PEDRO BAY VILLAGE

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
BBNA	Bristol Bay Native Association
BBNC	Bristol Bay Native Corporation
Borough	Lake and Peninsula Borough
Bristol	Bristol Engineering Services Company, LLC
CERT	Community Emergency Response Team
CFR	Code of Federal Regulations
Community	Pedro Bay
Council	Pedro Bay 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
GIS	Geospatial Information System
HMGP	Hazard Mitigation Grant Program
ID	Identification
IGAP	Indian General Assistance Program
in	inch
km	kilometer
MM	Modified Mercalli Scale
mph	Mile Per Hour
MRE	Meals Ready to Eat
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
PDM	Department of Homeland Security Pre-Disaster Mitigation
THMP	Tribal Hazard Mitigation Plan
Tribe	Pedro Bay Village
USGS	US Geological Survey

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EXECUTIVE SUMMARY

The Tribal Hazard Mitigation Plan (THMP) for Pedro Bay, 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 Pedro Bay Village (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 Pedro Bay 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.

- Earthquake – Earthquakes occur frequently and can result in damage to the Community's power grid which is susceptible to breaks underground.
- Erosion – The Community is surrounded by mountains and prone to seasonal rainfall events. The roads and runway are at risk of washouts from drainage from the surrounding mountains.
- Flood – Flooding in the Community occurs due heavy seasonal rainfall events which fill ponds and creeks and drainage from surrounding mountains. This creates a marshy areas around the airport and impacts travel.
- Severe Wind – High wind events can result in damage to structures, a reduction of visibility in winter due to blowing snow, 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. It can also present a hazard to residents traveling to and from neighboring communities via local trail systems.

- Volcano – Ash from the number of active volcanos along the Alaska Peninsula and Cook Inlet has an impact on air transportation in and out of the Community. This also has an impact on equipment and community members.
- Wildfire – The Community is surrounded by an abundance of dead, standing trees. 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 potential for devastating wildfires in the village and surrounding subsistence areas.
- Reduce the potential for devastating earthquake damage in the village and surrounding subsistence areas.
- Reduce the potential for devastating erosion damage in the village and subsistence areas.
- Reduce the potential for devastating flood damage in the village and subsistence areas.
- Reduce the potential for devastating severe wind damage in the village and subsistence areas.
- Reduce the potential for devastating severe winter weather impacts in the village and subsistence areas.
- Reduce the potential for devastating volcano impacts in the village and subsistence areas.
- Train and encourage personal and family disaster preparation and planning among village residents.
- Build the capacity of the Tribe to prepare, respond to, and recover from disasters through training and community strategic planning.
- Identify local assets that may be used in response during a time of natural hazards.
- Identify, prepare, and stock a community shelter to be used in case of evacuation during a natural hazard.
- Create a fundable position within the Tribe to manage safety resources, oversee projects, and maintain the THMP.

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.

- Eliminate the standing dead beetle-kill trees around the Community.
- Educate community residents about placing proper firebreaks around their homes.
- Identify and train new volunteer fire personnel and renew training for existing volunteer fire personnel for the fire department.
- Provide education about safe burn barrel practices for personal burn barrels to community residents.
- Develop permanent educational materials for the community about wildfires. This information will be a part of an annual rotation of information through mailbox newsletters.
- Acquire a backup generator for the clinic.
- Improve or redesign road to the airport for improved access.
- Maintain the forest around the community and by removing dead trees and clearing cottonwoods following forest management practices.
- Provide education related to fires on windy days.
- Educate residents and encourage families to create family and personal "go bags".
- Educate and encourage families to develop a family emergency plan, with meeting points, contact information.
- Participate in the Community Emergency Response Team (CERT) Program.
- Obtain items for the CERT bags (See Appendix A for complete list).
- Identify local assets / equipment to be used in natural hazards and maintain a list of assets for use in natural hazard events.
- Formalize agreements between owners of equipment and assets and Tribe to use equipment and assets during a natural hazard event.
- Post emergency numbers / information on safety boards throughout the community like the post office, clinic, church, library, and council building.
- For interim use obtain an agreement with the Lake and Peninsula Borough (Borough) to use the school for an interim shelter for the community in case of emergencies.

- Obtain items needed to stock the shelter. These items may include cots, water, first aid supplies, Meals Ready to Eat (MRE), blankets, emergency power source, generator, cribbing materials, and others.
- Maintain vegetation clearing around the structure of the safety shelter.

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 Pedro Bay Village Council (Council), BBNA contracted Bristol Engineering Services Company, LLC (Bristol) for the development of this Tribal Hazard Mitigation Plan (THMP) for Pedro Bay, 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 Pedro Bay Village (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 Alaska Peninsula, at the head of Pedro Bay and the east end of Iliamna Lake, 176 air miles southwest of Anchorage. The Community lies at approximately 59.7860° North Latitude and 154.1093° West Longitude (See Figures 1 and 2). The Community is located in Section 33, Township 04S, and Range 28W along the Seward Meridian. The Community is located in the Iliamna Recording District (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 transitional climate zone, characterized by tundra interspersed with boreal forests, and weather patterns of long, cold winters and shorter, warm summers (DCCED, 2018). Annual snowfall averages 64 inches, and annual rainfall averages 26 inches. The average winter temperatures range from 6 to 30 degrees Fahrenheit (°F), and the average summer temperatures range from 42 to 62 °F (NOAA, November 2013).

2.3 HISTORY

The Dena'ina Indians have occupied this area historically. The Dena'ina warred with Russian fur traders over trade practices in the early 1800s. The Community was named for a man known as "Old Pedro," who lived in this area in the early 1900s. A post office was established in the village in 1936. St. Nicholas Russian Orthodox Chapel, built in 1890, is on the National Register of Historic Places (DCCED, 2018).

2.4 ECONOMY

Local government and health services provides the main employment opportunities in the Community (ALARI, 2018). Most residents obtain summer employment in the Bristol Bay fishery or in Iliamna Lake tourism services. Several wilderness lodges operate in the Community. There are two fishery permits issued to individuals in the Community. The Community's primary source for food is derived from a subsistence lifestyle. This lifestyle

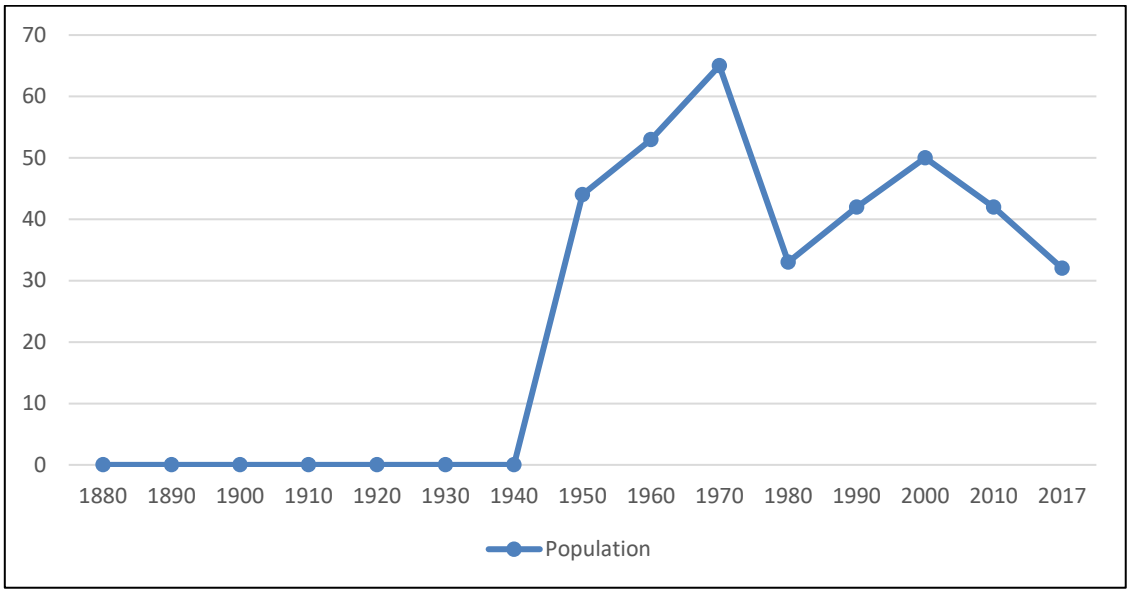
includes activities such as hunting, fishing, berry picking, and other similar activities (DCCED, 2018).

According to the 2010 Census, the median household income in the Community was $55,313. At that time there were approximately 26 individuals (3.8 percent (%)) that were reported to be living below the poverty level. In 2010, 23 individuals (65%) were actively employed while 12 individuals (35%) were unemployed (DCCED, 2018).

2.5 DEMOGRAPHICS

The 2017 State of Alaska Department of Commerce, Community, and Economic Development (DCCED) certified population is 32 (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 42 residents with a median age of 40. The Community is principally an Alaska Native community with 67% Alaska Native, 28% white. In 2010, the male and female population was 19 and 23 respectively. The 2010 census also revealed that there were 19 households with an average household size of 2.21 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 August 27, 2018 to November 27, 2018. 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 August 27, 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 (Role)	Organization
Ben Foss	Environmental Program (Plan Lead)	IGAP
Kim Lorentzen	Community Member (Technical Lead)	Community Member
Roz Goodman	Community Member (Knowledge)	Community Member
Keith Jensen	President	Pedro Bay Village Council
Verna Kolyaha	Secretary / ICWA Coordinator (Cultural Knowledge)	Pedro Bay Village Council
Karla Jensen	Member (Social Knowledge)	Pedro Bay Village Council
Samanth Herrick	Bookkeeper / Payroll Specialist	Pedro Bay Village Council
Wynn Knighton	Environmental Program (Youth Knowledge)	Pedro Bay Village Council / IGAP
Dan Breeden	Director	BBNA DOTID

Table 3-1 (Continued): Hazard Mitigation Planning Team

Name	Title (Role)	Organization
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.

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 newsletters, residents or interested parties were encouraged to participate in, and had access to a public survey. The surveys were distributed to every mailbox holder in the Community. A community-wide event (dessert potluck) was hosted by the Planning Team on September 4, 2018 (see Appendix B for sign-in sheet). This event was used to provide community members an additional opportunity to complete a survey in person. Community members also had the opportunity to discuss hazard events and the extent of damages sustained in those events. Stories were compiled for use in the completion of Worksheet #2 – Hazard Analysis (see Appendix A).

A total of twenty-eight surveys were completed by community members in written and oral format. The residents of the Community identified through the survey that they are most concerned about wildfires (see Exhibit 3-1). Exhibit 3-1 is ordered according to the concern level of the Community. Additionally, Exhibit 3-2 illustrates the opinions of the residents regarding the importance of community assets. These assets are ordered according to the importance level of the Community. 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)

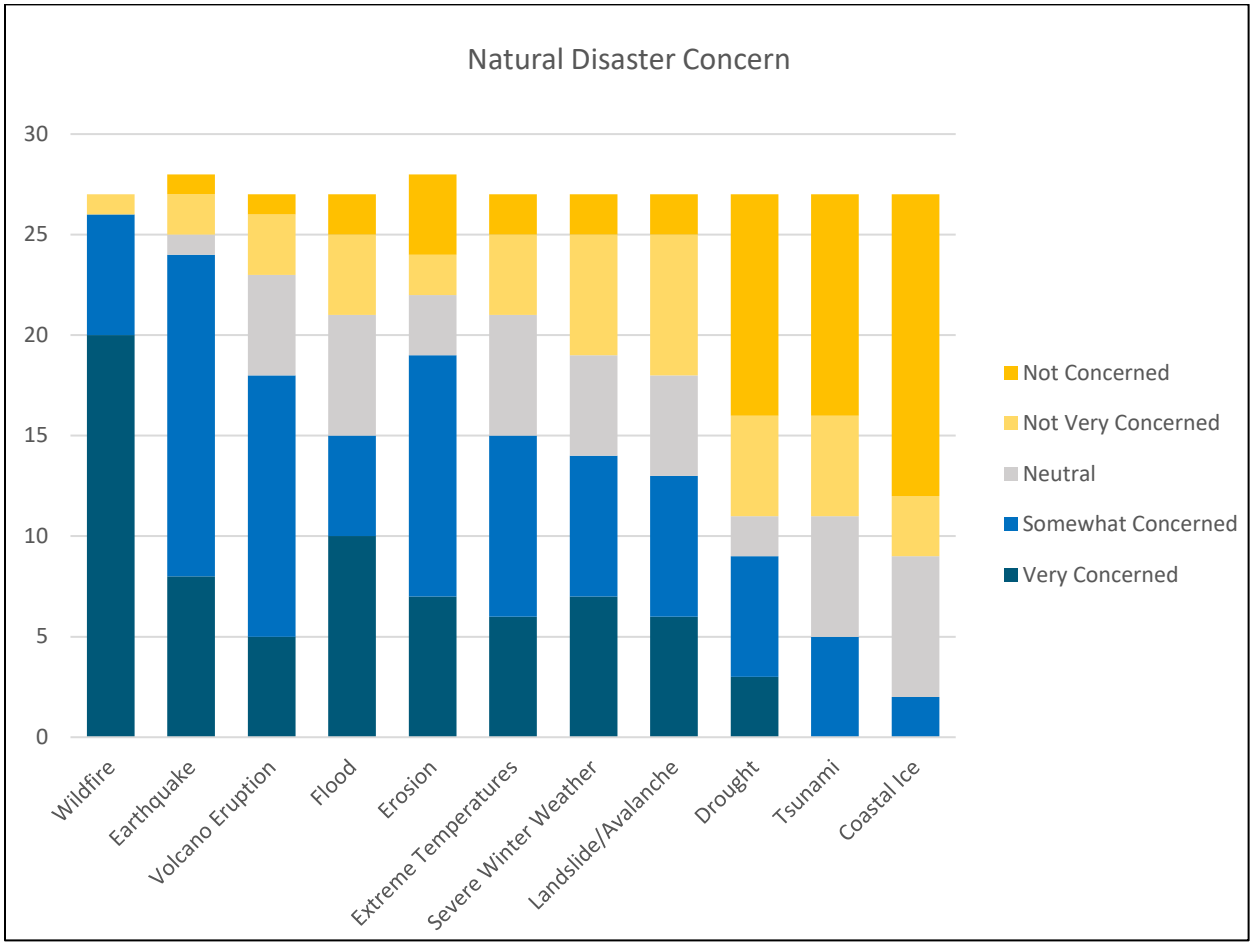
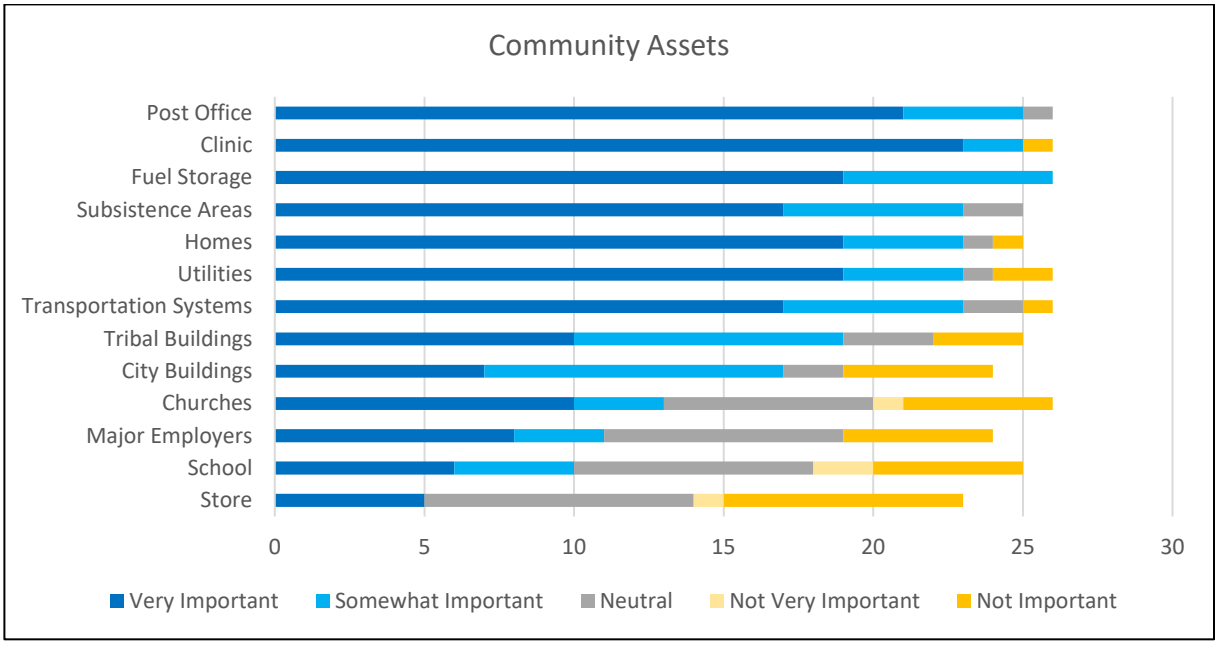


Exhibit 3-2: Community Assets (Survey Question #7)



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	Pedro Bay Corporation	Rayn Aaberg (President)	raaberg@pedrobaycorp.com
Regional for Profit	Bristol Bay Native Corporation (BBNC)	Jason Metrokin (President)	jmetrokin@bbnc.net
Electric Utilitiy	Pedro Bay Village Council	Keith Jensen (President)	keith.jensen@pedrobay.com
Regional Housing	Bristol Bay Housing Authority	Brenda Akelkok (Executive Director)	bakelkok@bbha.org

Table 3-2 (Continued): Stakeholder Contacts

Stakeholder Type	Stakeholder	Contact Person (Title)	Contact Email
Economic Development	BBNA	Kristina Andrew (Program Manager)	krandrew@bbna.com
Telephone	[1]AT&T	*No Response*	*No Response*
Telephone	GCI	Lana Woods (Leasing, Permitting, & Compliance Manager)	lwoods@gci.com
State Representative	State of Alaska	Bryce Edgmon (Representative)	representative.bryce.edgmon@akleg.gov
State Senator	State of Alaska	Lyman Hoffman (Senator)	senator.lyman.hoffman@akleg.gov

[1] Stakeholder was contacted requesting a contact person to review the plan, but no response was received.

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

Plans/Studies/Reports Reviewed for this THMP	Summary of Incorporated Content
USACE Alaska Baseline Erosion Assessment	This report identifies the Community as having erosion issues (USACE, 2009).
USACE Erosion Assessment	This report identified a 1973 flood event for the Community. Additionally it identified that erosion control measures were taken by the State of Alaska to protect the airport from erosion due to tributary overflows (USACE, 2007).
BBNA Forest and Fire Management Plan	This report provides information about the areas vegetation, soils, wildlife, forest, fire management, and service regions. It also provides regional goals and objectives to preserve and protect the region and details the fire management plan (BBNA, 2014).
State of Alaska Hazard Mitigation Plan	Identifies profiled hazards, provides resources, and provides goals and mitigation strategies identified by the State of Alaska (DHS&EM, 2013).

Table 3-3 (Continued): Existing Plans, Studies, and Reports Reviewed

Plans/Studies/Reports Reviewed for this THMP	Summary of Incorporated Content
Lake and Peninsula Borough (Borough) Multi-Jurisdictional Hazard Mitigation Plan Update	This report provides the Borough mitigation actions and goals. It also identified that the Community was awarded a Borough grant in 2007 for and upgrade to the Community firefighting equipment. The grant was closed out in 2011 (Lake and Peninsula Borough, 2015).
Bristol Bay Comprehensive Economic Development Strategy: 2017 - 2021	This report identifies a list of the Community's top infrastructure projects, in particular fire suppression equipment and a re-use of the Dena'ina School (BBNA, 2018 Update).
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 State of Alaska Division of Homeland Security and Emergency Management (DHS&EM) (DHS&EM, 2017).
Pedro Bay Long Range Transportation Plan	This plan identifies transportation goals and actions for the Community (Pedro Bay Tribal Council, 2017).
Southcentral Foundation Emergency Management Plan	This plan details emergency response and preparedness actions for clinics that operate under the Southcentral Foundation (Southcentral Foundation, 2018).

