water Act Indian Set-Aside Program**

Purpose: Provides funding, 2% of the CWA SRF, for wastewater infrastructure to Indian tribes and Alaska Native Villages. The CWISA Program is administered in cooperation with the Indian Health Service (IHS). EPA uses the IHS Sanitation Deficiency System priority lists to identify and select projects for CWISA program funding. To be considered for CWISA Program funding, tribes must identify their wastewater needs to the IHS Sanitation Deficiency System.

Eligible Applicants: All federally recognized tribes, Alaska Native Villages, and tribes on former reservations in Oklahoma are eligible for CWISA Program funds.

Funding Range: Funding varies.

Program Activities: The program is planning, designing and constructing new and or improved wastewater infrastructure in various communities throughout the State of Alaska to improve the health and sanitation conditions in Alaska Native Villages. EPA issues all or the vast majority of funds to the Indian Health Service for Administration.

Additional Information: <http://water.epa.gov/type/watersheds/wastewater/clean-water-indian-set-aside-grant-program.cfm>

### **Program Name: Environmental Justice Collaborative Problem-Solving Cooperative Agreement Program**

Purpose: Provides funding for eligible applicants for projects that address local environmental and public health issues within an affected community. The CPS Program is designed to help communities understand and address exposure to multiple environmental harms and risks.

Eligible Applicants: Nonprofit organizations including, but not limited to, environmental justice networks; Federally recognized tribal governments; or Tribal organizations (includes American Indian/Alaska Native groups, cooperatives, partnerships, associations).

Funding Range: Up to \$120,000.

Program Activities: Funds enable community-based organizations to partner with stakeholders from across industry, government, academia to develop and implement solutions that will significantly address

environmental and/or public health issues at the local level. Projects must use the CPS Model, comprised of seven elements of a successful collaborative partnership, to address local environmental and/or public health issues.

Additional Information: <http://www.epa.gov/environmentaljustice/grants/ej-cps-grants.html>

### **Program Name: Environmental Justice Small Grants**

Purpose: The purpose of this grant program is to support activities designed to empower and educate communities to understand environmental and public health issues and to identify ways to address these issues at the local level. EPA anticipates awarding up to 25% of fiscal year 2015 awards to fund projects that support community climate resiliency.

Eligible Applicants: Incorporated non-profit organizations including, but not limited to, environmental justice networks, faith based organizations and those affiliated with religious institutions; federally recognized tribal governments; or tribal organizations.

Funding Range: Varies (up to \$30,000).

Program Activities: Supports and empowers communities working on solutions to local environmental and public health issues. The program assists recipients in building collaborative partnerships to help them understand and address environmental and public health concerns in their communities. Successful collaborative partnerships involve not only well-designed strategic plans to build, maintain, and sustain the partnerships, but also working towards addressing the local environmental and public health issues.

Additional Information: <http://www.epa.gov/environmentaljustice/grants/ej-smgrants.html>

### **Program Name: Indian General Assistance Program (IGAP)**

Purpose: Provide General Assistance Program (GAP) grants to federally recognized tribes and tribal consortia for planning, developing, and establishing environmental protection programs. The GAP program is exempt from competition, therefore, applications that meet the stated requirements in program regulations and guidance will be funded if funds are available.

Eligible Applicants: All federally recognized tribes in Region 10 are eligible to receive funds. Tribal consortia that meet the eligibility requirements may also receive funding, if available.

Funding Range: Typically \$75,000 - \$125,000 per year per grantee in Alaska (special projects not included).

Program Activities: Funding is provided under GAP for the purposes of planning, developing, and establishing tribal environmental protection programs. For example a tribe could use GAP funds to develop a climate change adaptation plan or to establish environmental protection programs that compliment non-environmental protection programs.

Activities related to establishing education, outreach, public participation, compliance assistance, and coordination programs for tribal environmental staff to work effectively with regulated entities are allowable.

Specific examples of allowable activities: climate change vulnerability/risk assessment; climate change preparedness/adaptation program (e.g., zoning rules and regulations; tax incentives; building codes/design standards; utility rates/fee setting; public safety rules and regulations); outreach and education; emergency management powers; community outreach/education programs; developing voluntary or partial environmental protection programs; participating in environmental policy making; coordinating with EPA or other federal agencies on the implementation of federal environmental protection programs; and entering into joint environmental protection programs with neighboring tribal, state, or local environmental agencies.

Additional Information: <http://yosemite.epa.gov/R10/TRIBAL.NSF/Grants/IGAP>

**Program Name: Office of Water Climate Ready Water Utilities Program (CRWU)**

Purpose: Assists drinking water, wastewater, and stormwater utilities, in addressing climate change impacts. Through the development of practical and easy-to-use tools, EPA promotes a clear understanding of climate science and adaptation options by translating complex climate projections into accessible formats. This information helps utility owners and operators better prepare their systems for the impacts of climate change.

Eligible Applicants: All water utilities can ask for assistance.

Funding Range: No direct funding. This is a technical assistance program.

Program Activities: Extreme weather events, sea level rise, shifting precipitation patterns and temperature variability, all intensified by climate change, have significant implications for the sustainability of the water sector. By planning for, assessing and adapting to these challenges, the water sector can fulfill their public health and environmental missions and begin the process of becoming climate ready.

Additional Information: <http://water.epa.gov/infrastructure/watersecurity/climate/index.cfm>

**Program Name: Safe Drinking Water Act (SDWA) Tribal Set-Aside Program**

Purpose: Provides grants to Indian Tribes, Alaska Native Villages, and to the State of Alaska for the benefit of the native villages. The grant funds are used to address the most significant threats to public health associated with Public Water Systems that serve Indian Tribes. Most types of projects that improve the health of the public being served by the public water system are eligible for funding, 2% of the SDWA State Revolving Fund.

Eligible Applicants: Any federally recognized Indian tribe is eligible to receive a project grant through the program. Eligible systems must serve tribes or Alaskan Native Villages, though they can be owned by someone other than the tribe. Private systems are also eligible.

Funding Range: Funding varies.