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 6.6) 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	• Monitor status of actions • Evaluate THMP	• THMP Form 4-1 • THMP Form 4-2
2021	• Monitor status of actions • Evaluate THMP	• THMP Form 4-1 • THMP Form 4-2
2022	• Monitor status of actions • Evaluate THMP	• THMP Form 4-1 • THMP Form 4-2
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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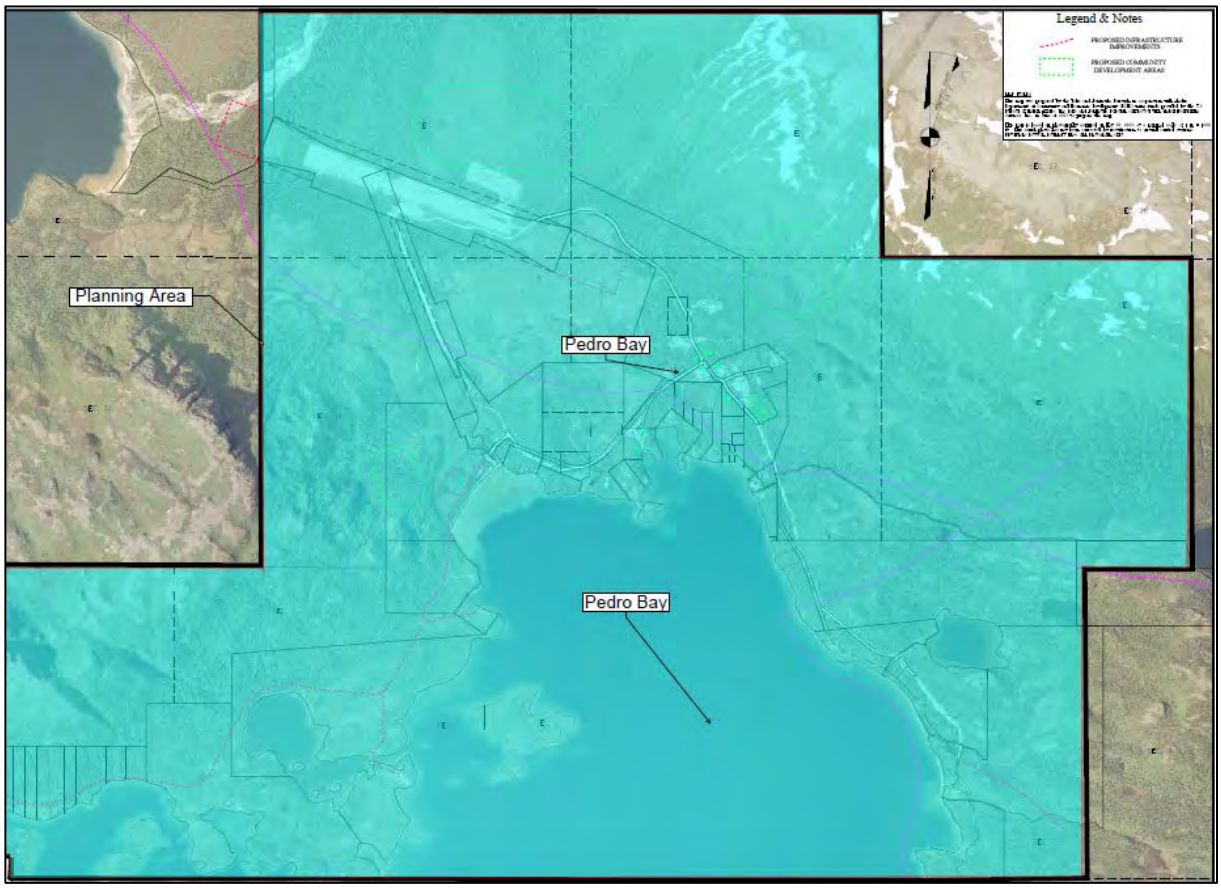
5.0 RISK ASSESSMENT

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 28, 29, 31, 32, and 33 of Township 4 South, Range 28 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 13 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, 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 evaluation 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
BLUE	Negligible	• Isolated single-point occurrences • Less than 10% of planning area
GREEN	Limited	• Limited single-point occurrences • 10% to 25% of planning area
YELLOW	Significant	• Frequent single-point occurrences • 25% to 75% of planning area
RED	Extensive	• Consistenct single-point occurrences • 75% to 100% of planning area

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
BLUE	Weak	• Little to no damage done • Slow speed of onset or short duration of event • Limited classification on scientific scale (if applicable)
GREEN	Moderate	• Some damage and loss of services for days • Moderate speed of onset or moderate duration of event • Moderate classification on scientific scale (if applicable)
YELLOW	Severe	• Devastating damage and loss of services for weeks or months • Fast speed of onset or long duration of event • Severe classification on scientific scale (if applicable)
RED	Extreme	• Catastrophic damage and uninhabitable conditions • Immediate onset or extended duration of event • Extreme classification on scientific scale (if applicable)

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
BLUE	Unlikely	• Less than 1% probability of occurrence in the next year • Recurrence interval of greater than every 100 years
GREEN	Occasional	• 1% to 10% probability of occurrence in the next year • Recurrence interval of 11 to 100 years
YELLOW	Likely	• 10% to 90% probability of occurrence in the next year • Recurrence interval of 1 to 10 years
RED	Highly Likely	• 90% to 100% probability of occurrence in the next year • Recurrence interval of less than 1 year

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
GREEN	Low	• Event has minimal impact on planning area • Two or more criteria fall in lower classifications
YELLOW	Medium	• Event's impacts on the planning area are noticeable but not devastating • Criteria fall mostly in the middle ranges of classifications
RED	High	• Event is likely/highly likely to occur with severe strength over a significant or extensive portion of the planning area • Criteria consistently fall in the high classifications

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

Hazard	Significant (Yes/No)	Explanation
Avalanche	No	Avalanches have not occurred in the Community. There is one hazardous area near the airport, but the Community is not overly concerned.
Drought	No	Community members have their own drinking water wells and they experience heavy seasonal rainfall events.
Earthquake	Yes	The Community lies between Castle Mountain Fault to the West and the Bruin Bay Fault to the East. Earthquakes occur frequently in the Community, and can result in damage to buildings, utilities, and wells.
Erosion	Yes	The Community experiences erosion near the airport and continue to be impacted by road washouts from heavy seasonal rainfall events and drainage from surrounding mountains.
Extreme Temperatures (Severe Cold & Heat)	No	Residents are not concerned about severe heat temperatures. Severe cold days can impact ice build up, which can cause ice damage to docks and underwater powerlines. Cold temperatures will be covered under severe winter weather.
Flood	Yes	Flooding can occur due to heavy rainfall, high winds on the Iliamna Lake which create large waves to wash on the shoreline, or heavy spring snow melt. The airport, fish ponds, and some roads are susceptible to floods.
Landslide	No	Recent landslides have occurred due to heavy rainfall events, however they are high in the mountains and do not present an extreme impact to the Community.
Severe Wind	Yes	Strong wind storms occur often in the Community. These storms can damage roofs, blow over dead trees, and limit air transportation to and from the Community.
Severe Winter Weather	Yes	Severe winter weather can affect plane access to the community for travel, food and supplies, and medical emergency evacuations. Snow storms can also cause power outages due to ice heaves causing damage to under water power lines.

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

Hazard	Significant (Yes/No)	Explanation
Subsidence	No	Subsidence has not impacted the Community.
Tsunami	No	The Community is not located on the coast of a large body of water, therefore is not impacted by tsunamis.
Volcano	Yes	There are a number of active volcanos along the Alaska Peninsula and Cook Inlet that could deposit ash in the Community or disrupt flights to the Community. The corrosive properties of volcanic ash are harmful to equipment and detrimental to human health.
Wildfire	Yes	There have been 8 fires within roughly 24 miles of the Community since 1948, totaling roughly 117 acres. The Community is surrounded by a large amount of standing dead trees which presents a greater risk of wildfires in the area. 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 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.

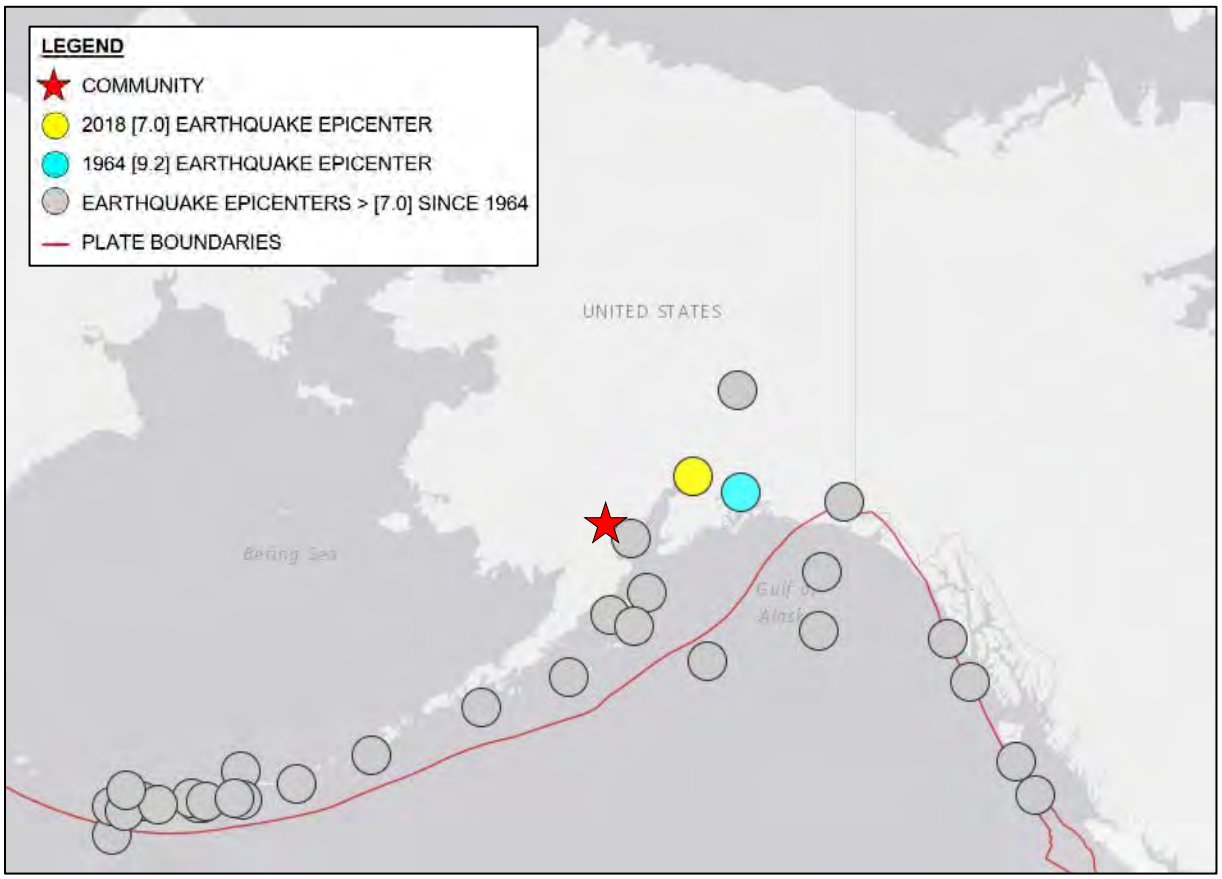
Landslides, liquefaction, and tsunamis are some other damaging effects of an earthquake. Earthquake-induced landslides are the down-slope movement of rock, soil and other debris due to ground movement on a steep mountain or hillside slope. Liquefaction occurs when saturated, unconsolidated sand or soil 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.

5.1.1.1 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 240 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 7.1 on the Richter scale, located 26.6 miles away near Cook Inlet around Old Iliamna in January 2016. The closest earthquake to occur near the Community above a magnitude 2.5 was a magnitude 4.2 earthquake that occurred 2.9 miles away in October 1976 (USGS, 2018). More historic earthquake information surrounding the community is provided in Section 5.1.1.3.

Exhibit 5-2: Major Earthquakes in Alaska

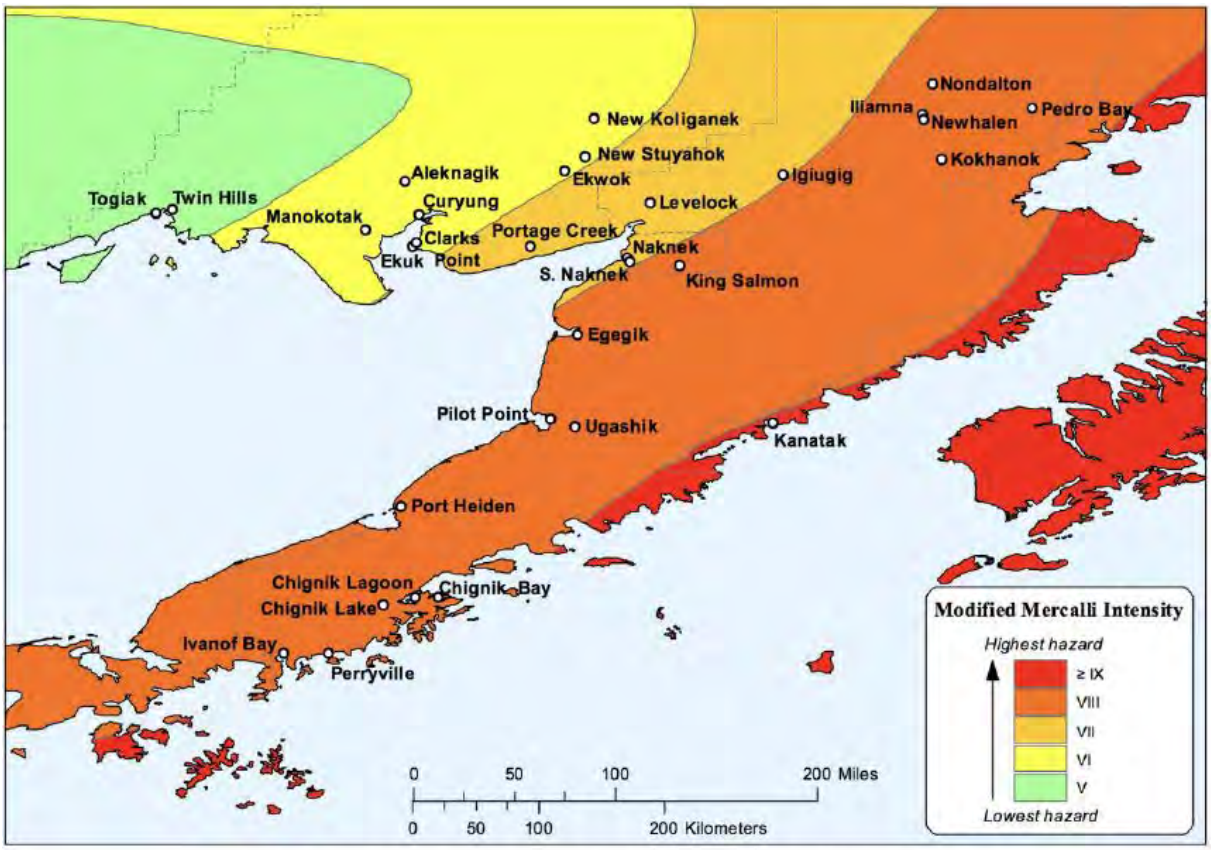


5.1.1.2 Extent

Earthquakes are not infrequently felt in the Community. Community members have reportedly felt tremors from major earthquakes in Alaska, but have not experienced any recent damage. The most severe earthquake felt in the Community was the Great Alaska Earthquake of 1964. 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 low (Natalia Ruppert, Presentation, November 22, 2016).

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)

The largest local concern regarding earthquakes in the Community is disruptions in the power grid. The Community's power is underground and a portion is under water. This system is susceptible to breaks in the conduit especially in the transition area between the underground and underwater portions of the conduit. A large earthquake nearby the Community could potentially cause a break in the conduit resulting in power outages throughout the community.

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.

5.1.1.3 History of Occurrences

Residents recall an incident in 1999 in which damage occurred in the Community. The magnitude and month is unknown.

> *"The 1999 earthquake broke a fuel line at the school. The grounds were contaminated to the extent that the site had to be closed permanently and the school relocated, and rebuilt elsewhere."*

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 * East (E), South Southwest (SSW)

Table 5-8 by date (USGS, 2018). Table data is current as of December 11, 2018.

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

Date	Magnitude	Distance from Pedro Bay (miles)	Location
Oct-1976	4.2	2.9	Southern Alaska
Mar-2018	2.6	3.0	49 kilometer (km) E* of Old Iliamna
Aug-2014	2.9	3.6	44 km E* of Old Iliamna
Mar-2014	2.7	3.8	41 km ENE* of Old Iliamna
Jun-2011	3.7	4.9	Southern Alaska
Oct-2016	2.7	5.3	37 km E* of Old Iliamna
Sep-2010	2.5	5.5	Southern Alaska
May-1991	2.9	5.7	Southern Alaska
Oct-2017	3.0	6.1	42 km E* of Old Iliamna
Sep-2014	3.0	6.3	55 km E* of Old Iliamna

* East (E), East Northeast (ENE)

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

Date	Magnitude	Distance from Pedro Bay (miles)	Location
Jan-2016	7.1	26.6	86 km E* of Old Iliamna
Jul-2001	6.8	63.3	Southern Alaska
Feb-1988	6.5	52.9	Southern Alaska
Jul-2015	6.3	32.6	70 km SSW* of Redoubt Volcano
Dec-1968	6.3	44.2	Southern Alaska
Jun-1963	6.3	66.9	Southern Alaska
Jul-1998	6.2	60.0	Southern Alaska
May-2000	5.9	52.7	Southern Alaska
Nov-1993	5.9	41.8	Southern Alaska
Jan-2009	5.8	49.3	Southern Alaska

* East (E), South Southwest (SSW)

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

Date	Magnitude	Distance from Pedro Bay (miles)	Location
Dec-2018	2.8	58.0	48 km NW* of Anchor Point
Dec-2018	3.4	50.7	49 km WNW* of Anchor Point
Dec-2018	2.6	42.0	41 km SW* of Redoubt Volcano
Dec-2018	2.9	38.9	61 km SSW* of Redoubt Volcano
Dec-2018	3.0	20.7	76 km ENE* of Old Iliamna
Dec-2018	2.5	48.1	52 km WNW* of Anchor Point
Dec-2018	2.6	40.4	64 km WNW* of Anchor Point
Nov-2018	2.7	57.7	21 km S* of Redoubt Volcano
Nov-2018	2.6	48.1	51 km S* of Redoubt Volcano
Nov-2018	2.6	60.4	36 km WSW* of Anchor Point

* Northwest (NW), West Northwest (WNW), Southwest (SW), South Southwest (SSW), East Northeast (ENE), South (S), West Southwest (WSW)

5.1.1.4 Probability of Future Events

It is highly likely for earthquakes to occur in or near the Community in the future. However, no damage has been reported due to earthquakes since the 1999 incident mentioned in Section 5.1.1.3.

5.1.2 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.

5.1.2.1 Location

The Community experiences erosion on a community road approximately 1/8 of a mile north of the village center. This location has experienced multiple washout events. Erosion is also experienced on Upper Pedro Creek Bridge, and on the airport runway. There is also gradual erosion on the shoreline of Iliamna Lake. Significant erosion areas are identified on Figures 1 and 2.

5.1.2.2 Extent

The Community is prone to heavy seasonal rainfall events. As a result, there is a significant amount of drainage that flows down from the surrounding mountains. Waterways through the valley where the village is located shift and threaten roads and the runway with washouts. High winds and resulting waves on Iliamna Lake impacts structures along the shoreline of the lake.

The Community is not on the road system. Therefore, any damage caused to the airport runway can interrupt air travel. The Community relies upon air travel for needed supplies and emergency air transport.