Program Activities: The program is planning, designing and constructing new and or improved drinking water infrastructure in various communities throughout the State of Alaska to improve the health and sanitation conditions in Alaska Native Villages. Funds may also be used to conduct project feasibility studies, engineering design work, and for project administration. EPA issues all or the vast majority of funds to the Indian Health Service for Administration.

Additional Information: [http://water.epa.gov/grants\\_funding/dwsrf/allotments/tribes.cfm](http://water.epa.gov/grants_funding/dwsrf/allotments/tribes.cfm)

## Department of Health and Human Services (HHS)

### **Program Name: Administration for Children and Families (ACF) / Administration for Native Americans (ANA) Environmental Regulatory Enhancement**

Purpose: To provide funding for the costs of planning, developing, and implementing programs designed to improve the capability of tribal governing bodies to regulate environmental quality pursuant to federal and tribal environmental laws.

Eligible Applicants: Federally recognized Indian tribes; Consortia of Indian tribes; Incorporated non-federally recognized tribes; Incorporated state-recognized tribes; Alaska Native villages, as defined in the Alaska Native Claims Settlement Act (ANCSA) and/or non-profit village consortia; Non-profit Alaska Native Regional Corporation/Associations in Alaska with village specific projects; Other tribal or village organizations or consortia of Indian tribes; and Tribal governing bodies (IRA or traditional councils) as recognized by the Bureau of Indian Affairs.

Funding Range: \$300,000 per Budget Period.

Program Activities: The ERE program supports the principle that projects must follow tribal cultural preservation and natural resource management priorities in order to achieve environmentally healthy, sustainable Native American and Alaska Native communities. The Administration for Native Americans (ANA) is therefore interested in supporting locally designed projects that strengthen tribal environmental regulatory programs in a manner consistent with the goals of native communities. Program areas of interest for this FOA include, but are not limited to, the following:

Providing training and education to employees responsible for enforcing, or monitoring compliance with, environmental quality laws; Developing laws, regulations, and ordinances to protect the environment; Enforcing and monitoring environmental quality laws, regulations, and ordinances; Establishing baseline condition for regulatory purposes; Informing the community about regulations and environmental

stewardship; Building the technical and program capability of the tribe or organization to perform essential environmental program functions to meet tribal and federal regulatory requirements; Establishing demonstration projects to exhibit technologies, which can lead to compliance with environmental regulations.

Additional Information: <http://www.acf.hhs.gov/grants/open/foa/index.cfm?switch=foa&fon=HHS-2014-ACF-ANA-NR-0777>

**Program Name: Center for Disease Control (CDC) / National Center for Infectious Diseases (NCID) / Arctic Investigations Program (AIP)**

Purpose: AIP's mission is the prevention of infectious diseases in people of the Arctic and sub-Arctic. AIP places a special emphasis on diseases of high incidence and concern among the Alaska Native and other northern indigenous peoples. AIP conducts infectious disease surveillance, evaluate prevention services, and conduct applied research in collaboration with our partners.

Eligible Applicants: N/A

Funding Range: Intramural.

Program Activities: AIP focuses its research on priority areas that are of regional importance. These priority areas include: Surveillance in Alaska; Elimination of health disparities; Emerging infectious diseases; Preparedness and response; Circumpolar health; Water and sanitation. Focusing on these priority areas allows AIP to achieve its mission of preventing infectious diseases in the Arctic and sub-Arctic. These research priorities also provide a platform for strong partnerships, which combine CDC subject-matter expertise with local knowledge and community involvement. By working together, AIP has become a national and international research leader.

Additional Information: <http://www.cdc.gov/ncezid/dpei/aip/>

**Program Name: CDC – National Institute for Occupational Safety and Health (NIOSH) American Indian/Alaska Native Program**

Purpose: Collaborate with American Indian and Alaska Native (AI/AN) communities, organizations and partners to provide occupational safety and health (OSH) support.

Eligible Applicants: Tribal representatives, tribal employers, or their designees in need of occupational safety and health support can contact CDC/NIOSH directly to access a variety of programs.

Funding Range: N/A

Program Activities: Addresses occupational safety and health in tribal communities. NIOSH provides technical expertise in OSH through field studies and investigations, conducts health hazard evaluations (HHEs) and fatality investigations, and provides resources on specific OSH topics. We can offer technical assistance (tribal representatives, tribal employers/employees, and their designees). These include Health Hazard Evaluations, Fatality Investigations, and safety program support.



Additional Information: <http://www.cdc.gov/niosh/>

**Program Name: CDC –NIOSH Climate Change Initiative**

Purpose: Ensure current, emerging, and anticipated worker safety and health issues associated with climate change are appropriately identified and prioritized, and to determine the most important actions that are appropriate for CDC/NIOSH to address. Can provide technical assistance regarding occupational safety and health issues.

Funding Range: No direct funding, no cost for technical assistance.

Program Activities: Promote and coordinate intramural and extramural research, support and help facilitate other CDC/NIOSH initiatives with climate change implications, establish research priorities, recommend appropriate policies to CDC/NIOSH Leadership, interact with other agencies and organizations involved with climate change and participate on standard setting or technology development committees and work groups; Prepare and publish communication products regarding worker safety and health and climate change; Coordinate the provision of occupational safety and health related technical assistance to communities affected by climate change.

Additional Information: <http://www.cdc.gov/niosh/topics/climate/default.html>

**Program Name: National Institute of Health (NIH) / National Institute of Environmental Health Sciences (NIEHS) Alaska Community Action on Toxics - Protecting the Health of Future Generations: Assessing and Preventing Exposures**

Purpose: This community-based participatory research project investigates exposures to two classes of emerging endocrine-disrupting chemicals (EDCs) with the Yupik people of St. Lawrence Island (SLI) in the *Alaskan Arctic*. Exposure to POPs from both distant and local sources is a trend in the Arctic that is likely to increase due to increased global use and production of EDCs and climate warming. The aim of this exposure assessment is to provide information, ownership of data, and training for the people of SLI so that they can plan and participate in public health actions to reduce environmental health risks.

Eligible Applicants: Yupik people of St. Lawrence Island (SLI) in the Alaskan Arctic.

Funding Range: N/A

Program Activities: The purpose of this project is to initiate research partnerships that work in collaboration with the two Yupik villages of SLI to assess multiple exposure routes of two emerging EDCs-polybrominated diphenyl ethers (PBDEs) and perfluorinated compounds (PFCs). The project will assess exposures to PBDEs and PFCs in surface waters through analyses of contaminant levels and biomarkers for xenobiotic chemicals in the threespine stickleback fish. The research team will also analyze household dust for PBDEs and PFCs. Because the Yupik people of SLI depend on the harvest of wild foods to sustain them and their way of life, the research team will analyze levels of PBDEs and PFCs in traditional foods which are likely a major exposure pathway due to the biomagnification of POPs in marine mammals and fish that are critical components of the Yupik diet. This study will include a human

biomonitoring component in order to assess levels of PBDEs and PFCs in human blood serum in relation to measures of thyroid health.

Finally, the research team collaborates with the leadership, elders, and youth of SLI to develop measures to prevent and mitigate environmental exposures through community educational programs and public policy actions, including community-based research institutes for college credit, health fairs for all community members, and workshops for health care providers.

Additional Information:

[http://tools.niehs.nih.gov/portfolio/index.cfm/portfolio/grantDetail/grant\\_number/R01ES019620](http://tools.niehs.nih.gov/portfolio/index.cfm/portfolio/grantDetail/grant_number/R01ES019620)

**Program Name: NIH / NIEHS Research to Action**

Purpose: Bring together community members and environmental and occupational health researchers to investigate the potential health risks of environmental and occupational exposures that are of concern to the community. The overall goal is to support changes to prevent or reduce exposure to harmful environmental exposures and improve the health of a community.

Eligible Applicants: All projects must include at least one research scientist in environmental or occupational health sciences in addition to at least one member of a community-based organization (CBO) who works directly and regularly with the affected community. The partnership between the research scientist and CBO should be equitable and draw upon the unique strengths that each brings to the partnership. Alaska Native and Native Hawaiian Serving Institutions encouraged to apply.

Funding Range: Direct costs must be less than \$500,000 in any year, and need to reflect actual needs of the proposed project. The maximum period is 5 years.

Program Activities: Data collection, translation of research into public health action, and project evaluation are all required. Information collected will be translated into public health action using a variety of strategies; applicants must develop an education, outreach, prevention or intervention program(s) designed to improve overall understanding of the problem amongst community members, healthcare professionals or policymakers and to promote actions that will prevent or reduce harmful environmental / occupational exposures and improve human health. Finally, applicants must implement an evaluation plan to assess project outputs and impacts relevant to the proposed project's goals and objectives.

Additional Information:

<http://www.niehs.nih.gov/research/supported/dert/programs/peph/prog/rta/index.cfm>

**Program Name: NIH/NIEHS The Center for Indigenous Environmental Health Research**

Purpose: Partner with American Indian and Alaskan Native communities to build capacity to evaluate environmental health exposures, increase environmental health literacy and resilience, and inform program and policy development. The Center's Community Engagement Core will collaborate with

American Indian and Alaska Native (AI/AN) communities to develop culturally-relevant policies and assets-based programs that reinforce resilience to mitigate adverse health effects.

Eligible Applicants: N/A

Funding Range: N/A

Program Activities: The specific aims of the CEC are: 1) Dialogue: To equitably engage AI/AN stakeholders and CIEHR members for the ethical and culturally-appropriate translation and application of Center findings; 2) Knowledge: To strengthen the environmental health literacy (EHL) of AI/AN leaders, policy-makers and community members; 3) Action: To strengthen community resilience and capacity to promote environmental health in AI/AN communities on tribal lands and in urban settings; and 4) Evaluation: To assess the effectiveness of the CEC activities and contributions to the mission of the Center. The CEC will achieve the aims by utilizing long-term partnerships with tribal, rural, and urban AI/AN communities. The CEC will also build on the knowledge, lessons learned, strategies, and resources from the two established Centers located at the same institution: the Southwest Environmental Health Sciences Center and Center for American Indian Resilience. All CEC strategies and activities will be informed by community-based participatory research (CBPR) principles, which have been shown to be effective in AI/AN communities. Major strategies will include: 1) guiding the development of Community Advisory Boards (CABs) for each proposed research project and pilot projects; 2) giving presentations at tribal meetings, AI/AN health events, regional forums and national conferences; 3) conducting baseline assessments of EHL, implementing EHL community interventions and testing effectiveness; 4) developing and administering CBPR training to tribal leaders, community members, and researchers; 5) identifying and implementing strategies for enhancing community assets and resilience that improve health, build community capacity, and foster policy change; and 6) conducting short, mid, and long-term evaluation of CEC activities. The CEC will collaborate with the CABs and AI/AN partners to disseminate and translate successful research outcomes to tribal leadership, local communities, regional and national AI/AN forums, and scientific audiences to reduce environmental health risks and build AI/AN resilience across the U.S.

Additional Information:

[http://projectreporter.nih.gov/project\\_info\\_description.cfm?aid=8994391&icde=25964664&ddparam=&dvalue=&ddsub=&cr=3&csb=default&cs=ASC](http://projectreporter.nih.gov/project_info_description.cfm?aid=8994391&icde=25964664&ddparam=&dvalue=&ddsub=&cr=3&csb=default&cs=ASC)

## Department of Housing and Urban Development (HUD)

### **Program Name: Community Development Block Grant**

Purpose: To provide funding to metropolitan cities, urban counties and states to support their housing and community development strategies to develop viable urban communities.

Eligible Applicants: Funds are allocated by formula to metropolitan cities, urban counties and States.

Funding Range: Annual formula grants are provided to Alaska's two CDBG grantees – the State of Alaska and the Municipality of Anchorage.

Program Activities: Develop viable urban communities by providing decent housing and a suitable living environment, and by expanding economic opportunities, principally for low-and moderate-income persons.