5.1.2.3 History of Occurrences

Erosion is an on-going process along the shoreline of Iliamna Lake. However, particular events can result in notable occurrences of erosion, such as floods and seasonal heavy rainfall. In 1993 the airport runway was damaged when breached by flowing water. In August 2018, heavy rains and flooding washed out a community road approximately 1/8 mile north of the village center and threatened the airport runway. There have been similar occurrences in the past at approximately the same location.

5.1.2.4 Probability of Future Events

It is likely for erosion to continue to occur in the Community due to seasonal heavy rainfall and the drainage from the surrounding mountains, and extreme wind events that produce large waves on Iliamna Lake that threaten structures and assets along the shoreline of the lake.

5.1.3 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.

5.1.3.1 Location

Areas in the Community at risk of flooding are depicted on Figure 1 and 2 as directed by the Planning Team. FEMA flood maps are not available for the Community. The areas that are most susceptible to flooding are the airport runway, low-lying areas around the Community, bridges, roads, salmon spawning ponds, local berry-picking swamps, nearby waterways, and the shoreline around Iliamna Lake. During flood events these areas can maintain standing water for days or weeks.

5.1.3.2 Extent

Flooding is seasonal, and most common in the summer and fall seasons. It is experienced in many ways throughout the Community. Water levels in Iliamna Lake and other nearby waterways rise due to seasonal heavy rainfall events, and heavy drainage from the surrounding maintains. Fish ponds swell and connect. This creates a marshy area around the airport. The airport and roads are impacted by these flood events. This impact can limit transportation within the community and the ability to receive needed supplies via air transportation transport people out of the community for emergencies. The Community experienced their most recent flooding event in August 2018. During this event, water rose three to eight feet, depending on the location. Similar events have happened in the past.

5.1.3.3 History of Occurrences

Several community members were interviewed to collect personal accounts of flooding events that have taken place in the community. The most recent event took place in August 2018. The following are accounts from that event.

- The airport runway was nearly breached, the road through the village was washed out in one location and underwater in several other locations.
- Rivers and creeks that run through the village overflowed their banks and made new beds. The water pushed gravel up over equipment and materials being stored in cleared areas.
- The gravel pit was under several feet of water.
- Fish ponds (spawning areas) overflowed throughout the area.

According to Community members, there have been no long-lasting effects from flooding, aside from the road that is impacted by repeated washouts from flooding events. This area will require a long-term solution.

5.1.3.4 Probability of Future Events

It is likely flooding will continue to happen in the Community due to the continuing effects of seasonal heavy rainfall and drainage from the surrounding mountains.

5.1.4 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 have been 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.

5.1.4.1 Location

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

5.1.4.2 Extent

The Beaufort Wind Scale gives a force scale of 1 – 12 based on sustained wind speed. Exhibit 5-4 identifies the scale and the consequences that are possible at the different levels as well as, the impacts to ocean water movement (NOAA NWS, March 2013). Any wind event, Force 9 and higher is considered severe and can cause damage within the Community.

Exhibit 5-4: Beaufort Wind Scale

The Beaufort Wind Scale

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

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 from homes and other structures.

The Community is surrounded by beetle kill trees. Severe windy conditions can cause trees to blow over and cause damage to structures.

In the winter, severe winds can cause snowdrifts that impacts 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, the elderly, 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.

5.1.4.3 History of Occurrences

According to locals, severe windstorms occur frequently. Several community members were interviewed and they identified damage that has been caused due to severe wind events in the past. Damage that has occurred in recent years includes sandblasting of vehicles, damage to the airport maintenance building, bridge signage that was damaged or lost, damaged roofing on residential buildings, and restricted air and boat traffic to and from the Community. The date of the reported damage was not specified.

Wind data is not readily available for the Community, however, wind speeds have been recorded in the nearby community of Iliamna, which is roughly 28 miles away. These communities are assumed to experience similar wind speeds although topographic features can magnify wind speeds when present in the area. Therefore, Table 5-9 identifies historical severe wind events recorded in Iliamna for the past 10 years (Weather Underground, 2018).

Table 5-9: Historical Severe Wind Events

Year	Maximum Wind Speed (mph)	# of Days above 47 mph
2018	83	1
2017	33	0
2016	37	0
2015	46	0
2014	43	0
2013	40	0
2012	48	1
2011	44	0
2010	43	0
2009	46	0
2008	38	0

5.1.4.4 Probability of Future Events

Severe wind events are highly likely to continue to occur in the Community. The region is geographically prone to high winds which frequently switch directions.

5.1.5 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 harm individuals, cause power outages, damage utilities, and cause property damage.

Extreme temperatures exacerbate the effects of severe winter weather and constitute different conditions in different parts of the country. In colder climate regions such as Alaska, extreme cold events involve temperatures -10 °F and below. Extreme cold temperatures can occur after a winter storm or during long durations of storm inactivity. Fatalities and injuries can occur from extreme cold by causing hyperthermia or frostbite (NOAA, NWS, December 2018).

5.1.5.1 Location

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

5.1.5.2 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.

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. With extreme cold, the snow ratio can increase up to 1:50. This “fluffy” snow is hard to manage because it becomes airborne easily (AccuWeather, 2019).

Cold temperatures and ice and sleet present a hazard for all residents throughout the Community. 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.

Ice heaves in surrounding waterways can cause damage to boat docks and power lines running under the lake. This can cause power outages and is difficult to fix. 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.

5.1.5.3 History of Occurrences

Residents were interviewed and they recalled a severe winter weather event in the 1990's that had a significant impact on the Community. During this event they recalled the severe cold and wind that limited air travel to and from the village. They also remember severe winter weather events that caused ice damage to docks and ice damage to the power cable that runs under Iliamna Lake. The years of this damage was not specified.

Precipitation and temperature data is not readily available for the Community. However, precipitation and temperatures have been recorded in the nearby community of Iliamna, which is roughly 28 miles away. These communities experience similar temperatures and amounts of precipitation. Table 5-10 identifies historical severe winter weather events recorded in Iliamna between the months of November and March for the past 10 years. Table 5-11 identifies subzero temperatures for the past 10 years (Weather Underground, 2018).

Table 5-10: Historical Severe Winter Weather Events

Year	Maximum One Day Precipitation (inches (in))	# of Days above 1.0 in
2018	0.39	0
2017	0.31	0
2016	0.55	0
2015	0.47	0
2014	0.35	0
2013	0.55	0
2012	0.35	0
2011	0.35	0
2010	0.69	0
2009	1.2	1
2008	0	0

Table 5-11: Historical Subzero Temperatures

Year	Minimum Temperature (°F)	# of Days below -10°F
2018	-16	3
2017	-22	21
2016	-9	0
2015	-13	2
2014	-13	2
2013	-13	3
2012	-20	27
2011	-20	5
2010	-17	8
2009	-29	21
2008	-27	19

5.1.5.4 Probability of Future Events

Severe winter weather is anticipated to occasionally affect the Community.

5.1.6 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.

5.1.6.1 Location

There are three volcanos near to the Community, Mount Augustine, Mount Iliamna, and Mount Redoubt. These volcanos are approximately 38 miles, 39 miles, and 67 miles away, respectively. Exhibit 5-5 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 5-5: Volcanos Near Pedro Bay

5.1.6.2 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.

5.1.6.3 History of Occurrences

There have been several eruptions in the region over the past decades. Residents in the Community particularly recall the following impacts of volcanic ash:

- The 1986 eruption of Mount Augustine, in which the air quality was significantly affected.
- Mount Redoubt erupted in 2009. This eruption caused interrupted air transportation throughout the state and Bristol Bay region. This eruption also had an impact on air quality and equipment. The Community was required to shut down their power plant due to this eruption.
- Noticeable pockets of ash fall can be found upon any digging or excavation, but most significantly from the 1912 Novarupta and the 1986 Augustine eruptions.

5.1.6.4 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.

5.1.7 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

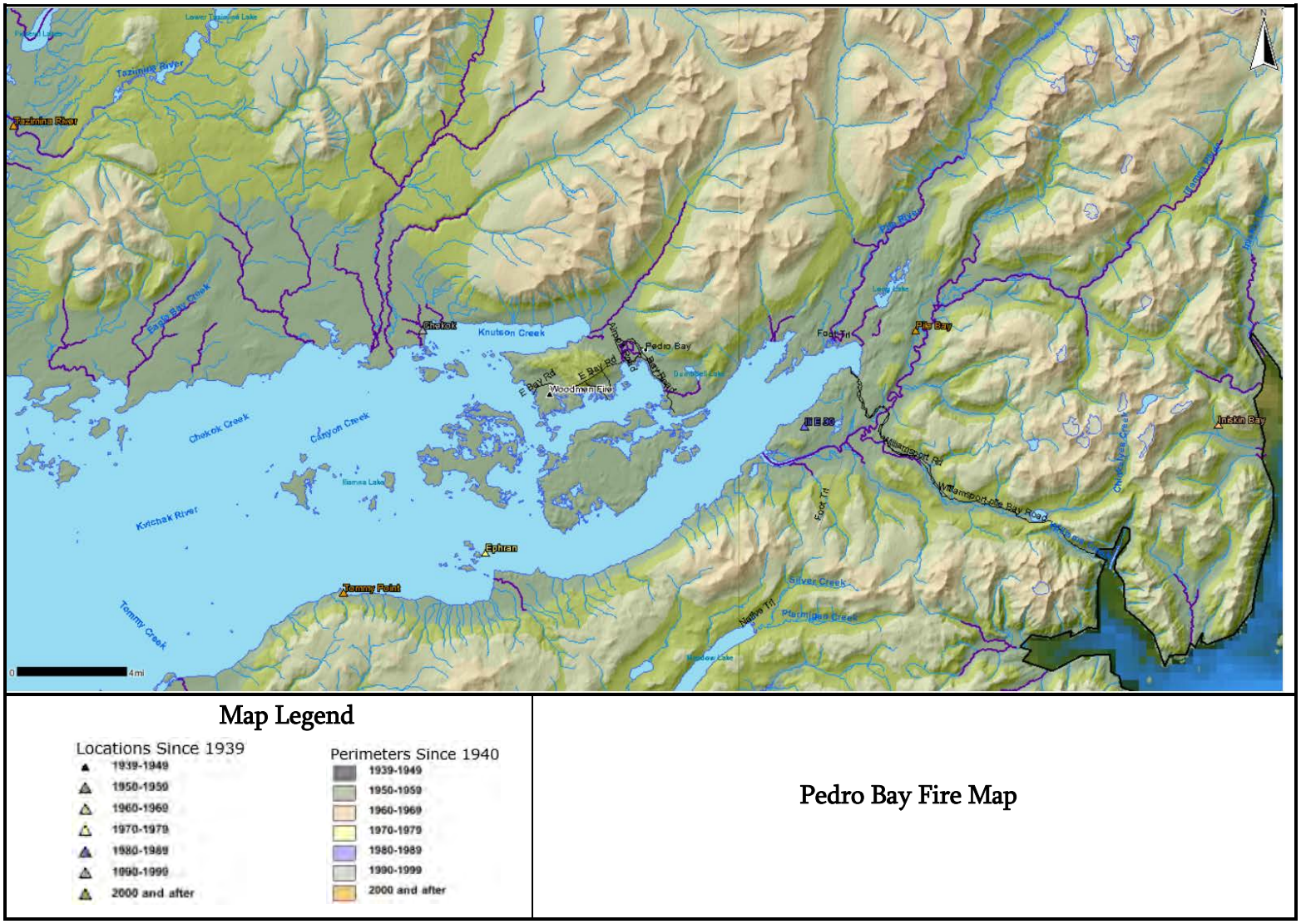
blow to new areas potentially causing new fire locations. Low humidity and high temperatures can cause the vegetation to become dry. High humidity and rain can extinguish or slow the fire down.

- 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.

5.1.7.1 Location

A map of wildfires located in and around the Community since 1939 is provided in Exhibit 5-6. 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 5-6: Pedro Bay Fire Map



Source: (Alaska Interagency Coordination Center, 2018)

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5.1.7.2 Extent

The Community is surrounded by forest. This forest has been significantly impacted by spruce bark beetles. This infestation has created a significant number of standing dead trees in the area and surrounding forests. This makes the area around the Community more susceptible to wildfires.

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. Additionally, smoke from wildfires produce poor air quality. It is hazardous to residents and pets, especially the elders, young children, and those with respiratory issues.

Nearby wildfires are a great concern and stress for the Community because their ability to fight a fire, if one were to occur, is limited. The fire suppression gear is lacking or outdated, and there organized, volunteer fire department is in constant need of members.

5.1.7.3 History of Occurrences

Table 5-12 below provides a list of wildfires and their impacts (in acreage) in or around the Community, within a 24 mile radius (Alaska Interagency Coordination Center, 2018).

Table 5-12: History of Wildfires

Fire Name	Year	Estimated Impact (Acres)	Distance from Pedro Bay (Miles)
Woodmen Fire	1948	40	3
Iniskin Bay	1960	5	21
Ephran	1974	35	9
Ili E 30	1983	33	7
Chekok	1991	0.2	8
Pile Bay	2002	1	10
Tommy Point	2008	1.5	14
Tazimina River	2015	1.5	24

The following is of significant fires that occurred just outside of the 24 mile radius, but within 30 miles of the Community.

- Iliamna Lake fire damaged approximately 6,120 acres in 1943;
- Iliamna fire damaged approximately 5,460 acres in 2003;

- Newhalen River fire damaged approximately 650 acres in 1968; and
- Lake Iliamna Island fire damaged approximately 50 acres in 2004.

In addition to the wildfires listed above, several community residents were interviewed for historical accounts of wildfires. They recall the following:

- Two or three years ago, there was a wildfire ignited by a lightning strike in the general area but not in the village site.
- There was a wildfire in nearby Iliamna in 2003.
- There was a wildfire in Knutson Bay in the 1990s.
- There have been several small, short-lived fires over the years that were ignited by steam bath and smokehouse stovepipes.

5.1.7.4 Probability of Future Events

Wildfires are highly likely to continue to affect the Community. There is a significant number of dry, standing-dead trees in and surrounding the Community. The mountainous topography, heavily timbered landscape, and prevalent high winds in the area increase the danger of a wildfire. 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.

The Community is also surrounded by many volcanoes within a 200 mile radius. An eruption from a volcano could also spark a wildfire and pose a threat to 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 32. 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.

- Clinic/Council Building
- Post Office
- Subdivision
- Smokehouse Bay Multiplex
- Church/Parsonage
- Village Maintenance Shop

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.

- Subdivision
- Smokehouse Bay Multiplex
- Angry Eagle Lodge

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 / Council Building
  - Subdivision (includes village council-owned rental properties)
  - Smokehouse Bay Multiplex (library, rentals)
  - Post Office
  - Church/Parsonage
  - Village Maintenance Shop
  - School/Temporary Safety Shelter
  - Pile Bay (Iliamna Transport, fuel pumps, propane, building materials)
  - Angry Eagle Lodge
- Infrastructure
  - Smokehouse Bay Boat Launch/Barge Landing

- Emergency Services Building
- Cemetery
- Power Grid (buried lines, transformers, etc.)
- Communications Systems/Equipment (ATT, GCI, ACS; phone, cell, internet)
- Sewer Collection (truck, lagoon)
- Fuel Storage
- Fuel Transportation
- Generators (3) and Building
- Landfill, incinerator, baler
- Gravel Pit
- Airport (runway, apron, tie-down spaces)
- Airport Maintenance Building
- Airport Equipment: Grader
- Airport Lighting and Power Control Building
- Roads
- Bridges (3)
- Trails
- Tribally Owned Equipment (See list in Appendix A)

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.

- Fish Ponds (salmon spawning)
- Swamps (berry picking)
- Rivers and Creeks
- Drinking water aquifer
- Iliamna Lake
- Beaches
- Islands
- Forest/Timber

5.3 RISK ANALYSIS

The risk analysis assesses the potential effects of the identified hazards on the vulnerable assets that have been identified. Table 5-13 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 5-13. 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.

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Table 5-13: Risks to Vulnerable Assets

Facility Type	Facility Number (See Fig. 1 & 2)	Facility Name	Number of Occupants	Location (Latitude, Longitude)	Estimated Value	Hazard Impacts						
						Earthquake	Erosion	Flood	Severe Wind	Severe Winter Weather	Volcano	Wildfire
Government	5	Post Office	2	59°46'59.90"N, 154° 6'51.71"W	$250K	X			X	X	X	X
Transportation	19	Airport (runway, apron, tie-down spaces)	N/A	59°47'49.97"N, 154° 7'47.41"W	$7M	X	X	X	X	X	X	X
	20	Airport Maintenance Building	N/A	59°47'46.95"N, 154° 7'50.25"W	$225K	X			X	X	X	X
	21	Airport Equipment: Grader	N/A	59°47'46.61"N, 154° 7'47.78"W	$400K	X				X	X	X
	22	Airport Lighting and Power Control Building	N/A	59°47'47.43"N, 154° 7'51.54"W	Unknown	X			X	X	X	X

Table 5-13 (Continued): Risks to Vulnerable Assets

Facility Type	Facility Number (See Fig. 1 & 2)	Facility Name	Number of Occupants	Location (Latitude, Longitude)	Estimated Value	Hazard Impacts						
						Earthquake	Erosion	Flood	Severe Wind	Severe Winter Weather	Volcano	Wildfire
Transportation (Continued)	15	Fuel Transportation	N/A	59°47'20.78"N, 154° 6'12.22"W	Unknown	X			X	X	X	X
	23	Roads	N/A	9.3 miles total	$25M	X	X	X	X	X		X
	24	Bridges (3)	N/A	59°46'18.15"N 154° 4'45.37"W - 59°47'4.70"N, 154° 7'22.03"W - 59°47'14.03"N, 154° 7'22.59"W	Unknown	X	X	X	X	X		X
	25	Trails	N/A	44.2 miles total	--	X	X	X	X	X		X
	26	Tribal Owned Equipment: See Appendix A for List	N/A	59°47'18.36"N, 154° 6'13.27"W	Unknown	X				X		X

Table 5-13 (Continued): Risks to Vulnerable Assets

Facility Type	Facility Number (See Fig. 1 & 2)	Facility Name	Number of Occupants	Location (Latitude, Longitude)	Estimated Value	Hazard Impacts						
						Earthquake	Erosion	Flood	Severe Wind	Severe Winter Weather	Volcano	Wildfire
Medical	1	Clinic / Council Building	15	59°47'20.39"N, 154° 6'5.85"W	$3M	X			X	X	X	X
	7	Emergency Services Building	0	59°47'21.00”N, 154° 6'10.49"W	Unknown	X			X	X	X	X
Utilities	11	Power Grid (buried lines, transformers, etc.)	N/A	Community Wide	Unknown	X	X	X	X	X	X	X
	12	Communications Systems/Equipment (ATT, GCI, ACS; phone, cell, internet)	N/A	59°47'20.19"N, 154 ° 6'0.81"W	Unknown	X	X	X	X	X	X	X
	13	Sewer Collection (truck, lagoon)	N/A	59°47'31.54"N, 154° 6'8.15"W	Unknown	X	X	X	X	X	X	X

Table 5-13 (Continued): Risks to Vulnerable Assets

Facility Type	Facility Number (See Fig. 1 & 2)	Facility Name	Number of Occupants	Location (Latitude, Longitude)	Estimated Value	Hazard Impacts						
						Earthquake	Erosion	Flood	Severe Wind	Severe Winter Weather	Volcano	Wildfire
Utilities (Continued)	16	Generators (3) and Building	N/A	59°47'15.70"N, 154° 5'58.46"W	Unknown	X				X	X	X
	17	Landfill, incinerator, baler	1	59°47'30.25"N, 154° 6'9.00"W	$1M	X			X	X	X	X
Community	2	Subdivision (includes Village Council-owned rental properties)	6	59°47'21.45"N, 154° 5'47.55"W	Unknown	X			X	X	X	X
	3	Smokehouse Bay Multiplex (library, rentals)	8	59°47'9.41"N, 154° 6'34.12"W	Unknown	X			X	X	X	X
	4	Smokehouse Bay Boat Launch/Barge Landing	0	59°47'6.06"N, 154° 6'30.93"W	Unknown	X	X	X	X	X	X	X