Additional Information:

[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/comm\\_planning/communitydevelopment](http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment)

### **Program Name: Emergency Solutions Grants Program**

Purpose: To provide grant funds to State and local governments for the rehabilitation or conversion of buildings for use as emergency shelter for the homeless, for the payment of certain expenses related to operating emergency shelters, for essential services related to emergency shelters and street outreach for the homeless, and for homelessness prevention and rapid rehousing.

Eligible Applicants: The homeless, homelessness prevention and rapid re-housing.

Funding Range: Annual formula grants for the State of Alaska and the Municipality of Anchorage.

Program Activities: Rehabilitation or conversion of buildings for use as emergency shelter for the homeless, for the payment of certain expenses related to operating emergency shelters, for essential services related to emergency shelters and street outreach for the homeless, and for homelessness prevention and rapid re-housing.

Additional Information: [portal.hud.gov/hudportal/HUD?src=/hudprograms/esg](http://portal.hud.gov/hudportal/HUD?src=/hudprograms/esg)

### **Program Name: Indian Community Development Block Grant**

Purpose: Development of viable Indian and Alaska native communities, including decent housing, a suitable living environment, and economic opportunities, principally for persons of low and moderate income.

Eligible Applicants: Federally-recognized Tribes or Indian Organizations on behalf of Federally-recognized Tribes. For the standard ICDBG program, applicant must submit an application under the annual Notice of Funding Availability (NOFA). Applications for imminent threat grants are processed on a first come, first serve basis.

Funding Range: The Alaska Office of Native American Programs has an estimated ICDBG allocation for FY2015 of \$6,500,000 for grant awards. The ICDBG program also has a national set-aside of approximately \$3,500,000 to fund Imminent Threat applications.

Program Activities: The competitive ICDBG program may be used for new construction, rehabilitation, and acquisition of residential units and public facilities as well as housing services, economic development projects. There is also a national set-aside for ICDBG Imminent Threat (IT) grants that are intended to alleviate or remove threats to health or safety as described at 24 CFR Part 1003, subpart E.

These grants provide a solution to problems of an urgent nature that were not evident at the time of the ICDBG Single Purpose funding grant cycle or require immediate action. These are non-competitive grants up to \$450,000 (\$900,000 for Presidentially-Declared Disasters) on a first come first serve basis. 70 percent of each grant must support activities that benefit low and moderate income persons.

Additional Information:

[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/public\\_indian\\_housing/ih/codetalk/fundingprogram#IHBG](http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/ih/codetalk/fundingprogram#IHBG)

**Program Name: Mortgage Insurance for Disaster Victims – 203(h)**

Purpose: This program provides mortgage insurance to protect lenders against the risk of default on mortgages to qualified disaster victims.

Eligible Applicants: Eligible customers are anyone whose home has been destroyed or severely damaged in a Presidential declared disaster area.

Funding Range: No down payment is required. The borrower is eligible for 100 percent financing. Closing costs and applicable fees must be paid according to program requirements.

Program Activities: Insure mortgages.

Additional Information: [portal.hud.gov/hudportal/HUD?src=/hudprograms/mifdv\\_section203h](http://portal.hud.gov/hudportal/HUD?src=/hudprograms/mifdv_section203h)

**Program Name: Native American Housing and Self-Determination Act (NAHASDA) - Indian Housing Block Grant Program**

Purpose: Supports a range of affordable housing activities on Indian reservations and Indian areas.

Eligible Applicants: Federally-recognized Tribes and their Tribally Designated Housing Entities are eligible to participate in this program.

Funding Range: Annual formula block grant to Indian Tribes and/or TDHEs. Alaska recipients received \$94,588,589 State-wide in FY 2015 for the Indian Housing Block Grant program.

Program Activities: IHBG funding can be used for a variety of activities including new construction, rehabilitation, acquisition, housing services, and crime prevention. The Title VI loan guarantee program can be used to leverage all the above activities with a private market loan.

Additional Information:

[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/public\\_indian\\_housing/ih/codetalk/fundingprogram#IHBG](http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/ih/codetalk/fundingprogram#IHBG)

**Program Name: Section 184 Loan Guarantee Program**

Purpose: Provides homeownership opportunities to Native American living on trust, restricted, and simple fee land.

Eligible Applicants: Native Americans, Tribes, or Tribally Designated Housing Entities.

Funding Range: Varies.

Program Activities: This program offers HUD approved loan guarantees to private sector lenders who make home mortgage loans to eligible participants.

Additional Information:

[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/public\\_indian\\_housing/ih/codetalk/fundingprogram#IHBG](http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/ih/codetalk/fundingprogram#IHBG)

**Program Name: Title VI Loan Guarantee Program**

Purpose: To obtain financing for up to five times the amount of the Tribe's annual NAHASDA IHBG.

Eligible Applicants: Federally Recognized Tribes and their Tribally Designated Housing Entities are eligible to participate in this program.

Funding Range: Varies.

Program Activities: Financing can be used for any affordable housing purpose in accordance with an approved Indian Housing Plan.

Additional Information:

[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/public\\_indian\\_housing/ih/codetalk/fundingprogram#IHBG](http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/ih/codetalk/fundingprogram#IHBG)

**US Army Corps of Engineers (USACE)**

**Program Name: Continuing Authorities Program (CAP)**

Purpose: Plan, design, and construct certain flood risk management and navigation improvements without specific congressional authorization. The basic objective of this program is to allow the Corps to respond more quickly to problems or needs where the apparent project scope and costs are small.

Eligible Applicants: State, Local, and Tribal Governments and ANCSA Corporations.

Funding Range: The amount of Federal participation is limited by Congress, and varies for each individual authority, however it is typically \$5 million Federal, cost shared 65% Federal, 35% Non-Federal.

Program Activities: Several authorities exist under CAP which allow the Corps to assist communities with aquatic ecosystem, flood damage reduction, small navigation, and emergency streambank and shoreline protection projects. An example of the type of work supported by this program is the construction of a small revetment at Shishmaref to reduce risks of coastal erosion.

Additional Information:

[http://planning.usace.army.mil/toolbox/agree.cfm?Id=229&Option=Continuing%20Authorities%20Program%20\(CAP\)&List=Process](http://planning.usace.army.mil/toolbox/agree.cfm?Id=229&Option=Continuing%20Authorities%20Program%20(CAP)&List=Process)

### **Program Name: International and Interagency Support Services**

Purpose: Planning, design, and/or construction for others.

Eligible Applicants: Federal State, Local, and Tribal Governments.

Funding Range: No per-project limit, all costs are born by the supported entity.

Program Activities: Interagency and International Services (IIS) is the U.S. Army Corps of Engineers (Corps) program providing technical assistance to non-Department of Defense (DoD) federal agencies, state and local governments, tribal nations, private U.S. firms, international organizations, and foreign governments. Most IIS work is funded on a reimbursable basis. The Corps provides engineering and construction services, environmental restoration and management services, research and development assistance, management of water and land related natural resources, relief and recovery work, and other management and technical services. An example of the type of work provided by this 100% stakeholder-funded program is the initiation of an adaptation study for Denali Commission looking at protect in place versus relocation for 31 communities identified by the GAO.

Additional Information:

<http://www.usace.army.mil/Missions/MilitaryMissions/InteragencyInternationalSupport.aspx>

### **Program Name: Planning Assistance to States**

Purpose: This program permits the Corps to use its technical planning expertise to supplement and support state and Indian tribe efforts to undertake broad, statewide, comprehensive water resources planning. Upon request, the Corps will cooperate with a state or tribe in the preparation of plans for the development, use and conservation of water and related land resources located within the state or tribal boundaries.

Eligible Applicants: State, Local, and Tribal Governments and ANCSA Corporations.

Funding Range: Cost shared at 50 percent federal, 50 percent non-federal. Limited to \$2 million per state or tribe annually. Individual studies generally range from \$25,000 to \$100,000.

Program Activities: Provides assistance to states, local governments, tribes and other non-federal entities for preparation of comprehensive plans for development and conservation of water and related land

resources. Studies are planning level of detail; they do not include detailed design for project construction.

Additional Information:

<http://www.poa.usace.army.mil/Portals/34/docs/civilworks/CAP/Section22PlanningAssistancetoStatesandTribes.pdf> (note: each Corps District has information about this program on their website).

**Program Name: Tribal Partnership Program**

Purpose: Secretary of the Army, in cooperation with Indian tribes and the heads of other Federal agencies, to study and determine the feasibility of carrying out projects that will substantially benefit Indian tribes.

Eligible Applicants: Tribal Governments and ANCSA Corporations.

Funding Range: No per-project limit, cost shared based on project purpose.

Program Activities: The U.S. Army Corps of Engineers can conduct studies that will substantially benefit Indian tribes. Topics that could be studied include flood damage reduction, environmental restoration and protection, preservation of natural and cultural resources, and, other projects the Secretary of the Army, in cooperation with Indian tribes and the heads of other Federal agencies, determines to be appropriate. This program provides an opportunity to assist with water resources projects that address economic, environmental and cultural resources needs.

Additional Information: <http://www.usace.army.mil/Missions/CivilWorks/TribalNations.aspx>

## US Department of Agriculture (USDA)

**Program Name: Business and Industry Loan Guarantee**

Purpose: Can assist rural business with construction, repairs, equipment, machinery, inventory and supplies.

Eligible Applicants: For-profit businesses, Nonprofits and cooperatives, Federally-recognized Tribes, Public bodies and Individuals in rural areas of 50,000 people or less.

Funding Range: \$5 – \$10 million loan limit with certain exceptions.

Program Activities: Eligible activities include but are not limited to: (1) business conversion, enlargement, repair, modernization, or development; (2) purchase and development of land, easements, rights-of-way, buildings, or facilities; (3) purchase of equipment, leasehold improvements, machinery, supplies, or inventory; (4) debt refinancing when new jobs will be created and other conditions are met;



(5) business and industrial acquisitions when the loan will keep the business from closing and/or save or create jobs.

Additional Information: <http://www.rd.usda.gov/programs-services/business-industry-loan-guarantees/ak>

**Program Name: Community Facilities Loans and Grants**

Purpose: Finance essential rural community facilities.

Eligible Applicants: Public bodies, non-profits, Tribes.

Funding Range: Grants are limited to 75% of project cost but average about \$30,000 due to limitation of funding. No loan limit.

Program Activities: Funds can be used to purchase, construct, and / or improve essential community facilities, purchase equipment and pay related project expenses.

Additional Information: <http://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program/ak>

**Program Name: Electric Loans**

Purpose: Build and repair electric infrastructure.

Eligible Applicants: Electric co-ops and other utilities (primarily).

Funding Range: No loan limit.

Program Activities: Funds may be used to finance electric infrastructure for: maintenance; upgrades; expansion; replacement of distribution, sub transmission and headquarters (service and warehouse) facilities; energy efficiency; and renewable energy systems.

Additional Information: <http://www.rd.usda.gov/programs-services/electric-infrastructure-loan-loan-guarantee-program>

**Program Name: Rural Business Development Grant**

Purpose: Facilitate the development of small and emerging business.

Eligible Applicants: Public bodies, non-profits and tribes.

Funding Range: \$50,000 - 100,000 maximum grant (depending on activity type).

Program Activities: Congress historically has mandated a portion of this program's funding specifically for Federally Recognized Tribes.

Additional Information: <http://www.rd.usda.gov/programs-services/rural-business-development-grants/ak>

### **Program Name: Rural Energy for America Loans and Grants**

Purpose: Purchase or install renewable energy systems or make energy efficiency improvements.

Eligible Applicants: Agricultural producers and rural small businesses.

Funding Range: Loan guarantees to \$25M; Grants to \$250,000 for energy efficiency improvements or \$500,000 for renewable energy systems.

Program Activities: Funds may be used for the purchase, installation and construction of renewable energy systems, such as: Biomass (for example biodiesel and ethanol, anaerobic digesters, and solid fuels); Geothermal for electric generation or direct use; Hydropower below 30 megawatts; Hydrogen; Small and large wind generation; Small and large solar generation; Ocean (tidal, current, thermal) generation.