Table 5-13 (Continued): Risks to Vulnerable Assets

Facility Type	Facility Number (See Fig. 1 & 2)	Facility Name	Number of Occupants	Location (Latitude, Longitude)	Estimated Value	Hazard Impacts						
						Earthquake	Erosion	Flood	Severe Wind	Severe Winter Weather	Volcano	Wildfire
Community (Continued)	6	Church/Parsonage	10	59°47'19.76"N, 154° 6'24.00"W	Unknown	X		X	X	X	X	X
	8	Village Maintenance Shop	2	59°47'19.79"N, 154° 6'10.65"W	Unknown	X			X	X	X	X
	9	Cemetery		59°47'2.18"N, 154° 5'50.47"W	--	X		X	X	X	X	X
	10	School/Temporary Safety Shelter	0	59°47'19.70"N, 154° 6'5.35"W	$25M	X			X	X	X	X
	18	Gravel Pit	N/A	59°47'52.41"N, 154° 7'23.16"W	--	X		X	X	X	X	X

Table 5-13 (Continued): Risks to Vulnerable Assets

Facility Type	Facility Number (See Fig. 1 & 2)	Facility Name	Number of Occupants	Location (Latitude, Longitude)	Estimated Value	Hazard Impacts						
						Earthquake	Erosion	Flood	Severe Wind	Severe Winter Weather	Volcano	Wildfire
Community (Continued)	27	Angry Eagle Lodge	2 - 32	59°46'39.39"N, 154° 7'26.95"W	Unknown	X	X	X	X	X	X	X
	28	Pile Bay (Iliamna Transport., fuel pumps, propane, building materials)	4	Community Wide	Unknown	X	X	X	X	X	X	X
Natural Environment	29	Fish Ponds (salmon spawning)	N/A	59°47'27.78"N, 154° 6'54.25"W	--	X	X	X		X	X	X
	30	Swamps (berry picking)	N/A	59°47'31.19"N,154° 7'5.84"W	--	X	X	X				X
	31	Rivers and Creeks	N/A	Community Wide	--	X	X	X			X	

Table 5-13 (Continued): Risks to Vulnerable Assets

Facility Type	Facility Number (See Fig. 1 & 2)	Facility Name	Number of Occupants	Location (Latitude, Longitude)	Estimated Value	Hazard Impacts						
						Earthquake	Erosion	Flood	Severe Wind	Severe Winter Weather	Volcano	Wildfire
Natural Environment (Continued)	32	Iliamna Lake	N/A	59°46'39.83"N, 154° 6'34.08"W	--		X	X			X	
	33	Beaches	N/A	59°46'58.29"N, 154° 7'24.38"W 59°47'58.34"N, 154° 9'23.71"W	--	X	X	X				
	34	Islands	N/A	59°46'56.45"N, 154° 6'29.70"W	--	X	X	X				X
	35	Forest/Timber	N/A	Community Wide	--	X			X			X

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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).

- Earthquakes – Damage to older community structures and underground utilities could be caused due to seismic activity. Power and phone lines are buried throughout the Community. A portion runs under the water of Iliamna Lake. Each home has a groundwater well and relies on this for drinking water and household uses. The quality of water in the drinking water aquifer could be altered during an earthquake.
- Erosion – Due to heavy rainfall and drainage from surrounding mountains, multiple locations along the Community roadway system have washed out, as well as caused damage to the airport runway.
- Flood – Iliamna Lake water levels rise during heavy rainfall, which puts lakefront properties and infrastructure at risk of floodwater damage. Salmon spawning ponds swell and connect due to heavy rainfall and drainage from surrounding mountains.
- Severe Wind – Severe wind speeds have impacted the delivery of supplies and travel via air transportation, as well as, caused damage to structures.
- Severe Winter Weather – The delivery of supplies is hindered via air transportation due to snow and ice on the runway. Power outages due to ice heaving have occurred during these events and can have an impact on refrigerated medical supplies.
- 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. The Community is more susceptible to wildfire risks due to the recent spruce bark beetle epidemic which has left many standing dead trees around the Community.

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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

Regulatory Tools (ordinances, codes, plans)	(Yes / No)	Comments
Comprehensive Plan	No	--
Land Use Plan	No	--
Wildland Fire Protection Plan	No	--
Emergency Response Plan	No	--
Long Range Transportation Plan	Yes	December 2017, developed by the Council and Rodney P. Kinney Associates, Inc.
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

Regulatory Tools (ordinances, codes, plans)	(Yes / No)	Comments
Building Code[1]	No	--
Zoning Ordinances	No	--
Subdivision Ordinances or Regulations	No	--
Other	No	--

[1] 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

Staff / Personnel Resources	(Yes / No)	Department / Agency and Position
Administrator	Yes	Tribe
Environmental Program	Yes	Tribe
Fire Department	Yes	Volunteer
Librarian	Yes	School
Village Public Safety Officer	No	Vacant
Health Aide	Yes	2 Positions (1 Vacant)
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 (GIS) and / or HAZUS	No	The Tribe hires consultants with this knowledge
Finance (Grant Writers)	Yes	Tribe, BBNA[1] (Situation Dependent)

[1] 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 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 provide 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 potential for devastating **wildfires** in the village and surrounding subsistence areas.
2	Reduce the potential for devastating **earthquake** damage in the village and surrounding subsistence areas.
3	Reduce the potential for devastating **erosion** damage in the village and surrounding subsistence areas.
4	Reduce the potential for devastating **flood** damage in the village and surrounding subsistence areas.
5	Reduce the potential for devastating **severe wind** damage in the village and surrounding subsistence areas.
6	Reduce the potential for devastating **severe winter weather** impacts in the village and surrounding subsistence areas.
7	Reduce the potential for devastating **volcano** impacts in the village and surrounding subsistence areas.
8	Train and encourage personal and family disaster preparation and planning among village residents.
9	Build the capacity of the Tribe to prepare, respond to and recover from disasters through training and community strategic planning.
10	Identify local assets that may be used in response during a time of natural hazards.
11	Identify, prepare, and stock a community shelter to be used in case of evacuation during a natural hazard.
12	Create a fundable position within the Tribe to manage safety resources, oversee projects, and maintain the hazard plan.

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 6.6). 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.

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Table 6-4: Prioritized Mitigation Actions

[1]Action ID	Description	Priority (High, Medium, Low)	Coordinating Department	Implementation Department/Role	Potential Funding Source	Timeframe
1.A	Eliminate the standing dead, beetle-kill trees around the Community.	High	Pedro Bay Village Council	Environmental & Fire	Grant	1 - 3 Years
1.B	Acquire firebreak equipment and place strategic firebreaks around the Community.	Medium – High	Pedro Bay Village Council	Environmental & Fire	Grant	1 – 5 Years
1.C	Educate community residents about placing proper firebreaks around their homes.	High	Pedro Bay Village Council	Pedro Bay Village Council	Pedro Bay Village Council & Volunteer	1 Year & Ongoing
1.E	Identify and train new volunteer fire personnel and renew training for existing volunteer fire personnel for the fire department.	High	Pedro Bay Village Council	Fire	Grant	1 – 3 Years
1.K	Provide education about safe burn barrel practices for personal burn barrels to community residents.	High	Pedro Bay Village Council	Pedro Bay Village Council & Fire	Pedro Bay Village Council & Volunteer	1 Year & Ongoing
1.L	Develop permanent educational materials for the community about wildfires. This information will be a part of an annual rotation of information through mailbox newsletters.	High	Pedro Bay Village Council	Pedro Bay Village Council	Pedro Bay Village Council & Volunteer	1 Year & Ongoing
2.A	Pursue funding to relocate buried utility components that are under water to underground location.	Medium	Pedro Bay Village Council	Pedro Bay Village Council	Grant	1 – 3 Years

Table 6-4 (Continued): Prioritized Mitigation Actions

[1]Action ID	Description	Priority (High, Medium, Low)	Coordinating Department	Implementation Department/Role	Potential Funding Source	Timeframe
2.F	Develop permanent educational materials for the community about earthquakes. This information will be a part of an annual rotation of information through mailbox newsletters.	Medium	Pedro Bay Village Council	Pedro Bay Village Council	Pedro Bay Village Council & Volunteer	1 Year & Ongoing
2.J	Acquire a backup generator for the Clinic.	High	Pedro Bay Village Council	Health Aide	Grant	1 – 2 Years
3.C	Improve or redesign road to the airport for improved access.	High	Pedro Bay Village Council	Pedro Bay Village Council	Grant	1 – 3 Years
4.A	Pursue funding for a hydrology study around the community, but especially around the airport (runway and airport access road).	Medium	Pedro Bay Village Council	Pedro Bay Village Council	Grant	1 – 3 Years
4.B	Improve drainage around the airport.	Medium – High	Pedro Bay Village Council	Pedro Bay Village Council	Grant	1 – 3 Years
5.B	Maintain the forest around the community and by removing dead trees and clearing cottonwoods following forest management practices.	High	Pedro Bay Village Council	Pedro Bay Village Council & Fire	Grant	1 – 3 Years
5.C	Provide education related to fires on windy days.	High	Pedro Bay Village Council	Pedro Bay Village Council	Pedro Bay Village Council & Volunteer	1 Year

Table 6-4 (Continued): Prioritized Mitigation Actions

[1]Action ID	Description	Priority (High, Medium, Low)	Coordinating Department	Implementation Department/Role	Potential Funding Source	Timeframe
6.A	Develop a winter weatherization checklist for residents and produce on material more permanent than paper (e.g. magnets).	Low	Pedro Bay Village Council	Pedro Bay Village Council	Pedro Bay Village Council & Volunteer	1 Year
6.C	Acquire a grader, and a sanding machine.	Medium	Pedro Bay Village Council	Pedro Bay Village Council	Unknown at this time	1 – 5 Years
6.E	Provide education on appropriate winter weather safety gear (clothing, supplies during travel) to young kids and new residents.	Low	Pedro Bay Village Council	Pedro Bay Village Council	Pedro Bay Village Council	1 Year
7.A	Provide correct protective masks at clinic and demonstrate proper placement.	Low	Pedro Bay Village Council	Health Aide	FEMA / Unknown	1 Year
7.B	Educate the community residents on the impacts of breathing ash and its impacts to vehicles, equipment, and pets.	Low	Pedro Bay Village Council	Pedro Bay Village Council & Health Aide	Pedro Bay Village Council	1 – 2 Years
7.G	Develop permanent educational materials for the community about volcano safety. This information will be a part of an annual rotation of information through mailbox newsletters.	Low	Pedro Bay Village Council	Pedro Bay Village Council	Pedro Bay Village Council	1 Year

Table 6-4 (Continued): Prioritized Mitigation Actions

[1]Action ID	Description	Priority (High, Medium, Low)	Coordinating Department	Implementation Department/Role	Potential Funding Source	Timeframe
8.A	Educate residents and encourage families to create family and personal "go bags."	High	Pedro Bay Village Council	Pedro Bay Village Council	Pedro Bay Village Council & Volunteer	1 – 2 Years
8.B	Educate and encourage families to develop a family emergency plan, with meeting points, contact information.	High	Pedro Bay Village Council	Pedro Bay Village Council	Pedro Bay Village Council & Volunteer	1 – 2 Years
9.A	Participate in the Community Emergency Response Team (CERT) Program.	High	Pedro Bay Village Council	Pedro Bay Village Council	FEMA	1 Year & Ongoing
9.B	Obtain items for the CERT bags (See Appendix A for complete list).	High	Pedro Bay Village Council	Pedro Bay Village Council	FEMA	1 Year & Ongoing
9.C	Obtain tribally owned two-way radios.	Medium	Pedro Bay Village Council	Pedro Bay Village Council	Grant	1 – 3 Years
10.A	Identify local assets / equipment to be used in natural hazards and maintain a list of assets for use in natural hazard events.	High	Pedro Bay Village Council	Pedro Bay Village Council	N/A	1 Year
10.B	Formalize agreements between owners of equipment and assets and Tribe to use equipment and assets during a natural hazard event.	High	Pedro Bay Village Council	Pedro Bay Village Council	N/A	1 Year

Table 6-4 (Continued): Prioritized Mitigation Actions

[1]Action ID	Description	Priority (High, Medium, Low)	Coordinating Department	Implementation Department/Role	Potential Funding Source	Timeframe
10.C	Develop a written community emergency plan.	Medium	Pedro Bay Village Council	All Community Entities	N/A	1 – 3 Years
10.D	Identify key personnel with alternates for the emergency plan.	Medium	Pedro Bay Village Council	All Community Entities	N/A	1 – 3 Years
10.E	Educate the community residents about the emergency plan, and where it is located.	Medium	Pedro Bay Village Council	Pedro Bay Village Council	N/A	1 – 3 Years
10.G	Post emergency numbers / information on safety boards throughout the community like the post office, clinic, church, library, and council building.	High	Pedro Bay Village Council	Pedro Bay Village Council	N/A	1 Year
11.B	For interim use obtain an agreement with the Borough to use the school for an interim shelter for the community in case of emergencies.	High	Pedro Bay Village Council	Pedro Bay Village Council	N/A	Currently in Process
11.C	Obtain items needed to stock the shelter. These items may include cots, water, first aid supplies, Meals Ready to Eat (MRE), blankets, emergency power source, generator, cribbing materials, and others.	High	Pedro Bay Village Council	Pedro Bay Village Council	FEMA	1 – 2 Years

Table 6-4 (Continued): Prioritized Mitigation Actions

[1]Action ID	Description	Priority (High, Medium, Low)	Coordinating Department	Implementation Department/Role	Potential Funding Source	Timeframe
11.F	Maintain vegetation clearing around the structure of the safety shelter.	High	Pedro Bay Village Council	Pedro Bay Village Council	Grant	Ongoing
12.A	Identify funding for position in tribe to update the THMP, oversee projects, and manage safety resources	Medium	Pedro Bay Village Council	Pedro Bay Village Council	FEMA	1 – 3 Years

[1] Action IDs are not in sequential order. For a full listing of potential mitigation action items see Appendix A.

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;
- The department, office, or agency and their respective roles in implementing each action; and

The Mitigation Action Plan in Section 6.6 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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FIGURES

Community Map
PEDRO BAY

59° 47' 15" N 154° 06' 42" W (NAD 83)
Approximate Elevation: 65'
Township 4 South, Range 28 West, S.M., AK
U.S.G.S. Quadrangle "ILIAMNA D-3 AND D-4", Alaska
ILIAMNA RECORDING DISTRICT

LEGEND
FIGURE NTS

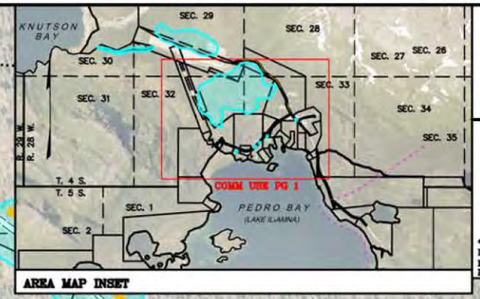
EROSION

PERIODIC FLOODING AREAS**

**Flooding areas determined by community input.
Date of Photography: August 28, 2002
Magnetic Declination computed by U.S.G.S. Geomag Program using AK-2000.COF model as of August 1, 2003.

FIGURE 1 of 2

AREA MAP INSET



ASSET KEY:

1. CLINIC/COUNCIL BUILDING
2. SUBDIVISION (VILLAGE OWNED COUNCIL PROPERTIES
3. SMOKEHOUSE BAY MULTIPLEX (LIBRARY, RENTALS)
4. SMOKEHOUSE BAY BOAT LAUNCH/BARGE LANDING
5. POST OFFICE
6. CHURCH/PARSONAGE
7. EMERGENCY SERVICES BUILDING
8. VILLAGE MAINTENANCE SHOP
9. CEMETERY
10. SCHOOL/TEMPORARY SAFETY SHELTER
11. POWERGRID*
12. COMMUNICATIONS SYSTEMS/EQUIPMENT
13. SEWER COLLECTION
14. FUEL STORAGE
15. FUEL TRANSPORTATION
16. GENERATORS AND BUILDING
17. LANDFILL, INCINERATOR, BAILER
18. GRAVEL PIT
19. AIRPORT RUNWAY
20. AIRPORT MAINTENANCE BUILDING
21. AIRPORT EQUIPMENT
22. AIRPORT LIGHTNING AND POWER CONTROL BUILDING
23. ROADS*
24. BRIDGES
25. TRAILS
26. EQUIPMENT
27. ANGRY EAGLE LODGE
28. PILE BAY*
29. FISH PONDS
30. SWAMPS
31. RIVERS AND CREEKS*
32. ILLIAMNA LAKE
33. BEACHES
34. ISLANDS
35. FOREST TIMBER*

*NOT SHOWN FOR CLARITY

MAP NOTES

This map was prepared by the Lake and Peninsula Borough in cooperation with the Alaska Department of Community and Economic Development (DCED) using funding from the Alaska Coastal Management Program, U.S. 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 Lake and Peninsula Borough contracted with Global Positioning Services, Inc. in May of 2003 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 Recorders 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 July 2003.

The Alaska Native Tribal Health Consortium provided sanitation facility records.

This map is based on photography acquired on August 28, 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.

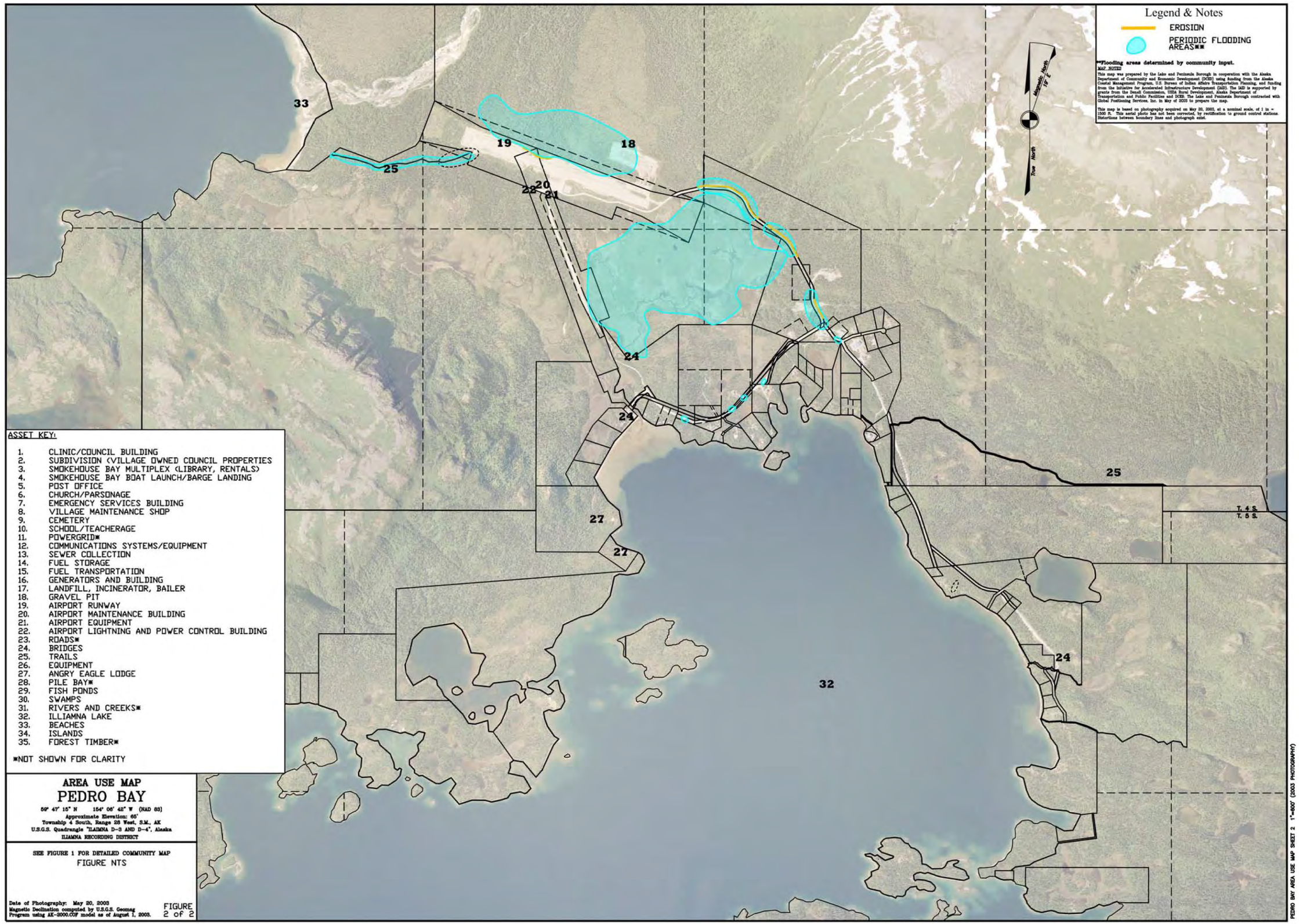
HORIZONTAL AND VERTICAL CONTROL

The control monument for the digital orthophoto was "ILIAMNA EAST BASE". Published horizontal datum NAD 1983 coordinates for this monument are North 59° 45' 47.81006" and West 154° 49' 14.52415". The vertical datum NGVD 1929 for this monument is 117 feet above mean high water (MHW).

The village of Pedro Bay has been adjusted to this control using high precision GPS methods and the adjusted coordinates and elevation for C1, USS 8160 were calculated to establish a local control reference. The NAD 1983 coordinates for this monument are North 59° 47' 09.81" and West 154° 06' 37.96" and the NGVD 1929 elevation is 57.25 feet above mean high water.

The contours were prepared at two (2) foot contour intervals with index contours every ten (10) feet. The two feet contours have been omitted in steep areas, leaving only the index contours, for clarity.

PEDRO BAY COMMUNITY MAP SHEET 1 1"=200' (2002 PHOTOGRAPHY)


Legend & Notes
EROSION
PERIODIC FLOODING AREAS**
**Flooding areas determined by community input.
MAP NOTES
This map was prepared by the Lake and Peninsula Borough in cooperation with the Alaska Department of Community and Economic Development (DCED) using funding from the Alaska Coastal Management Program, U.S. 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 Lake and Peninsula Borough contracted with Global Positioning Services, Inc. in May of 2003 to prepare the map.
This map is based on photography acquired on May 20, 2003, at a nominal scale of 1 in = 1500 ft. This aerial photo has not been corrected, by rectification to ground control stations. Distortions between boundary lines and photograph exist.
Magnetic North 19° E
True North
ASSET KEY:
1. CLINIC/COUNCIL BUILDING
2. SUBDIVISION (VILLAGE OWNED COUNCIL PROPERTIES
3. SMOKEHOUSE BAY MULTIPLEX (LIBRARY, RENTALS)
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33. BEACHES
34. ISLANDS
35. FOREST TIMBER*
*NOT SHOWN FOR CLARITY
AREA USE MAP
PEDRO BAY
59° 47' 15" N 154° 06' 42" W (NAD 83)
Approximate Elevation: 65'
Township 4 South, Range 28 West, S.M., AK
U.S.G.S. Quadrangle "ILIAMNA D-3 AND D-4", Alaska
ILIAMNA RECORDING DISTRICT
SEE FIGURE 1 FOR DETAILED COMMUNITY MAP
FIGURE NTS
Date of Photography: May 20, 2003
Magnetic Declination computed by U.S.G.S. Geomag Program using AK-2000.COF model as of August 1, 2003.
FIGURE 2 of 2
T. 4 S.
T. 5 S.
PEDRO BAY AREA USE MAP SHEET 2 1"=600' (2003 PHOTOGRAPHY)

APPENDIX A

Planning Process

- Meeting Minutes (August 27, 2018)
- Meeting Attendees - email
- Hazard Identification Worksheet
- Hazard Analysis (Worksheet #2)
- Risk Analysis Worksheet
- Tribally Owned Equipment List
- Meeting Minutes (November 27, 2018)
- Meeting Minute Comments from Planning Team (December 2, 2018)
- Mitigation Action Types & Examples
- Potential Mitigation Actions
- CERT Equipment List
- Mitigation Action Evaluation Worksheet

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COUNCIL MEETING MINUTES

Project: **BBNA THMP & TTSP Project**

Bristol Project No: 32190013

Reference: Pedro Bay THMP Workgroup Packet 1

Date of Meeting, August 27, 2018 10:00 AM to 12:30 PM

Location of Meeting: Teleconference

Participants: Bristol (Danielle Dance, Jackie Wander), BBNA (Annie Fritze, Dan Breeden), Pedro Bay Planning Team (Ben Foss, Kim, Ross)

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

- Bristol – Send working Word documents and Excel spreadsheet for Worksheets 2-5.
- Bristol – Identify resources for determining extent/magnitude of hazards, and probability of future events.
- Pedro Bay Planning Team – Send/email contact names and contact information for Planning Team members with each member's role on the team.
- Pedro Bay Planning Team – Distribute/Collect community surveys. Return to Bristol by *September 14, 2018*.
- Pedro Bay Planning Team – Complete worksheets 2-5 and return to Bristol by *September 10, 2018* or before.
- Pedro Bay Planning Team – Speak with Generator Operator about the impacts of Extreme Heat.
- BBNA – Research personal dwellings with regards to the Risk Analysis.
- BBNA – Schedule 2nd teleconference meeting with Ben.

General Notes

- They would like Word documents and Excel files to fill in – please send via email
- Please send links / resources to help identify the extent (scientific scales) for the hazards, and ways to estimate damage values for assets
- Try using IFR/VFR plane flying conditions for some of the hazards
- They would like to see what other communities are doing as a reference
- Example Vulnerability statements:
    - The Iliamna Lake level rises during heavy rainfall, which puts lakefront properties and infrastructure at risk to floodwater damage.

    - Due to the recent spruce beetle epidemic, the community is surrounded by mostly dead trees, putting the community at a much higher risk of wildfire.
- Kim is their preferred point of contact
- They can have the forms filled out within 2 weeks. They will send a list of names/contact info for their planning team. Anne to schedule next meeting with Ben.
- Possible Community event "Dessert Social" to be hosted by the Planning Team to collect information for the worksheets.

Profiled Hazard

- Earthquake
    - Many houses are located on bedrock, and are at a reduced risk, therefore earthquake may not affect 100% of the community
    - Pedro bay is not directly located on a fault line, but they are close to the Lake Clark fault line and have felt earthquakes within the last 5-10 years
    - They have had earthquakes with a magnitude of 9+
    - There has never been an epicenter located in the community
- Erosion
    - A road was recently patched this year due to a washout
    - Water comes down from the mountains and can take out a road overnight
    - Erosion is also prevalent along the lake, at a much slower rate (over years)
    - Flooding and erosion issues at the airport
- Flood
    - Flooding is experienced in many ways: river and lake levels rise due to rain, heavy drainage from rainfall down the mountain, fish ponds swell and connect (marshy/wetland areas), airport floods
    - Flooding never happened when they were younger, but have seen more and more flooding in the last 20 years
    - There is not enough snow accumulation to cause spring breakup flooding events
- Severe Wind
    - Heavy wind gusts occur very frequently, almost "every day"
    - Wind direction is variable and shifts constantly
    - Risk of trees falling, especially after beetle kill
    - Someone's roof blew off last year
    - Planes won't fly at certain wind speeds, affecting access to supplies and travel
    - Power lines are buried and are not an issue
- Snow / Winter Weather
    - Blizzard / hail conditions happen once per year
    - Snow accumulation / duration is low
    - One incident resulted in 4-feet of snow overnight
    - Ice affects roads, etc.
- Volcano
    - Located in a "ring of fire" – need to research which volcanoes are nearby, how close, and volcanic activity
    - Lava is not a concern, but wildfire sparked from volcanic activity is
    - Smoke is a huge concern, people can't use their vehicles, have to wear masks, and planes won't bring supplies

- Wildfire
  - Risk of wildfire increases during drought (dry grass), and is higher now with so many dead trees from the beetle kill
  - "It just takes one dry spring and a careless camper or lightning strike"
  - Minimal local ability to fight fires – the average age of the population is over 50 years old (we can confirm this on DCCED census data), limited fire equipment
  - They have done drills in the winter, but if there is no ice to haul supplies, response time is greatly reduced
  - There are a lot of wood stoves in the community
  - There is an alarming amount of dead trees – about 10 years ago, the Forest service sent a crew to cut down trees, but this is needed again after beetle kill

Non-Profiled Hazards

- Avalanche
  - One hazardous area near airport
- Drought
  - Everyone has their own drinking water wells and septic systems
  - Drought has possibly contributed to the presence of spruce beetles killing all of the surrounding trees
- Extreme Cold
  - It doesn't happen anymore, but may happen every 20 years or so, it is not expected to happen within the next 1-5 years due to El Nino
  - About 10 years ago, and in 1997, it got as cold as 40 below, causing ground cracking, planes and vehicles won't work, and people burn through fuel much faster
  - It has been 40 below for up to 10 days at a time
  - People can help out and provide clothes, supplies, if needed
- Extreme Heat
  - Affects the whole community
  - It may affect the generator and cause it to overheat, but they want to talk to the power plant operator to better understand the impacts to utility infrastructure
  - They have the lake to cool off
- Landslides
  - Have had recent landslides from the rain, but they are high in the mountains
  - There are no buildings up that high, but there are hiking trails

Dance, Danielle

From: Ben Foss <b.foss@pedrobay.com>
Sent: Wednesday, August 29, 2018 11:52 AM
To: Dance, Danielle
Subject: Pedro Bay Hazard Safety Team

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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.

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

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

SELECT HAZARD DEFINITIONS

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
BLUE	Negligible	• Only one small area or none • Less than 10% of planning area • Isolated single-point occurrences
GREEN	Limited	• Only some of the community • 10% to 25% of planning area • Limited single-point occurrences
YELLOW	Significant	• Most of the community • 25% to 75% of planning area • Frequent single-point occurrences
RED	Extensive	• Almost all or All of the community • 75% to 100% of planning area • Consistent single-point occurrences

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
BLUE	Weak	• Little to no damage done • Slow speed of onset or short duration of event • Limited classification on scientific scale (if applicable)
GREEN	Moderate	• Some damage and loss of services for days • Moderate speed of onset or moderate duration of event • Moderate classification on scientific scale (if applicable)
YELLOW	Severe	• Devastating damage and loss of services for weeks or months • Fast speed of onset or long duration of event • Severe classification on scientific scale (if applicable)
RED	Extreme	• Catastrophic damage and uninhabitable conditions • Immediate onset or extended duration of event • Extreme classification on scientific scale (if applicable)

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	• Less than 1% probability of occurrence in the next year • Recurrence interval of greater than every 100 years
GREEN	Occasional	• 1% to 10% probability of occurrence in the next year • Recurrence interval of 11 to 100 years
YELLOW	Likely	• 10% to 90% probability of occurrence in the next year • Recurrence interval of 1 to 10 years
RED	Highly Likely	• 90% to 100% probability of occurrence in the next year • Recurrence interval of less than 1 year

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	• Event has minimal impact on planning area • Two or more criteria fall in lower classifications (2 or more BLUE) • Profile – Likely doesn't need to be profiled but can
YELLOW	Medium	• Event's impacts on the planning area are noticeable but not devastating • Criteria fall mostly in the middle ranges of classifications (2 or more GREEN or YELLOW) • Profile – Choice of the Planning Team
RED	High	• Event is likely/highly likely to occur with severe strength over a significant or extensive portion of the planning area • Criteria consistently fall in the high classifications (2 or more RED) • Profile – Definitely profile

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.

WORKSHEET #2: HAZARD ANALYSIS

Use the following questions to provide required information about **each** hazard being profiled in the Tribal Hazard Mitigation Plan (THMP).

HAZARD: EARTHQUAKE

Location:

- Does the hazard impact the entire planning area? **YES**

- If it does not ("NO" from above question) impact the entire planning area, please provide a description of the location. You may also circle and label the specific areas on the attached community maps.

Extent (Magnitude / Strength):

- If the hazard uses a scientific scale (e.g. Earthquake Richter Scale), how severe can it be according to the scientific scale? If no scale is available, describe the magnitude / strength of the hazard by its thickness, area, depth, temperatures, volumes, or duration / length.

  Several earthquakes have been felt and/or originated (epicenter) in the general vicinity of Pedro Bay in the past few years, but there has been no recent damage. As is true throughout Alaska and the Pacific Rim, earthquakes are an ongoing concern in Pedro Bay and the surrounding area.

- How long can the hazard last?

  Minutes, but effects may be long-term

- How fast does the hazard impact the community? Is it a sudden onset (with little to no warning or time for preparation) or a slow onset (time for warning community members and make appropriate preparations)?

  Typically a sudden onset with little or no warning

History:

- When did the hazard occur? List the past occurrences. Include month and year, if known.

  Earthquakes are felt not infrequently, as is true throughout the Pacific Rim. The most recent earthquake that residents remember causing damage in Pedro Bay was in 1999. The magnitude is unknown.

- When these occurred, what was impacted? Where there any deaths or injuries? Was there damage done to any assets?

  The 1999 earthquake broke a fuel line at the school. The grounds were contaminated to the extent that the site had to be closed permanently and the school relocated (rebuilt elsewhere).

- Are there any community members that could provide an account of the past occurrences?

  Yes, multiple community members were interviewed to compile the account given above.

- Has the hazard had any long lasting effects?

  No (none other than the former school site's closure)

- Has it caused additional hazards?

  No

Probability of Future Events:

- What is the probability of the hazard to happen again in the community (Unlikely, Occasional, Likely, Highly Likely)?

  Highly likely

- Why?

  Geographical location

HAZARD: EROSION

Location:

- Does the hazard impact the entire planning area? **NO**

- If it does not ("NO" from above question) impact the entire planning area, please provide a description of the location. You may also circle and label the specific areas on the attached community maps.

  Shoreline (of Iliamna Lake), airport runway, road ~1/8 mi. north of village center (location of multiple washout events), upper Pedro Creek bridge

Extent (Magnitude / Strength):

- If the hazard uses a scientific scale (e.g. Earthquake Richter Scale), how severe can it be according to the scientific scale? If no scale is available, describe the magnitude / strength of the hazard by its thickness, area, depth, temperatures, volumes, or duration / length.

  The area is prone to heavy seasonal rainfall events and significant drainage coming down from surrounding mountains. Waterways through the valley where the village is located shift and threaten roads and the runway with washouts. High winds and resulting waves on the lake impact structures along the shoreline of the lake.

- How long can the hazard last?

  Seasonal (days, weeks)

- How fast does the hazard impact the community? Is it a sudden onset (with little to no warning or time for preparation) or a slow onset (time for warning community members and make appropriate preparations)?

  Onset may be sudden or with some warning if a storm is approaching.

History:

- When did the hazard occur? List the past occurrences. Include month and year, if known.

  August 2018, heavy rains and flooding washed out the road ~1/8 mi. north of village center and threatened the airport runway (where there have been past events of washout). In 1993 the airport runway was damaged when breached by flowing water.

- When these occurred, what was impacted? Where there any deaths or injuries? Was there damage done to any assets?

  No deaths or injuries. Damage to roads and airport.

- Are there any community members that could provide an account of the past occurrences?

  Multiple community members were interviewed for the accounts given above.

- Has the hazard had any long lasting effects?

  None other than the ongoing concern for roads and airport runway during heavy rainfall.

- Has it caused additional hazards?

  If (and in the past, when) the airport runway is damaged, air travel (including any medi-vac flights needed) are interrupted. The community is not on the road system.

Probability of Future Events:

- What is the probability of the hazard to happen again in the community (Unlikely, Occasional, Likely, Highly Likely)?

  Likely

- Why?

  The area is prone to high winds and seasonal heavy rainfall. Surrounding mountains drain into the valley where the community is located.

HAZARD: FLOOD

Location:

- Does the hazard impact the entire planning area? **NO**

- If it does not ("NO" from above question) impact the entire planning area, please provide a description of the location. You may also circle and label the specific areas on the attached community maps.

  Shoreline, waterways (rivers, creeks), airport runway, low-lying areas, bridges, roads, salmon spawning ponds, berry-picking swamps

Extent (Magnitude / Strength):

- If the hazard uses a scientific scale (e.g. Earthquake Richter Scale), how severe can it be according to the scientific scale? If no scale is available, describe the magnitude / strength of the hazard by its thickness, area, depth, temperatures, volumes, or duration / length.

  Water during the August 2018 event rose 3 to 8 feet, depending on location.

- How long can the hazard last?

  The threat is seasonal, especially during the summer and fall seasons. May last days to weeks.

- How fast does the hazard impact the community? Is it a sudden onset (with little to no warning or time for preparation) or a slow onset (time for warning community members and make appropriate preparations)?

  Flooding typically happens with little to no warning.

History:

- When did the hazard occur? List the past occurrences. Include month and year, if known.

  The most recent flooding event was August 2018.

- When these occurred, what was impacted? Where there any deaths or injuries? Was there damage done to any assets?

  The airport runway was nearly breached, the road through the village was washed out in one location and underwater in several other locations.

  Rivers and creeks that run through the village overflowed their banks and made new beds, pushing gravel up over equipment and materials being stored in cleared areas.

  The gravel pit was under several feet of water.

  Fish ponds (spawning areas) overflowed throughout the area.

- Are there any community members that could provide an account of the past occurrences?

  Several community members were interviewed for the account given above.

- Has the hazard had any long lasting effects?

  None other than one area of the road which still needs a long-term solution to address repeated washout from flooding.

- Has it caused additional hazards?

  No

Probability of Future Events:

- What is the probability of the hazard to happen again in the community (Unlikely, Occasional, Likely, Highly Likely)?

  Likely

- Why?

  The region is prone to seasonal heavy rainfall and surrounding mountains drain into the valley where the village is located.

HAZARD: SEVERE WIND

Location:

- Does the hazard impact the entire planning area? **YES**

- If it does not ("NO" from above question) impact the entire planning area, please provide a description of the location. You may also circle and label the specific areas on the attached community maps.

Extent (Magnitude / Strength):

- If the hazard uses a scientific scale (e.g. Earthquake Richter Scale), how severe can it be according to the scientific scale? If no scale is available, describe the magnitude / strength of the hazard by its thickness, area, depth, temperatures, volumes, or duration / length.

  Winds up to approximately 90 mph have been noted in recent years.

- How long can the hazard last?

  Days, seasonally. The area is prone to frequent high winds.

- How fast does the hazard impact the community? Is it a sudden onset (with little to no warning or time for preparation) or a slow onset (time for warning community members and make appropriate preparations)?

  Onset can be quite sudden.

History:

- When did the hazard occur? List the past occurrences. Include month and year, if known.

  High winds occur frequently, often at least once or more a week.

- When these occurred, what was impacted? Where there any deaths or injuries? Was there damage done to any assets?

  Damage that has occurred in recent years includes sandblasting of vehicles, damage to the airport maintenance building, bridge signage that was damaged or lost, damaged roofing on residential buildings, and restricted air and boat travel to and from the community.

- Are there any community members that could provide an account of the past occurrences?

  Several community members were interviewed for the accounts provided above.

- Has the hazard had any long lasting effects? *No*

- Has it caused additional hazards? *No*

Probability of Future Events:

- What is the probability of the hazard to happen again in the community (Unlikely, Occasional, Likely, Highly Likely)?

  Highly likely

- Why?

  The region is geographically prone to high winds which frequently switch direction.

HAZARD: SEVERE WINTER WEATHER

Location:

- Does the hazard impact the entire planning area? **YES**

- If it does not ("NO" from above question) impact the entire planning area, please provide a description of the location. You may also circle and label the specific areas on the attached community maps.