Funds may also be used for the purchase, installation and construction of energy efficiency improvements, such as: High efficiency heating, ventilation and air conditioning systems (HVAC); Insulation; Lighting; Cooling or refrigeration units; Doors and windows; Electric, solar or gravity pumps for sprinkler pivots; Switching from a diesel to electric irrigation motor; Replacement of energy-inefficient equipment.

Additional Information: <http://www.rd.usda.gov/programs-services/rural-energy-america-program-renewable-energy-systems-energy-efficiency/ak>

### **Program Name: Sewer, Water, Solid Waste Loans and Grants**

Purpose: Provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage to households and businesses in eligible rural areas.

Eligible Applicants: This program assists qualified applicants that are not otherwise able to obtain commercial credit on reasonable terms. Eligible applicants include: Most State and local governmental entities, Private non-profits and Federally-recognized Tribes.

Funding Range: Grants are limited to 75% of project cost. No loan limit.

Program Activities: Funds may be used to finance the acquisition, construction or improvement of: drinking water sourcing, treatment, storage and distribution; sewer collection, transmission, treatment and disposal; solid waste collection, disposal and closure; and storm water collection, transmission and disposal.

Additional Information: <http://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program/ak>

**Program Name: Single Family Direct and Guaranteed Loans**

Purpose: Finance the purchase of homes for rural residents.

Eligible Applicants: Low and very low income individuals in rural areas of 35,000 people or less.

Funding Range: The maximum loan amount an applicant may qualify for will depend on the applicant's repayment ability. The applicant's ability to repay a loan considers various factors such as income, debts, assets and the amount of payment assistance applicants may be eligible to receive. Regardless of repayment ability, applicants may never borrow more than the [Area's Loan Limits](#) (plus certain costs allowed to be financed) for the county in which the property is located.

Program Activities: Funds can be used to build, repair, renovate or relocate a home, or to purchase and prepare sites, including providing water and sewage facilities.

Additional Information:

Single Family Direct Loan: <http://www.rd.usda.gov/programs-services/single-family-housing-direct-home-loans/ak>

Single Family Guaranteed Loan: <http://www.rd.usda.gov/programs-services/single-family-housing-guaranteed-loan-program/ak>

**Program Name: Single Family Repair Loans and Grants**

Purpose: Finance repair of homes.

Eligible Applicants: Very low income homeowners in rural areas. Grants are only available to very-low income homeowners in rural areas that are at least 62 years old.

Funding Range: Loans up to \$20,000 at 1%, grants up to \$7,500. Loan grant combinations up to \$27,500 in certain circumstances.

Program Activities: Loans may be used to repair, improve or modernize homes or remove health and safety hazards. Grants must be used to remove health and safety hazards.

Additional Information: <http://www.rd.usda.gov/programs-services/single-family-housing-repair-loans-grants>

**Program Name: Telecom Loans**

Purpose: This program provides financing for the construction, maintenance, improvement and expansion of telephone service and broadband in rural areas.

Eligible Applicants: Most entities that provide telecommunications in qualified rural areas including: State and local governmental entities, Federally Recognized Tribes, Non-profits, including Cooperatives and limited dividend or mutual association and For-profit businesses (must be a corporation or limited liability company).

Funding Range: No loan limit.

Program Activities: Funds may be used to finance broadband capable telecommunications service: Improvements; Expansions; Construction; Acquisitions (in certain cases); Refinancing (in certain cases).

Additional Information: <http://www.rd.usda.gov/programs-services/telecommunications-infrastructure-loans-loan-guarantees>

## **APPENDIX E**

### Mitigation Tracking

- Mitigation Action Implementation Worksheet (Form 6-1)
- Mitigation Action Progress Report (Form 6-2)

## MITIGATION ACTION IMPLEMENTATION WORKSHEET

Complete a mitigation action implementation worksheet for each identified mitigation action.

<b>Mitigation Action / Project Title:</b>	
<b>Background / Issues:</b>	
<b>Ideas for Integration:</b>	
<b>Responsible Agency:</b>	
<b>Partners:</b>	
<b>Potential Funding:</b>	
<b>Cost Estimate:</b>	
<b>Benefits (Losses Avoided):</b>	
<b>Timeline:</b>	
<b>Priority:</b>	
<b>Worksheet Completed By:</b>	<i>(Name / Department)</i>

## MITIGATION ACTION PROGRESS REPORT

<b>Progress Report Period:</b>	<u>From Date:</u>	<u>To Date:</u>
<b>Action / Project Title:</b>		
<b>Responsible Agency:</b>		
<b>Contact Name:</b>		
<b>Contact Phone / Email:</b>	<u>Phone:</u>	<u>Email:</u>
<b>Project Status:</b>	<input type="checkbox"/> Project Completed <input type="checkbox"/> Project Canceled <input type="checkbox"/> Project on Schedule Anticipated completion date: _____ <input type="checkbox"/> Project Delayed Explain: _____	

**Summary of Project Progress for this Report Period**

1. What was accomplished for this project during this reporting period?

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2. What obstacles, problems, or delays did the project encounter, if any?

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3. If uncompleted, is the project still relevant? Should the project be changed or revised?

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4. Other Comments:

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Next Step: What is / are the next step(s) to be accomplished over the next reporting period?

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**APPENDIX F**  
Adoption Resolution



**Chignik Lagoon Village Council**

**Resolution No. \_\_\_\_\_  
Tribal Hazard Mitigation Plan Adoption Resolution**

WHEREAS, the Native Village of Chignik Lagoon hereafter “Tribe” is a federally recognized tribe; and

WHEREAS, the Chignik Lagoon Village Council is the governing body of the Tribe; and

WHEREAS, the Tribe recognizes the threat that natural hazards pose to people and property; and

WHEREAS, the Tribe has prepared a tribal hazard mitigation plan, hereby known as Native Village of Chignik Lagoon Tribal Hazard Mitigation Plan [2019 – 2024] hereafter “Plan”, dated [DATE] in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Chignik Lagoon from the impacts of future hazards and disasters; and

WHEREAS adoption by the Tribe demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Plan.

NOW, THEREFORE, BE IT RESOLVED, that the Tribe, hereby adopts the Plan as an official plan.