Extent (Magnitude / Strength):

- If the hazard uses a scientific scale (e.g. Earthquake Richter Scale), how severe can it be according to the scientific scale? If no scale is available, describe the magnitude / strength of the hazard by its thickness, area, depth, temperatures, volumes, or duration / length.

  Severity and effects may include subzero temperatures, ice and sleet affecting roads, ice heaves damaging docks or damaging the power lines running under the lake, interrupted air travel to and from the village.

- How long can the hazard last?

  Seasonal – days or weeks

- How fast does the hazard impact the community? Is it a sudden onset (with little to no warning or time for preparation) or a slow onset (time for warning community members and make appropriate preparations)?

  Onset may be sudden or there may be some warning via weather forecast.

History:

- When did the hazard occur? List the past occurrences. Include month and year, if known.

  The most recent occurrence with significant impact remembered by community members was in the 1990s.

- When these occurred, what was impacted? Where there any deaths or injuries? Was there damage done to any assets?

  Severe cold and wind in the 1990s limited air travel to and from the village. Other past effects (unspecified dates, but in the memory of current residents) from severe winter weather include ice damage to docks and ice damage to power cable running under the lake.

- Are there any community members that could provide an account of the past occurrences?

Several community members were interviewed for the accounts given above.

- Has the hazard had any long lasting effects?

  No

- Has it caused additional hazards?

  No

Probability of Future Events:

- What is the probability of the hazard to happen again in the community (Unlikely, Occasional, Likely, Highly Likely)?

  Occasional

- Why?

  The region can experience fluctuating winter temperatures and storm systems.

HAZARD: VOLCANO

Location:

- Does the hazard impact the entire planning area? **YES**

- If it does not ("NO" from above question) impact the entire planning area, please provide a description of the location. You may also circle and label the specific areas on the attached community maps.

Extent (Magnitude / Strength):

- If the hazard uses a scientific scale (e.g. Earthquake Richter Scale), how severe can it be according to the scientific scale? If no scale is available, describe the magnitude / strength of the hazard by its thickness, area, depth, temperatures, volumes, or duration / length.

  The community is surrounded by several volcanoes that have been active at varying levels during the past three decades.

- How long can the hazard last?

  Days, potentially more

- How fast does the hazard impact the community? Is it a sudden onset (with little to no warning or time for preparation) or a slow onset (time for warning community members and make appropriate preparations)?

  Little warning, fairly to very sudden onset

History:

- When did the hazard occur? List the past occurrences. Include month and year, if known.

  There have been several eruptions in the region over the past few decades, but the community remembers in particular the 1986 eruption of Mt. Augustine, in which the air quality was significantly affected. There was also one eruption of Mt. Redoubt that affected air quality enough to require the shutdown of the power plant, impact air travel, and affect equipment. Noticeable pockets of ashfall can be found upon any digging or excavation – most significantly from the 1912 Novarupta and 1986 Augustine eruptions.

- When these occurred, what was impacted? Where there any deaths or injuries? Was there damage done to any assets?

  No deaths or injuries. Ashfall has been the only impact – to people (air quality), to equipment, and to air travel.

- Are there any community members that could provide an account of the past occurrences?

  Several community members were interviewed for the account provided above.

- Has the hazard had any long lasting effects?

  No

- Has it caused additional hazards?

  No

Probability of Future Events:

- What is the probability of the hazard to happen again in the community (Unlikely, Occasional, Likely, Highly Likely)?

  Likely

- Why?

  The community is surrounded by several volcanoes. Partial list of volcanoes within an approximate 200 mile radius of Pedro Bay:

  Hayes

  Spurr

  Double Glacier

  Redoubt

  Iliamna

  Augustine

  Douglas

  Devil's Desk

  Rainbow River Cone

  Iron Trig Cone

  Kaguyak

  Katmai

  Trident

  Novarupta

HAZARD: WILDFIRE

Location:

- Does the hazard impact the entire planning area? **YES**

- If it does not ("NO" from above question) impact the entire planning area, please provide a description of the location. You may also circle and label the specific areas on the attached community maps.

Extent (Magnitude / Strength):

- If the hazard uses a scientific scale (e.g. Earthquake Richter Scale), how severe can it be according to the scientific scale? If no scale is available, describe the magnitude / strength of the hazard by its thickness, area, depth, temperatures, volumes, or duration / length.

  N/A

- How long can the hazard last?

  Seasonally – especially spring and summer

- How fast does the hazard impact the community? Is it a sudden onset (with little to no warning or time for preparation) or a slow onset (time for warning community members and make appropriate preparations)?

  Sudden onset

History:

- When did the hazard occur? List the past occurrences. Include month and year, if known.

  Two or three years ago, there was a wildfire ignited by a lightning strike in the general area but not in the village site.

  There was a wildfire in nearby Iliamna in 1993. There was a wildfire in Knutson Bay in the 1990s.

  The community has also has experienced multiple small, short-lived fires over the years (ignited by steambath and smokehouse stovepipes.

  The community's biggest concern regarding wildfire is not necessarily the history of this event in the area, but the current conditions that include a significantly spruce bark beetle-damaged surrounding forest that makes the area more susceptible to wildfire.

- When these occurred, what was impacted? Where there any deaths or injuries? Was there damage done to any assets?

  N/A

- Are there any community members that could provide an account of the past occurrences?

  Several community members were interviewed for the account provided above.

- Has the hazard had any long lasting effects?

  No

- Has it caused additional hazards?

  No

Probability of Future Events:

- What is the probability of the hazard to happen again in the community (Unlikely, Occasional, Likely, Highly Likely)?

  Highly likely

- Why?

  There are a significant number of dry, standing-dead trees in and surrounding the village. The mountainous topography, heavily timbered landscape, and prevalent high winds in the area increase the danger in a wildfire.

Risk Analysis Worksheet *(Profiled Hazards Only)*

Key Number	Column A Facility Name	Column B Number of Occupants	Column C Location	Column D Estimated Value	Column E: Hazard Impacts *(Fill in Hazards in Blank Columns Below)*											
					Earthquake	Erosion	Flood	Severe Wind	Severe Winter Weather	Volcano	Wildfire					
1	Clinic / Council Building	15			X			X	X	X	X					
2	Subdivision (includes village council-owned rental properties)	6			x			x	x	x	x					
3	Smokehouse Bay Multiplex (library, rentals)	8			x			x	x	x	x					
4	Smokehouse Bay Boat Launch/Barge Landing	0			x	x	x	x	x	x	x					
5	Post Office	2			x			x	x	x	x					
6	Church/Parsonage	10			x		x	x	x	x	x					
7	Emergency Services Building	0			x			x	x	x	x					
8	Village Maintenance Shop	2			x			x	x	x	x					
9	Cemetary	N/A			x		x	x	x	x	x					
10	School/Temporary Safety Shelter	0			x			x	x	x	x					
11	Power Grid (buried lines, transformers, etc.)	N/A			x	x	x	x	x	x	x					
12	Communications Systems/Equipment (ATT, GCI, ACS; phone, cell, internet)	N/A			x	x	x	x	x	x	x					
13	Sewer Collection (truck,lagoon)	N/A			x	x	x	x	x	x	x					
14	Fuel Storage	N/A			x			x	x	x	x					
15	Fuel Transportation	N/A			x			x	x	x	x					
16	Generators (3) and Building	N/A			x				x	x	x					

Risk Analysis Worksheet *(Profiled Hazards Only)*

Key Number	Column A Facility Name	Column B Number of Occupants	Column C Location	Column D Estimated Value	Column E: Hazard Impacts *(Fill in Hazards in Blank Columns Below)*											
					Earthquake	Erosion	Flood	Severe Wind	Severe Winter Weather	Volcano	Wildfire					
17	Landfill, incinerator, bailer	1			x			x	x	x	x					
18	Gravel Pit	N/A			x		x	x	x	x	x					
19	Airport (runway, apron, tie-down spaces)	N/A			x	x	x	x	x	x	x					
20	Airport Maintenance Building	N/A			x			x	x	x	x					
21	Airprot Equipment: Grader	N/A			x				x	x	x					
22	Airport Lighting and Power Control Building	N/A			x			x	x	x	x					
23	Roads	N/A			x	x	x	x	x		x					
24	Bridges (3)	N/A			x	x	x	x	x		x					
25	Trails	N/A			x	x	x	x	x		x					
26	Equipment: See List*	N/A			x				x		x					
27	Angry Eagle Lodge	2 - 32			x	x	x	x	x	x	x					
28	Pile Bay (Iliamna Transport., fuel pumps, propane, building materials)	4			x	x	x	x	x	x	x					
29	Fish Ponds (salmon spawning)	N/A			x	x	x		x	x	x					
30	Swamps (berry picking)	N/A			x	x	x				x					
31	Rivers and Creeks	N/A			x	x	x			x						
32	Iliamna Lake	N/A				x	x			x						

Risk Analysis Worksheet *(Profiled Hazards Only)*

Key Number	Column A Facility Name	Column B Number of Occupants	Column C Location	Column D Estimated Value	Column E: Hazard Impacts *(Fill in Hazards in Blank Columns Below)*											
					Earthquake	Erosion	Flood	Severe Wind	Severe Winter Weather	Volcano	Wildfire					
33	Beaches	N/A			x	x	x									
34	Islands	N/A			x	x	x				x					
35	Forest/Timber	N/A			x			x			x					

Pedro Bay
Tribal Hazard Mitigation Plan (2018-2024)
Attachment to Risk Analysis Worksheet: EQUIPMENT LIST (owned by Pedro Bay Village Council)

Quantity	Brand/Item	Model	Serial #
2	Honda Gas Pump	GX 120	
3	Stihl	MS 250	
	Kohler Mag 10 (sewage pump)	M103	
	Honda Ranger 8 (welder)		
	Honda Generator 3800sx		
	Chevy Suburban	1500 4x4	
	GMC V8 5yd	7000	
	Chevy Van	1500 4x4	
	Wisconsin Robin (compactor)		
	Driggs & Stratton (concrete mixer)	9HP	
	Honda 2003 Rancher		
	Honda 2012 Foreman		
	Ford F350, 1995	F350 1 ton	
	Case (loader)	XT 621B	
	Hamm (roller)	2410 SD	
	Case (bulldozer)	1150C	
	Cat (excavator)	320B	
	Case (extend-a-ho)	590	
	John Deer (road gator)	570	
	Bobcat	763G	
	Freight Liner 1996 (fuel truck)	EL70	
	International 1988 (10 yd)	8300	
	Ford 1982 (5 yd)	F800	
	Freight Liner ’03 (sewage truck)	FL70	
	Master (space heater)	5500 btu	
	Reddy Heater (space heater)	70,000 btu	
	Black Gold (waste oil heater)	2000	
	Listor (screener)	R2725	
	Reddy Heater	55,000 btu	
	Water pump (fire)	126 gal/min	
	GMC 7000 1984 (fuel truck)	1200 gallon	

Bristol
ENGINEERING SERVICES COMPANY, LLC

111 W. 16th Avenue, Third Floor
Anchorage, AK 99501-5169
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MEETING MINUTES

Project: **BBNA THMP & TTSP Project**
Bristol Project No: 32190013
Reference: Pedro Bay Planning Team Meeting
Date of Meeting: November 27, 2018, 1:00 PM – 3:00 PM
Location of Meeting: Bristol Large Conference Room
Participants:
Bristol: Danielle Dance, Jackie Wander
Planning Team: See attached sign in sheet

Summary

Jackie and Danielle hosted a planning team meeting with Pedro Bay Council members in the Large Conference Room of the Bristol Bay Building. They reviewed hazard background information, vulnerability statements, and mitigation goals that were developed by the Council. They also brainstormed potential mitigation strategies for each hazard and community goal. Notes taken throughout the meeting are summarized below.

General Notes

- Draft will be submitted to the Council no later than mid-February for review
- FEMA's ultimate deadline is September 2019, but they require a 45 day review period. Bristol's internal goal is to submit the Final Draft to FEMA by April 2019.
- Kimberly will be out of reach the last two weeks of January
- What is the potential for the Tribe to get funding for their work on this project?
- What is the process for using this plan to apply for specific grants? Are these grants competitive? Provide contacts, processes, and grant resources in the plan
- Include an attachment in the Plan to provide links and other websites for more information on emergency planning strategies and resources
- Keith and Ben to work on identifying locations of community assets on the map and provide back to Bristol to develop official maps for the plan, some of the assets are located 7 miles up the river so Bristol will provide another zoomed-out map

THMP Planning Team Meeting Notes

Worksheet #2 – Additional Hazard/Community Background

- Gravel pit flooded, landfill is up on a higher elevation
- Fish ponds flood (see marked up map for flood areas)
- Last large earthquake was felt in Pedro Bay (last Wednesday), various agencies called Ben to check on them because the epicenter was very close to Pedro Bay
- Flooding areas along the airport access road have caused erosion, caused by rainfall runoff from the mountain
- Most people have wood stoves

Worksheet #4 – Vulnerability Statements

- The current vulnerability statements capture all hazards except volcanos. Bristol will enhance current statements and provide them in the Draft, to be reviewed by the Council

Worksheets #5 – Mitigation Goals

- 1 & 2) Modify goals to remove strategies from the statements and leave the goals more general, for example, creating fire breaks and removing dead trees is a strategy for mitigating against wildfires
- 3) Goal aimed to create a community emergency response plan
- 4) Goal aimed at participating in Community Emergency Response Team (CERT) training course for search and rescue, first aid, etc.
- Goal to create an emergency shelter/muster point for the community stocked with food, water, and other emergency supplies
- Goal to create a funded position in the tribe to update the hazard plan, oversee projects, and manage safety resources

Worksheet #6 – Mitigation Actions

- At least a third of the power is currently in the water, which is causing breaks in the conduit, among other issues, they would like to pursue funding to get these components buried in the ground to ensure reliable access to power in the event of an emergency
- Concerned about climate change increasing the risk of flooding, they bermed the creek but never had a hydrologist look at the flood levels, would like to pursue funding to do other flood zone/hydrology studies
- Had a burn barrel that people used to burn their own refuse and then take off, it is a lot of work to train people on proper use of the burn barrel, need community wide fire-wise training about proper burning, fire barrier protection of own homes, etc.
- Currently working on correcting fire department, they have a Code Red fire truck/connex and have some very old and limited fire equipment, needs to be updated, recently got an EMS building started, the shell is complete but the inside needs to be furnished
- A fire truck could access most homes, brush grows back so quickly
- Sometimes steam baths will get too hot and start a fire, they have been able to get the fires out but home/chimney maintenance and education on this issue is needed, could be incorporated into the Fire Wise training, have an annual rotation of information through mailbox newsletters
- One person has been wanting to start a Pedro Bay radio station, which could be used to read public announcements
- The road to the airport washed out this fall, and water covers the road frequently, this could hinder access for medevacs, there is a very long alternate route, due to restricted budget on the airport road design, culverts were removed and undersized, and did not put enough gravel on the road, the road needs to be redesigned with new drainage, etc.
- The airport also experiences flooding and is at risk, there is a drainage channel but this flooded, a log jam is the only thing that saved the airport last time, they put up mesh filled with rock against runway but overtime the material has been pushed around causing sand buildup farther down the drainage channel, drainage studies and new flood flow strategies are needed

- There is a village Facebook page that people post announcements and emergency warnings, if needed
- Would like to have a place in the Village Office Building that people know where to find emergency response plans and other resources, a designated bookshelf or bulletin board (possibly multiple locations such as post office, church, library, and clinic), could even post on their website to distribute to the community
- Most equipment is stored in a secure location that is easily accessible
- Where the power lines go underground, the ice cracked from the earthquake and this movement broke the cable, they currently inspect the cable yearly, there are about 8 places where the cable transitions from land to water, also keep an eye on a few places where the conduit crosses bridges
- After a big quake, Ben goes out to check homes to make sure there are no broken fuel tanks or lines, continue this effort, could provide a checklist to community members to do their own inspections after a disaster
- Old Russian Orthodox Church (historic site) is at risk of falling down in an earthquake, in the past tried to pursue funding for some sort of rehabilitation or protection (such as a fence to keep children out), they are not allowed to tear it down but it is becoming a hazard, the church wouldn't pay for anything, located on private property
- Could develop campaign materials (household checklists, pamphlets, magnets, etc.) to distribute yearly for more permanent (than paper) educational strategies for various hazards including wildfire, earthquake, volcano, etc.
- Most roofs have tin roofs now, but a couple of buildings have shingles, could inform homeowners to inspect roofs or repair roofs after wind storms
- Cottonwoods growing along roads get hollowed out over time and can blow over easily, need to be cut down periodically
- They have backup generators at the power plant and school, the clinic is currently on town power and does not have a backup power supply, want backup for the clinic and the proposed shelter
- Laborers currently shovel gravel/sand onto the roads, have been talking about getting a sanding machine to mitigate snow/ice on roads, and their grader is very old as well
- Health aid has ice cleats, sometimes handed out for free, sometimes purchased for $20, could continue to provide for the community/pedestrians
- Continue to educate young kids or new residents on proper winter gear and supplies for hunting or traveling in severe winter weather
- Educate people on the special type of mask needed for volcanic ash
- Currently use panty hose or fine meshed material to protect appurtenances at the power plant, trash bags and other coverings to protect equipment/machinery from ash, continue to clean or replace air filters, want to research protective coverings
- Follow up and check on elders in the event of an ash-fall event
- Concern about surface water contamination from volcanic ash, the lodge obtains drinking water from the lake, research protection measures
- Encourage families to have their own evacuation plan and supply kit, have a workshop for kids to develop their own "go bags," need to have an inventory to replace expired items and update the supplies as needed

- Trained personnel that have supplies and equipment (safety vest, glasses, masks, hard hat, gloves, flashlight, basic bandaging, first aid kit, etc.) on hand to easily help people in the event of an earthquake or other disaster, update training/supplies annually, a system to catalog supplies
- Improve communication, hand held radios
- After the big spill, they made spill response kits and had kids involved, could continue that as a workshop/potluck
- Main bulk fuel storage at power plant/city center has about 44,000 gallon fuel capacity, need to maintain the gravel containment area because they gravel berm begins to reduce over time
- The CERT program includes a mock-disaster finale, which needs to be refreshed every 1 to 3 years
- Would like to formalize agreements with the lodge, school, or other community assets to be used in the event of a natural hazard (memorandum of agreement)
- Since the airport is far away, they could install a phone (existing lines are out there) and a booth with posted contact numbers in the event of an emergency
- Want to use the old school site for a new safety shelter, want to eventually get the school back open so a separate building is preferred, the borough owns the building, need an agreement for interim use of the school until a new building is built, stock the building with blankets, cots, first aid, lighting, separate power source, supplies, cribbing, etc., need a metal structure on a gravel pad with maintenance to clear vegetation, the school is close to the power plant which is beneficial and waste heat from the power plant can be used to heat the school, and is close to the cell phone tower, items considered through the site selection process
- Everyone has their own groundwater wells, which could be inaccessible during a power outage or if they break during an earthquake, identify a community filtration system from the lake or encourage people to have in-home filtration devices if they needed to take water from the lake

Attachments:

1. Sign-In Sheet
2. Meeting Agenda
3. Worksheet #4: Vulnerability Statements
4. Worksheet #5: Mitigation Goals
5. Worksheet #6: Mitigation Strategies
6. Marked up maps

End Meeting Minutes

CC: File

Community Planning Meeting

Togiak Tribal Hazard Mitigation Plan (2019 - 2024)
Date / Location: November 27, 2018, Bristol Conference Room

Sign In Sheet

Name	Phone	Email
Samantha Herrick	907 850 4000	S.herrick@pedrobay.com
BEN FOSS	850-4006	b-foss@Pedro bay
Keith Jensen	8504041	keith.jensen@pedrobay.com
Kimberly Lorentzen	351-6731	aklorentzen@gmail.com

Book Keeper
Payroll Spec.

PEDRO BAY
November 27, 2018

HAZARD MITIGATION PLAN

MEETING AGENDA

TIME	ITEM
1:00 PM	Introductions
1:15 PM	Review Completed Worksheet 2 – Hazard Analysis • Additional Hazard Background Data
1:30 PM	Review Completed Worksheet 3 – Risk Analysis • Identify Asset Locations on Map
1:45 PM	Revisions to Worksheets 4 & 5 • Vulnerability Statements • Mitigation Goals
2:00 PM	Worksheet 6 – Mitigation Action Plan
2:45 PM	Closing Statements Action Items

WORKSHEET #4: VULNERABILITY STATEMENTS

Based on the information gathered in Worksheets #1 through #3, develop "Vulnerability Statements" i.e. Problem Statements, and list them below in the space provide. These statements will guide you to determine mitigation goals and later, mitigation actions.

These statements should summarize the most significant risks and vulnerabilities in the community based on the information collected during the hazard analysis and risk analysis. For example, if you identified Avalanche as a significant hazard, and determined an asset such as the Clinic to be located in an avalanche zone, the Clinic may be a community vulnerability.

Below is a small set of examples.

- The North Creek Sewage Treatment Plant is located in the 100-year floodplain and has been damaged in past events.
- Newberg City recently annexed the South Woods area located in the wildland-urban interface. The City's land use and building codes do not address wildfire hazard areas. Future development in South Woods will increase vulnerability to wildfires.
- The lighthouse, of significant historic value, is threatened by erosion from coastal flooding. The rate of erosion is 5 feet per year.
- Residents of the Village describe ground failure impacts such as some homes and facilities sinking on their pilings, particularly in the downtown "old town" area.
- The boardwalk to the new school, which is used for evacuation, has ground failure damage.
- The community's marine fuel header has begun to sink into the ground and slant to one side.

Community Vulnerability Statements:

**Note: You many have more or less than 15 statements.*

1.) The Iliamna Lake level rises during heavy rainfall, which puts lakefront properties and infrastructure at risk to floodwater damage.

2.) Due to the recent spruce bark beetle epidemic, the entire community (and its assets, both built and natural) is surrounded by a significant number of dead trees, putting the community at a much higher risk for wildfire. The village site does not have any natural firebreaks other than the lake.

3.) The airport runway has historically been vulnerable to damage from flooding and erosion. This has the potential of cutting the community off from critical air travel.

4.) Multiple locations along the village roadway have historically been impacted by floodwaters and erosion from heavy rainfall.

5.) Power cables and phone lines are buried throughout the community and run under the lake. While this prevents frequent damage from high winds, it does leave the community's power and phone lines vulnerable to shifting ice and earthquakes. Past events with power lines and ice have been noted.

WORKSHEET #5: MITIGATION GOALS

Mitigation goals are general guidelines that explain what the community wants to achieve with the Tribal Hazard Mitigation Plan. They are broad policy-type statements that are long-term, and represent the vision for reducing or avoiding losses from the identified hazards.

The following are a few examples of mitigation goals.

- Promote development that is disaster-resistant.
- Build capacity of the Tribe to prepare, respond to, and recover from disasters.
- Reduce possibility of damages from [disaster].
- Promote recognition and mitigation of all natural hazards that affect the Community.
- Prevent damage to structures and infrastructure.
- Promote cross-referencing of mitigation goals and actions with other Tribal planning mechanisms and projects.

Using the previously created vulnerability statements as a guide, and the provided examples, create the Community Tribal Hazard Mitigation Plan (THMP) Mitigation Goals.

Mitigation Goals:

**Note: You many have more or less than 15 statements.*

1.) Reduce the potential for devastating wildfire in the village and surrounding subsistence areas through elimination of standing dead beetle-kill trees.

2.) Reduce the potential for devastating wildfire in the village and surrounding subsistence areas through strategically placed firebreaks.

3.) Train and encourage personal and family disaster preparation and planning among village residents.

4.) Build capacity of the Tribe to prepare, respond to and recover from disasters through training and community strategic planning.

5.) Identify local assets that may be used in response during a time of natural hazards.

6.) Identify, prepare, and stock a community shelter to be used in case of evacuation during a natural hazard.

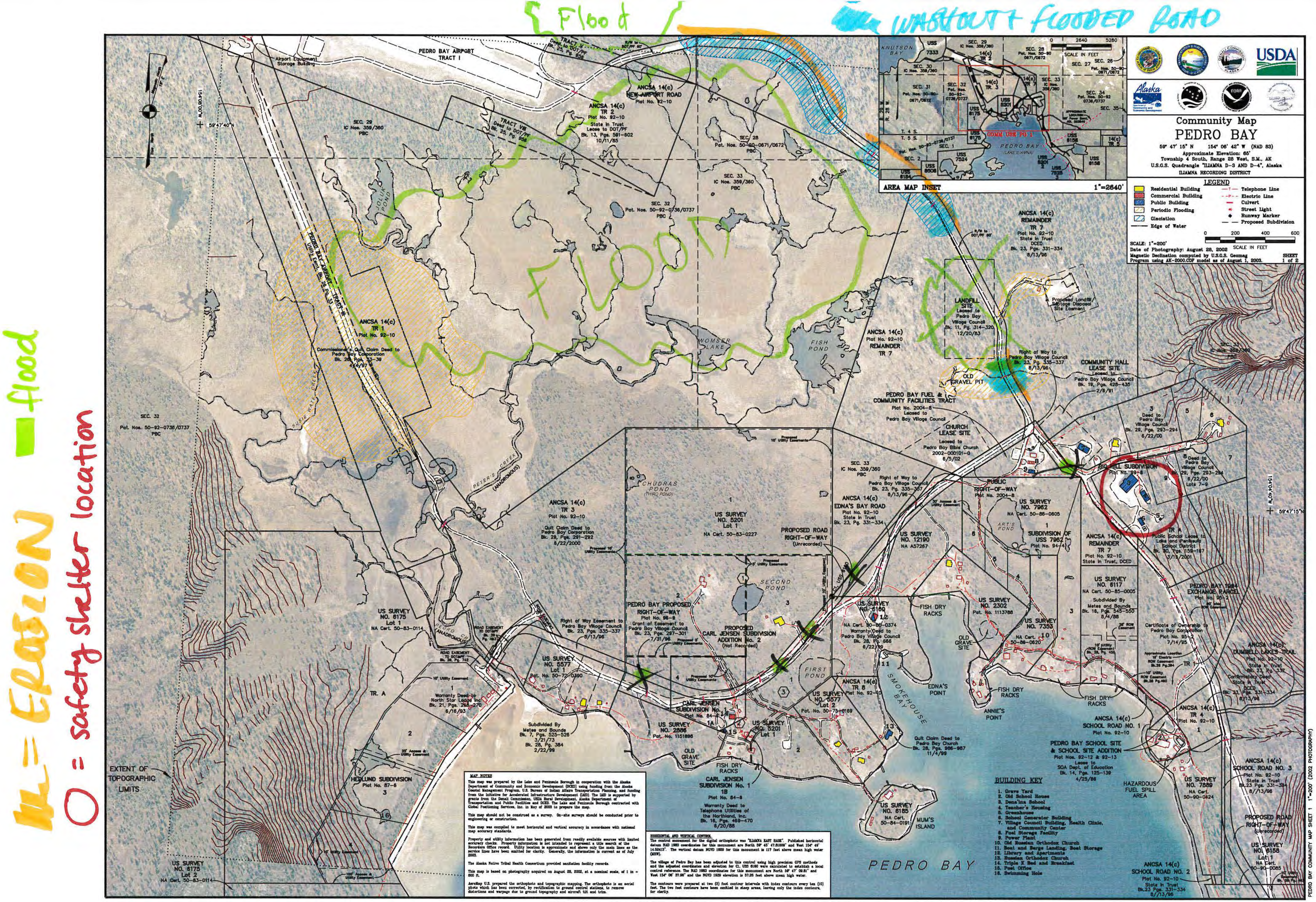
7.) Create a fundable position within the Tribe to manage safety resources, oversee projects, and maintain the hazard plan.

Worksheet #6 Mitigation Actions

GOALS		ACTIONS	
Column A1	Column A2	Column B1	Column B2
No.	Goal	ID	Description
	Wildfires		eliminate of standing dead beetle-kill trees, strategic firebreaks, firewise training for community, firebreaks around homes (education), identify and renew volunteer fire personnel (train), update / new fire equipment, equipment maintenance checklist, firebreak equipment, educate about steam bath safety, educate about chimney maintenance, develop campaign / permanent materials about wildfires
	Flood		hydrology design effort in community, drainage study around airport (runway and road access to airport), new road redesign to access the airport,
	earthquake		educate about securing shelves and other items to walls, continue yearly inspection of underground utilities (between land and water), continue house to house checking to check for fuel leaks, rehabilitate russian orthodox church (historic site) install a fence around, develop campaign / permanent materials earthquakes, spill response kits (annually maintain and educate), upkeep of fuel tank farm containment area
	erosion		hydology design effort in community, culverts/drainage features, improve airport infrastructure - ADD FLOOD PROJECTS
	severe wind		securing roofs education effort, forest management (clearing cottonwoods, dead trees), educate about fire on windy days,
	severe winter weather		relocate underwater power lines to underground, winter weatherization checklist, back up generators for clinic, continue snow plowing service and sanding, sanding machine, grader, provide ice cleats to residents, educate on winter weather safety (clothing, supplies during travel)
	volcano		protective masks at clinic, education about hazards (drinking water) of breathing ash and impacts to vehicles and equipment, pet safety, continue maintenance of air filters, identify appropriate coverings for equipment and generators

Worksheet #6 Mitigation Actions

GOALS		ACTIONS	
Column A1	Column A2	Column B1	Column B2
No.	**Goal**	**ID**	**Description**
	Goal #3		family "go bag", family emergency plan, meeting points, contact information, community workshop, inventory of bag, back up water
	Goal #4		participate in CERT, obtain items (bag, mask, vest, crayons), two way radios, maintain annually (resupply items, education), stage a mock disaster for certified personnel to practice (1-3 years),
	Goal #5		identify local assets to be used in natural hazards, formal agreements to use equipment and assets, written emergency plan, identify key personnel with alternates, education about the plan, locate appropriate storage place for plan, post emergency numbers/information in community on safety board (post office, clinic, church, library, council building), emergency board at airport with numbers, phone at the airport
	Goal #6		identify site, build safety shelter (clearance, metal building), agreement with borough (school district) for interim use of school for shelter, stock (cots, water, first aid supplies, mre's, blankets, emergency power source, generator, cribbing materials, water treatment system for lake, maintain vegetation clearing around structure
	Goal #7		identify funding for position in tribe to update hazard plan, oversee projects, and manage safety resources


Flood
WASHOUT + FLOODED ROAD
FLOOD
= flood
= EROSION
O = safety shelter location
Community Map
PEDRO BAY
59° 47' 15" N 154° 06' 42" W (NAD 83)
Approximate Elevation: 65'
Township 4 South, Range 28 West, S.M., AK
U.S.G.S. Quadrangle "ILIAMNA D-3 AND D-4", Alaska
ILIAMNA RECORDING DISTRICT
LEGEND
Residential Building
Commercial Building
Public Building
Periodic Flooding
Glaciation
Edge of Water
Telephone Line
Electric Line
Culvert
Street Light
Runway Marker
Proposed Subdivision
SCALE IN FEET
SCALE: 1"=200'
Date of Photography: August 28, 2002
Magnetic Declination computed by U.S.G.S. Geomag Program using AK-2000.COF model as of August 1, 2003.
SHEET 1 of 2
AREA MAP INSET
1"=2640'
USDA
BUILDING KEY
1. Grave Yard
2. Old School House
3. Dena'ina School
4. Teacher's Housing
5. Greenhouse
6. School Generator Building
7. Village Council Building, Health Clinic, and Community Center
8. Fuel Storage Facility
9. Power Plant
10. Old Russian Orthodox Church
11. Boat and Barge Landing, Boat Storage
12. Library and Apartments
13. Russian Orthodox Church
14. Triple K Bed and Breakfast
15. Post Office
16. Swimming Hole
PEDRO BAY SCHOOL SITE & SCHOOL SITE ADDITION
Plat Nos. 92-12 & 92-13
Lease to SOA Dept. of Education
Bk. 14, Pgs. 125-139
4/25/86
HAZARDOUS FUEL SPILL AREA
PEDRO BAY AIRPORT TRACT I
ANCSA 14(c) NEW AIRPORT ROAD
LANDFILL SITE
OLD GRAVEL PIT
COMMUNITY HALL LEASE SITE
PEDRO BAY FUEL & COMMUNITY FACILITIES TRACT
CHURCH LEASE SITE
EDNA'S BAY ROAD
WOMSER LAKE
FISH POND
CHUDRAS POND
SECOND POND
FIRST POND
SMOKEHOUSE BAY
EDNA'S POINT
ANNIE'S POINT
MUM'S ISLAND
FISH DRY RACKS
OLD GRAVE SITE
CARL JENSEN SUBDIVISION No. 1
HEDLUND SUBDIVISION
EXTENT OF TOPOGRAPHIC LIMITS
PEDRO BAY
PEDRO BAY COMMUNITY MAP SHEET 1 1"=200' (2002 PHOTOGRAPHY)

AREA USE MAP
PEDRO BAY
59° 47' 15" N 154° 06' 42" W (NAD 83)
Approximate Elevation: 65'
Township 4 South, Range 28 West, S.M., AK
U.S.G.S. Quadrangle "ILIAMNA D-3 AND D-4", Alaska
ILIAMNA RECORDING DISTRICT
SEE SHEET 1 FOR DETAILED COMMUNITY MAP
0 600 1200 1800
SCALE IN FEET
SCALE: 1"=600'
Date of Photography: May 20, 2003
Magnetic Declination computed by U.S.G.S. Geomag Program using AK-2000.COF model as of August 1, 2003.
SHEET 2 of 2
Legend & Notes
WINTER GLACIATION
PERIODIC FLOODING AREAS
CULVERT
MAP NOTES
This map was prepared by the Lake and Peninsula Borough in cooperation with the Alaska Department of Community and Economic Development (DCED) using funding from the Alaska Coastal Management Program, U.S. 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 Lake and Peninsula Borough contracted with Global Positioning Services, Inc. in May of 2003 to prepare the map.
This map is based on photography acquired on May 20, 2003, at a nominal scale, of 1 in = 1500 ft. This aerial photo has not been corrected, by rectification to ground control stations. Distortions between boundary lines and photograph exist.
KNUTSON BAY (ILIAMNA LAKE)
KNUTSON RIVER (ANADROMOUS)
APPROXIMATE LOCATION ILIAMNA - PILE BAY TRAIL RS 2477
USS 7333 NA Cert. 50-98-0088
SEC. 29 IC Nos. 359/360 PBC
SEC. 28 Pat. Nos. 50-90-0671/0672 PBC
SEC. 27 Pat. Nos. 50-90-0671/0672 PBC
AVALANCHE ZONE
ANCSA 14(c) KNUTSON BAY TRAIL Plat. No. 92-10 State in Trust Bk. 23 Pgs. 331-334 8/13/96
EROSION AREA
ANCSA 14(c) TR 2 Plat. No. 92-10
PEDRO BAY AIRPORT TRACT I
AIRPORT EQUIPMENT STORAGE BUILDING
GRAVEL PIT
SEC. 30 IC Nos. 359/360 PBC
SEC. 25
SEC. 26 Pat. Nos. 50-90-0671/0672 PBC
Proposed Landfill/ Septage Disposal Site Easement
FISH POND
ANCSA 14(c) TR 1 Plat. No. 92-10
OLD GRAVEL PIT
BIG HILL SUBDIVISION Plat. No. 93-8
HUNTING AND SUBSISTENCE AREA
SEC. 35 Pat. Nos. 50-90-0671/0672 PBC
SEC. 33 IC Nos. 359/360 PBC
SEC. 34 Pat. Nos. 50-92-0736/0737 PBC
SEC. 36 Pat. Nos. 50-90-0671/0672 PBC
SEC. 31 Pat. Nos. 50-90-0671/0672 PBC
SEC. 32 Pat. Nos. 50-92-0736/0737 PBC
USS 5201 Lot 1 NA Cert. 50-83-0227
PROPOSED CARL JENSEN SUBDIVISION ADDITION No. 2 (UNRECORDED)
ANCSA 14(c) TR 3 Plat. No. 92-10
USS 6175 Lot 1 NA Cert. 50-83-0114
HEDLUND SUBDIVISION Plat. No. 87-6
ANCSA 14(c) TR 4 Plat. No. 92-10
ANCSA 14(c) DUMBELL LAKES TRAIL Plat. No. 92-10 State in Trust Bk. 23 Pgs. 331-334 8/13/96
PEDRO BAY SCHOOL SITE AND SCHOOL SITE ADDITION Plat. No. 92-12 & 92-13
ANCSA 14(c) TR 8 Plat. No. 92-10
DRY LAKE
DUMBELL LAKE
PEDRO MOUNTAIN
R. 29 W. R. 28 W.
T. 4 S. T. 5 S.
USS 6175 Lot 2 NA Cert. 50-85-0026
USS 4863 Pat. No. 50-72-0468
VICTOROFF SUBDIVISION Plat. No. 96-1
PEDRO BAY PROPOSED RIGHT-OF-WAY Plat. No. 95-5
USS 6156 Lot 1 NA Cert. 50-90-0065
ANCSA 14(c) TR 5 Plat. No. 92-10 State in Trust Bk. 23 Pgs. 331-334 8/13/96
SEC. 3 Pat. Nos. 50-90-0671/0672 PBC
SEC. 2 Pat. Nos. 50-92-0736/0737 PBC
SEC. 1 Pat. Nos. 50-92-0736/0737 PBC
PEDRO BAY (ILIAMNA LAKE)
Subdivided by Metes and Bounds Bk. 19, Pg. 506-507 8/13/96
HIGH CLIFF LAKE
USS 5201 Lot 2
USS 7525 Lot 3 NA Cert. 50-89-0596
KOLYAHA SUBDIVISION Plat. No. 95-8
OLD GRAVESITES
USS 7524 NA Cert. 50-90-0301 Lot 1
FOXY LAKE
SHEEP ISLAND NA Cert. 50-90-0212
SEC. 6
ENTIRE BAY FISHING AND SUBSISTENCE AREA
APPROXIMATE LOCATION Power Esmt. 20' ADL 223540
USS 6158 Lot 2 NA Cert. 50-86-0457
SEC. 4
RUSSIAN CREEK SUBDIVISION Plat. No. 93-5
USS 6174 NA Cert. 50-81-0156
TANTAMOUNT BAY SUBDIVISION Plat. No. 87-4
USS 6184 NA Cert. 50-86-0398
USS 8506 NA Cert. 50-91-0627
USS 7524 NA Cert. 50-90-0301
OCCUPIED HOME
Pat. Nos. 50-90-0671/0672 PBC
Pat. No. 50-90-0301
BARNEY'S BAY
SNOW BAY
FISH DRY RACKS
SEC. 5
USS 7525 Lot 4 NA Cert. 50-91-0004
ANCSA 14(c) BOAT YARD ROAD Plat. No. 92-10 State in Trust Bk. 23 Pgs. 331-334 8/13/96
USS 5552 Pat. No. 50-72-0086
ANCSA 14(c) TR 6 Plat. No. 92-10
USS 7525 Lot 1 NA Cert. 50-89-0630
USS 7525 Lot 2 NA Cert. 50-89-0630
SEC. 8
SEC. 9
SEC. 7 Pat. Nos. 50-90-0671/0672 PBC
SEC. 11 Pat. Nos. 50-92-0736/0737 PBC
NA Cert. 50-91-0627
True North
Magnetic North
PEDRO BAY AREA USE MAP SHEET 2 1"=600' (2003 PHOTOGRAPHY)

Dance, Danielle

From: Kimberly Lorentzen <aklorentzen@gmail.com>
Sent: Sunday, December 2, 2018 1:34 PM
To: Dance, Danielle
Cc: Keith's
Subject: Re: THMP - Pedro Bay Meeting Minutes

Follow Up Flag: Follow up
Flag Status: Flagged

Danielle,

Thank you for the productive meeting and for getting these notes out. I hope your homes and offices fared well in the earthquake! I looked over the notes from the meeting and they look good. The only comments I have I will list below:

1) Page 2, "Worksheet #6", third bullet point: I think we weren't clear and the description in the notes isn't quite clear. What happened is that residents were using the village landfill incinerator unsupervised and outside of regular operation hours. This was posing a hazard, as not everyone is trained in the use of the incinerator and under which conditions safe burning takes place. That has been rectified (as I understand it) by a fence and posted warnings (only staff can use the incinerator). There is a separate issue of private burn barrels. Safe burn barrel practices would be beneficial for individual household barrels.