**CERTIFICATION**

The Chignik Lagoon Village Council has adopted this resolution during a meeting held on \_\_\_\_\_, 2019, in \_\_\_\_\_, Alaska, with a quorum present.

For \_\_\_\_ Against \_\_\_\_ Abstain \_\_\_\_ Present \_\_\_\_ Absent \_\_\_\_

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Print Name / Title

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Print Name / Title

**APPENDIX G**

FEMA Approval & THMP Plan Review Tool

# FEMA Region 10 Tribal Mitigation Plan Review Tool

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The *Tribal Mitigation Plan Review Tool* records how the tribal mitigation plan meets the regulations in [44 CFR §§ 201.7](#) and [201.5](#) (if applicable) and offers FEMA plan reviewers an opportunity to provide feedback to the tribal government.

- **Section 1:** The Regulation Checklist documents FEMA’s evaluation of whether the plan has addressed all requirements. If plan requirements are not met, FEMA uses each Required Revisions section to indicate necessary changes.
- **Section 2:** The Strengths and Opportunities for Improvement summary identifies plan’s strengths as well as areas for improvement as part of the next plan update.

The FEMA mitigation planner must reference the [Tribal Mitigation Plan Review Guide](#) when completing the *Tribal Mitigation Plan Review Tool*.

<b>Tribal Jurisdiction:</b> <i>Native Village of Chignik Lagoon</i>	<b>Title of Plan:</b> <i>Native Village of Chignik Lagoon Tribal Hazard Mitigation Plan [2019 – 2024]</i>	<b>Date of Plan:</b> <i>August 2019</i>
<b>Tribal Point of Contact:</b> <i>Michelle Anderson</i>	<b>Address:</b> <i>Chignik Lagoon Village Council PO Box 9 Chignik Lagoon, AK 99565</i>	
<b>Title:</b> <i>Administrator</i>		
<b>Agency:</b> <i>Chignik Lagoon Village Council</i>		
<b>Phone Number:</b> <i>907-840-2301</i>	<b>Email:</b> <a href="mailto:clvcoffice@gmail.com">clvcoffice@gmail.com</a>	

<b>State Reviewer (if applicable):</b>	<b>Title:</b>	<b>Date:</b>
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<b>FEMA Reviewer:</b>	<b>Title:</b>	<b>Date:</b>
<b>Date Received in FEMA Region 10</b>		
<b>Plan Not Approved</b>		
<b>Plan Approvable Pending Adoption</b>		
<b>Plan Approved</b>		

## Section 1: REGULATION CHECKLIST

1. Standard Regulation Checklist Regulation (44 CFR § 201.7 Tribal Mitigation Plans)	Location in Plan (section and/or page number)	Met	Not Met
<b>ELEMENT A. PLANNING PROCESS</b>			
A1. Does the plan document the planning process, including how it was prepared and who was involved in the process? [44 CFR § 201.7(c)(1)]	Section 3.1 – 3.2		
A2. Does the plan document an opportunity for public comment during the drafting stage and prior to plan approval, including a description of how the tribal government defined “public”? [44 CFR § 201.7(c)(1)(i)]	Section 3.3		
A3. Does the plan document, as appropriate, an opportunity for neighboring communities, tribal and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? [44 CFR § 201.7(c)(1)(ii)]	Section 3.3.1		
A4. Does the plan describe the review and incorporation of existing plans, studies, and reports? [44 CFR § 201.7(c)(1)(iii)]	Section 3.4		
A5. Does the plan include a discussion on how the planning process was integrated to the extent possible with other ongoing tribal planning efforts as well as other FEMA programs and initiatives? [44 CFR § 201.7(c)(1)(iv)]	Section 3.5		
A6. Does the plan include a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within the plan update cycle)? [44 CFR § 201.7(c)(4)(i)]	Section 4.0 – 4.3		
A7. Does the plan include a discussion of how the tribal government will continue public participation in the plan maintenance process? [44 CFR § 201.7(c)(4)(iv)]	Section 4.1		
<b>ELEMENT A: REQUIRED REVISIONS</b>			
<b>ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT</b>			
B1. Does the plan include a description of the type, location, and extent of all natural hazards that can affect the tribal planning area? [44 CFR § 201.7(c)(2)(i)]	Section 5.1		
B2. Does the plan include information on previous occurrences of hazard events and on the probability of future hazard events for the tribal planning area? [44 CFR § 201.7(c)(2)(i)]	Section 5.1		

<b>1. Standard Regulation Checklist</b>		<b>Location in Plan</b> (section and/or page number)	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR § 201.7 Tribal Mitigation Plans)</b>				
B3. Does the plan include a description of each identified hazard's impact as well as an overall summary of the vulnerability of the tribal planning area? [44 CFR § 201.7(c)(2)(ii)]	Section 5.4			
<b><u>ELEMENT B: REQUIRED REVISIONS</u></b>				
<b>ELEMENT C. MITIGATION STRATEGY</b>				
C1. Does the plan include a discussion of the tribal government's pre- and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including an evaluation of tribal laws and regulations related to hazard mitigation as well as to development in hazard-prone areas? [44 CFR §§ 201.7(c)(3) and 201.7(c)(3)(iv)]	Section 6.1			
C2. Does the plan include a discussion of tribal funding sources for hazard mitigation projects and identify current and potential sources of Federal, tribal, or private funding to implement mitigation activities? [44 CFR §§ 201.7(c)(3)(iv) and 201.7(c)(3)(v)]	Section 6.2			
C3. Does the Mitigation Strategy include goals to reduce or avoid long-term vulnerabilities to the identified hazards? [44 CFR § 201.7(c)(3)(i)]	Section 6.3			
C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with emphasis on new and existing buildings and infrastructure? [44 CFR § 201.7(c)(3)(ii)]	Section 6.4			
C5. Does the plan contain an action plan that describes how the actions identified will be prioritized, implemented, and administered by the tribal government? [44 CFR § 201.7(c)(3)(iii)]	Section 6.5			
C6. Does the plan describe a process by which the tribal government will incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate? [44 CFR § 201.7(c)(4)(iii)]	Section 6.6			
C7. Does the plan describe a system for reviewing progress on achieving goals as well as activities and projects identified in the mitigation strategy, including monitoring implementation of mitigation measures and project closeouts? [44 CFR §§ 201.7(c)(4)(ii) and 201.7(c)(4)(v)]	Section 6.7			
<b><u>ELEMENT C: REQUIRED REVISIONS</u></b>				

<b>1. Standard Regulation Checklist</b>		<b>Location in Plan</b> (section and/or page number)	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR § 201.7 Tribal Mitigation Plans)</b>				
<b>ELEMENT D. PLAN UPDATES</b>				
D1. Was the plan revised to reflect changes in development? [44 CFR § 201.7(d)(3)]	N/A			
D2. Was the plan revised to reflect progress in tribal mitigation efforts? [44 CFR §§ 201.7(d)(3) and 201.7(c)(4)(iii)]	N/A			
D3. Was the plan revised to reflect changes in priorities? [44 CFR § 201.7(d)(3)]	N/A			
<b><u>ELEMENT D: REQUIRED REVISIONS</u></b>				
<b>ELEMENT E. ASSURANCES AND PLAN ADOPTION</b>				
E1. Does the plan include assurances that the tribal government will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, including 2 CFR Parts 200 and 3002, and will amend its plan whenever necessary to reflect changes in tribal or Federal laws and statutes? [44 CFR § 201.7(c)(6)]	Section 7.0			
E2. Does the plan include documentation that it has been formally adopted by the governing body of the tribal government requesting approval? [44 CFR § 201.7(c)(5)]	Section 7.0			
<b><u>ELEMENT E: REQUIRED REVISIONS</u></b>				

<b>2. Enhanced Regulation Checklist</b>		<b>Location in Plan</b> (section and/or page number)	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR § 201.5 Enhanced Tribal Mitigation Plans)</b>				
<b>ENHANCED ELEMENT F. STANDARD PLAN REQUIREMENTS</b>				
F1. Does the enhanced plan include all elements of the standard tribal mitigation plan? [44 CFR §§ 201.3(e)(3), 201.5(b), and 201.7]	N/A			
<b><u>ENHANCED ELEMENT F: REQUIRED REVISIONS</u></b>				
<b>ENHANCED ELEMENT G. INTEGRATED PLANNING</b>				
G1. Does the enhanced plan demonstrate integration to the extent practicable with other tribal and/or regional planning initiatives and FEMA mitigation programs and initiatives? [44 CFR §§ 201.3(e)(3) and 201.5(b)(1)]	N/A			
<b><u>ENHANCED ELEMENT G: REQUIRED REVISIONS</u></b>				
<b>ENHANCED ELEMENT H. TRIBAL MITIGATION CAPABILITIES</b>				
H1. Does the tribal government demonstrate commitment to a comprehensive mitigation program? [44 CFR §§ 201.3(e)(3) and 201.5(b)(4)]	N/A			
H2. Does the enhanced plan document capability to implement mitigation actions? [44 CFR §§ 201.3(e)(3), 201.5(b)(2)(i), 201.5(b)(2)(ii), and 201.5(b)(2)(iv)]	N/A			
H3. Is the tribal government using existing mitigation programs to achieve mitigation goals? [44 CFR §§ 201.3(e)(3), 201.5(a) and 201.5(b)(3)]	N/A			
<b><u>ENHANCED ELEMENT H: REQUIRED REVISIONS</u></b>				

<b>2. Enhanced Regulation Checklist</b>		<b>Location in Plan</b> (section and/or page number)	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR § 201.5 Enhanced Tribal Mitigation Plans)</b>				
<b>ENHANCED ELEMENT I. HMA GRANTS MANAGEMENT PERFORMANCE</b>				
I1. With regard to HMA, is the tribal government maintaining the capability to meet application timeframes and submitting complete project applications? [44 CFR §§ 201.3(e)(3), 201.5(b)(2)(iii)(A)]	N/A			
I2. With regard to HMA, is the tribal government maintaining the capability to prepare and submit accurate environmental reviews and benefit-cost analyses? [44 CFR §§ 201.3(e)(3) and 201.5(b)(2)(iii)(B)]	N/A			
I3. With regard to HMA, is the tribal government maintaining the capability to submit complete and accurate quarterly progress and financial reports on time? [44 CFR §§ 201.3(e)(3) and 201.5(b)(2)(iii)(C)]	N/A			
I4. With regard to HMA, is the tribal government maintaining the capability to complete HMA projects within established performance periods, including financial reconciliation? [44 CFR §§ 201.3(e)(3) and 201.5(b)(2)(iii)(D)]	N/A			
<b><u>ENHANCED ELEMENT I: REQUIRED REVISIONS</u></b>				



## Section 2: STRENGTHS AND OPPORTUNITIES FOR IMPROVEMENT

**INSTRUCTIONS:** The purpose of the *Strengths and Opportunities for Improvement* section is for FEMA to provide more comprehensive feedback on the tribal mitigation plan to help the tribal government advance mitigation planning. The intended audience is the tribal staff responsible for the mitigation plan update. FEMA will address the following topics:

1. Plan strengths, including specific sections in the plan that are above and beyond the minimum requirements; and
2. Suggestions for future improvements.

FEMA will provide feedback and include examples of best practices, when possible, as part of the *Tribal Mitigation Plan Review Tool*, or, if necessary, as a separate document. The tribal mitigation plan elements are included below in italics for reference. FEMA is not required to provide feedback for each element.

Required revisions from the **Regulation Checklist** are not documented in the **Strengths and Opportunities for Improvement** section. Results from the **Strengths and Opportunities for Improvement** section are not required for Plan Approval.

**Describe the mitigation plan strengths areas for future improvements, including areas that may exceed minimum requirements.**

- Planning process
- *Hazard identification and risk assessment*
- *Mitigation strategy (including Mitigation Capabilities)*
- *Plan updates*
- *Adoption and assurances*
- *Enhanced Plan - Integrated planning*
- *Enhanced Plan - Tribal government mitigation capabilities (commitment to a comprehensive mitigation program)*
- *Enhanced Plan - HMA grants management performance*