2) Page 2, "Worksheet 6", fourth bullet point: I'm not sure what "Currently working on correcting fire department" means. I understood the conversation to be that the village is currently seeking to build up volunteerp personnel for the fire department.

3) Page 2, "Worksheet 6", seventh bullet point: The person mentioned in regard to a radio station is a minor. I was actually sharing the story in jest. However, if pursuing a license for radio is possible within the parameters of hazard mitigation funding, there may be interest in that project.

4) I mentioned the Community Emergency Response Team (CERT) program supplies in the meeting, but was listing the contents of the kit from memory. Here is a complete list:
reflective vest
hardhat
hardhat liner
work gloves
2 ea N95 (rated for ashfall) face masks
1 roll duct tape
1 set earplugs
1 10" adjustable wrench (to turn off gas valves, etc.)
3 rolls (3 colors) marking tape/trail tape
1 pair safety glasses
1 flashlight with batteries
1 first aid bandage packet
1 CPR kit
1 lumber crayon (for marking buildings in search and rescue)
1 CERT ID card

1 CERT quick reference card
1 CERT Preliminary Damage Assessment Records workbook (for volunteer to note infrastructure damage for reporting)
1 CERT Quick Guide booklet
1 preparedness book, "It's a Disaster! ...and What Are YOU Gonna Do About It?" (Basic First Aid and Disaster Preparedness Manual from FedHealth)
1 Emergency Response Guidebook (DOT guide to haz mat codes and basic spill response info)
1 FEMA citizen preparedness book, "Are You Ready?"

All items listed above are stored in a provided duffel bag that CERT members are required to keep handy in case of activation.

On Wed, Nov 28, 2018 at 3:21 PM Dance, Danielle <ddance@bristol-companies.com> wrote:

> All,
>
> Thank you for spending time with Jackie and I yesterday to collect the remaining information for your Tribal Hazard Mitigation Plan (THMP).
>
> Attached are the meeting minutes from our planning meeting for the THMP held here in Anchorage on Nov. 27, 2018.
>
> If you have any questions please let me know. Again, thank you for your time! It was great to meet all of you!
>
> Thanks,
>
> **Danielle Dance**
>
> Civil Engineer I
>
> Bristol Engineering Services Company, LLC
>
> 111 W. 16th Avenue, Third Floor
>
> Anchorage, AK 99501-5109
>
> Phone: (907) 563-0013
>
> Direct: (907) 743-9394
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> Fax: (907) 563-6713

ddance@bristol-companies.com

http://www.bristol-companies.com/

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	• Comprehensive plans • Land use ordinances • Subdivision regulations • Development review • Building codes and enforcement • NFIP Community Rating System • Capital improvement programs • Open space preservation • Stormwater management regulations and master plans
Structure and Infrastructure Projects	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. This type of action also involves projects to construct manmade structures to reduce the impact of hazards. Many of these types of action are projects eligible for funding through the FEMA Hazard Mitigation Assistance program.	• Acquisitions and elevations of structures in flood prone areas • Utility undergrounding • Structural retrofits • Floodwalls and retaining walls • Detention and retention structures • Culverts • Safe rooms
Natural Systems Protections	These are actions that minimize damage and losses and also reserve or restore the functions of natural systems.	• Sediment and erosion control • Stream corridor restoration • Forest management • Conservation easements • Wetland restoration and preservation
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.	• Radio or television spots • Websites with maps and information • Real estate disclosure • Presentations to school groups or neighborhood organizations • Mailings to residents in hazard-prone areas • StormReady • Firewise Communities
Emergency Response Actions	These are actions to identify emergency response or operational preparedness.	• Create mutual aid agreements with neighboring communities to meet emergency response needs • Purchase radio communications equipment • Develop procedures for notifying citizens of available shelter locations during an event

Potential Mitigation Actions

GOALS		ACTIONS	
Column A1	Column A2	Column B1	Column B2
No.	**Goal**	**ID**	**Description**
1	Reduce the potential for devastating wildfires in the village and surrounding subsistence areas.	**1.A**	Eliminate the standing dead, beetle-kill trees around the Community.
		1.B	Acquire firebreak equipment and place strategic firebreaks around the Community.
		1.C	Educate community residents about placing proper firebreaks around their homes.
		1.D	Participate in the Firewise program and provide Firewise training for the Community.
		1.E	Identify and train new volunteer fire personnel and renew training for existing volunteer fire personnel for the fire department.
		1.F	Update and / or acquire new fire equipment.
		1.G	Develop a fire equipment maintenance checklist to keep equipment in working order.
		1.H	Provide education to the community residents about steam bath safety.
		1.J	Provide education to the community residents about about chimney maintenance.
		1.K	Provide education about safe burn barrel practices for personal burn barrels to community residents.
		1.L	Develop permanent educational materials for the community about wildfires. This information will be a part of an annual rotation of information through mailbox newsletters.
2	Reduce the potential for devastating earthquake damage in the village and surrounding subsistence areas.	**2.A**	Pursue funding to relocate buried utility components that are under water to underground location.
		2.B	Continue yearly inspection of underground utilities (between land and water).
		2.C	Provide education about securing shelves and other items to walls.
		2.D	Continue house to house inspections to check for fuel leaks.
		2.E	Rehabilitate the Russian Orthodox Church which is a historic site, or install a fence around the structure to reduce public access to the site.
		2.F	Develop permanent educational materials for the community about earthquakes. This information will be a part of an annual rotation of information through mailbox newsletters.
		2.G	Annually maintain the spill response kits, and provided continued education on the spill response kits to the community members. This could be done through a potluck / workshop style format.
		2.H	Maintain the gravel containment area around the fuel tank farm.
		2.J	Acquire a back up generator for the Clinic.

Potential Mitigation Actions

GOALS		ACTIONS	
Column A1	Column A2	Column B1	Column B2
No.	**Goal**	**ID**	**Description**
3	Reduce the potential for devastating erosion damage in the village and surrounding subsistence areas.	3.A	Pursue funding for a hydrology study, especially around the airport.
		3.B	Replace and / or improve culverts and drainage features around the community but especially around the airport.
		3.C	Improve or redesign road to the airport for improved access.
4	Reduce the potential for devastating flood damage in the village and surrounding subsistence areas.	**4.A**	Pursue funding for a hydrology study around the community, but especially around the airport (runway and airport access road).
		4.B	Improve drainage around the airport.
		4.C	Improve or redesign the road to the airport.
5	Reduce the potential for devastating severe wind damage in the village and surrounding subsistence areas.	5.A	Provide education to homeowners about securing roofs and inspecting roofs and repairing any damage after a wind storm event.
		5.B	Maintain the forest around the community and by removing dead trees and clearing cottonwoods following forest management practices.
		5.C	Provide education related to fires on windy days.
6	Reduce the potential for devastating severe winter weather impacts in the village and surrounding subsistence areas.	**6.A**	Develop a winter weatherization checklist for residents and produce on material more permanent than paper (e.g. magnets).
		6.B	Continue snow plowing service and sanding efforts throughout the Community.
		6.C	Acquire a grader, and a sanding machine.
		6.D	Provide ice cleats to residents through the clinic for walking pedestrians.
		6.E	Provide education on appropriate winter weather safety gear (clothing, supplies during travel) to young kids and new residents.

Potential Mitigation Actions

GOALS		ACTIONS	
Column A1	Column A2	Column B1	Column B2
No.	**Goal**	**ID**	**Description**
7	Reduce the potential for devastating volcano impacts in the village and surrounding subsistence areas.	**7.A**	Provide correct protective masks at clinic and demonstrate proper placement.
		7.B	Educate the community residents on the impacts of breathing ash and its impacts to vehicles, equipment, and pets.
		7.C	Continue to check on elders after an ashfall event.
		7.D	Identify protection measures for drinking water from the lake for lodge occupants.
		7.E	Continue maintenance of equipment air filter effort.
		7.F	identify appropriate coverings for equipment and generators.
		7.G	Develop permanent educational materials for the community about volcano safety. This information will be a part of an annual rotation of information through mailbox newsletters.
8	Train and encourage personal and family disaster preparation and planning among village residents.	**8.A**	Educate residents and encourage families to create family and personal "go bags".
		8.B	Educate and encourage families to develop a family emergency plan, with meeting points, contact information.
		8.C	Educate families about the importance of having a back up water supply in the case of an emergency or for power outage events.
		8.D	Hold a communtiy workshop to assemble "go bags". Provide specific items for the children's "go bag".
		8.E	Develop an inventory list for "go bags". Hold a community event to do an inventory of the "go bags" and replace or update items as needed.
9	Build the capacity of the Tribe to prepare, respond to, and recover from disasters through training and community strategic planning.	**9.A**	Participate in the Communtiy Emergency Response Team (CERT) Program.
		9.B	Obtain items for the CERT bags (See Appendix A for complete list).
		9.C	Obtain tribally owned two-way radios.
		9.D	Maintain readiness of the CERT annually by training and resupplying CERT bag items as needed.
		9.E	Stage a mock disaster for CERT certified personnel to practice every 1-3 years.

Potential Mitigation Actions

GOALS		ACTIONS	
Column A1	Column A2	Column B1	Column B2
No.	**Goal**	**ID**	**Description**
10	Identify local assets that may be used in response during a time of natural evacuation during a natrual hazard.	**10.A**	Identify local assets / equipment to be used in natural hazards and maintain a list of assets for use in natural hazard events.
		10.B	Formalize agreements between owners of equipment and assets and Tribe to use equipment and assets during a natural hazard event.
		10.C	Develop a written community emergency plan.
		10.D	Identify key personnel with alternates for the emergency plan.
		10.E	Educate the community residents about the emergency plan, and where it is located.
		10.F	Locate an appropriate storage place for the emergency plan.
		10.G	Post emergency numbers / information on safety boards throughout the community like the post office, clinic, church, library, and council building.
		10.H	Obtain and place a phone at the airport and post emergency numbers, and contacts numbers of key people in the community.
11	Identify, prepare, and stock a community shelter to be used in case of evacuation during a natural hazard.	11.A	Identify a site, and build a safety shelter (clearance, metal building),
		11.B	For interim use obtain an agreement with the Borough to use the school for an interim shelter for the community in case of emergencies.
		11.C	Obtain items needed to stock the shelter. These items may include cots, water, first aid supplies, MRE's, blankets, emergency power source, generator, cribbing materials, and others.
		11.D	Conduct a study to identify the feasibility of utilizing waste heat from the power plant for the old school for the safety strucutre. If feasible, identify and acquire equipment needed to utilize the waste heat from the power plant to heat the old school for the safety structure if needed.
		11.E	Identify and acquire a water treatment system for the lake, for a back up water source for the Community.
		11.F	Maintain vegetation clearing around the structure of the safety shelter.
12	Create a fundable position within the Tribe to manage safety resources, oversee projects, and maintain the hazard plan.	**12.A**	Identify funding for position in tribe to update hazard plan, oversee projects, and manage safety resources

Community Emergency Response Team (CERT) program Supply List

Quantity	Supply Item
1 each	Reflective Vest
1 each	Hardhat
1 each	Hardhat liner
1 each	Work gloves
2 each	N95 (rated for ashfall) face masks
1 roll	Duct Tape
1 set	Earplugs
1 each	10 inch adjustable wrench (to turn off gas valves, etc.)
3 rolls	Marking tape / trail tape (3 colors)
1 pair	Safety glasses
1 each	Flashlight with batteries
1 each	First aid bandage packet
1 each	CPR kit
1 each	Lumber crayon (for marking buildings in search and rescue)
1 each	CERT ID card
1 each	CERT quick reference card
1 each	CERT Preliminary Damage Assessment Records workbook (for volunteer to note infrastructure damage for reporting)
1 each	CERT Quick Guide booklet
1 each	Preparedness book “It’s a Disaster!...and What are YOU Gonna Do About It?” (Basic First Aid and Disaster Preparedness Manual from FedHealth)
1 each	Emergency Response Guidebook (DOT guide to haz mat codes and basic spill response information)
1 each	FEMA citizen preparedness book “Are You Ready?”

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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	0	1	1	1	1	1	9
1.B	1	1	1	1	0	1	1	0	1	1	8
1.C	1	1	1	1	1	1	1	1	1	1	10
1.E	1	1	0	1	1	1	1	1	1	1	9
1.K	1	1	1	1	1	1	1	1	1	1	10
1.L	1	1	1	1	1	1	1	1	1	1	10
2.A	1	1	1	1	1	1	1	1	1	1	10
2.F	1	1	1	1	1	1	1	1	1	1	10
2.J	1	1	1	1	1	1	1	1	1	1	10
3.C	1	1	1	1	0	1	1	0	1	1	8
4.A	1	1	1	1	1	1	1	0	1	1	9
4.B	1	1	1	1	0	1	1	1	1	1	9
5.B	1	1	1	1	0	1	1	1	1	1	9
5.C	1	1	1	1	1	1	1	1	1	1	10
6.A	1	1	1	1	1	1	1	1	1	1	10
6.C	1	1	1	1	1	1	1	1	1	1	10
6.E	1	1	1	1	1	1	1	1	1	1	10
7.A	1	1	1	1	1	1	1	1	1	1	10
7.B	1	1	1	1	1	1	1	1	1	1	10
7.G	1	1	1	1	1	1	1	1	1	1	10
8.A	1	1	1	1	1	1	1	1	1	1	10
8.B	1	1	1	1	1	1	1	1	1	1	10

Mitigation Action ID	Life Safety	Property Protection	Technical	Political	Legal	Environmental	Social	Administrative	Local Champion	Other Community Objectives	Total Score
9.A	1	1	1	1	1	1	1	0	1	1	9
9.B	1	1	1	1	1	1	1	1	1	1	10
9.C	1	1	1	1	1	1	1	1	1	1	10
10.A	1	1	1	1	1	1	1	1	1	1	10
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.G	1	1	1	1	1	1	1	1	1	1	10
11.B	1	1	1	1	0	1	1	1	1	1	9
11.C	1	1	1	1	1	1	1	1	1	1	10
11.F	1	1	1	1	1	1	1	1	1	1	10
12.A	1	1	1	1	1	1	1	0	1	1	9

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

APPENDIX B

Public Involvement

- Public Meeting Notes
- Public Meeting Sign-In Sheet
- Community Survey
- Community Survey Response Summary
- Newsletter #1 and Fax Transmittal
- Newsletter #2
- Comment Period Email Notification to BBNA Program Managers
- Comment Period Email Notification to Community Stakeholders
- Stakeholder Comment
- Email and Letter to State Representative
- Email and Letter to Senator

Pedro Bay Tribal Hazard Mitigation Plan (2019 – 2024)
COMMUNITY SURVEY
Method

Community surveys were distributed to every mailbox holder in the community. A community-wide event (dessert potluck) was held on September 4, 2019 at which any community member who had not already completed and returned a survey was provided the opportunity to do so. Community members also had the opportunity to discuss historic hazard events and the extent of damage sustained in those events. Stories were compiled for use in the completion of Worksheet 2 (HAZARD ANALYSIS).

Because this process fell during a typically low-population season of the community (seasonal businesses are closing and some residents are gone for hunting), some community members were also contacted via phone or email and interviewed according to the survey form.

There were 17 community members in attendance at the event and a total of 28 surveys were completed by community members.

Pedro Bay Tribal Hazard Mitigation Plan (2019 - 2024)

Date / Location: Sept 4, 2018 6:30 pm

Sign In Sheet

Name	Name	Name
Keith Jensen		
Kimberly Lorentzen		
Ben Foss		
AARON LORENTZEN		
* Rebecca Jensen		
Arlene Shugak		
Louisa M. [illegible]		
Don [illegible]		
Rozj Goodmon		
* Cindy Miller		
Tani Miller		
Derek [illegible]		
* [illegible] Featherston		
[illegible]		
Samantha Hemick		
Aaron C. Shugak		
Nancy J. Jensen		

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)

- ☐ Coastal Ice
- ☐ Drought
- ☐ Earthquake
- ☐ Erosion
- ☐ Extreme Temperatures
- ☐ Flood
- ☐ Landslide/Avalanche
- ☐ Severe Winter Weather
- ☐ Tsunami
- ☐ Volcano Eruption
- ☐ Wildfire
- ☐ Other (specify): _____

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	☐	☐	☐	☐	☐
Drought	☐	☐	☐	☐	☐
Earthquake	☐	☐	☐	☐	☐
Erosion	☐	☐	☐	☐	☐
Extreme Temperatures	☐	☐	☐	☐	☐
Flood	☐	☐	☐	☐	☐
Landslide/Avalanche	☐	☐	☐	☐	☐
Severe Winter Weather	☐	☐	☐	☐	☐
Tsunami	☐	☐	☐	☐	☐
Volcano Eruption	☐	☐	☐	☐	☐
Wildfire	☐	☐	☐	☐	☐
Other _____	☐	☐	☐	☐	☐

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)

- ☐ News Media
- ☐ Government Agency
- ☐ Utility Company
- ☐ University or Research Institution
- ☐ Tribe
- ☐ Neighbor / Friend / Family Member
- ☐ Non-Profit Organization
- ☐ Not Sure
- ☐ 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)

- ☐ Newspapers
- ☐ Radio
- ☐ Schools
- ☐ Internet (News Outlets/Email Newsletters)
- ☐ Books
- ☐ Mail
- ☐ Fact Sheet / Brochure / Newsletters
- ☐ Public Workshops / Meetings
- ☐ 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	☐	☐	☐	☐	☐
Clinic	☐	☐	☐	☐	☐
Churches	☐	☐	☐	☐	☐
City Buildings	☐	☐	☐	☐	☐
Tribal Buildings	☐	☐	☐	☐	☐
Store	☐	☐	☐	☐	☐
Post Office	☐	☐	☐	☐	☐
Transportation Systems	☐	☐	☐	☐	☐
Major Employers	☐	☐	☐	☐	☐
Fuel Storage	☐	☐	☐	☐	☐
Utilities	☐	☐	☐	☐	☐
Homes	☐	☐	☐	☐	☐
Subsistence Areas	☐	☐	☐	☐	☐
Other _____	☐	☐	☐	☐	☐
Other:_____	☐	☐	☐	☐	☐
Other:_____	☐	☐	☐	☐	☐
Other:_____	☐	☐	☐	☐	☐

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	☐	☐	☐	☐	☐	☐
I support a non-regulatory approach to reducing risk	☐	☐	☐	☐	☐	☐
I support a mix of both regulatory and non-regulatory approaches to reducing risk	☐	☐	☐	☐	☐	☐
I support structure and infrastructure projects to reduce risk	☐	☐	☐	☐	☐	☐
I support natural systems protection projects to reduce risk	☐	☐	☐	☐	☐	☐
I support education and awareness programs to reduce risk	☐	☐	☐	☐	☐	☐
I support protecting historical and cultural structures	☐	☐	☐	☐	☐	☐
I would be willing to make my home more disaster-resistant	☐	☐	☐	☐	☐	☐
I support steps to safeguard the local economy following a natural disaster	☐	☐	☐	☐	☐	☐
I support improving the disaster preparedness of local schools	☐	☐	☐	☐	☐	☐

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	☐	☐	☐	☐	☐
Protecting critical facilities (e.g. roads, bridges, clinic, schools, store, etc.)	☐	☐	☐	☐	☐
Enhancing function of natural features (e.g. streams, wetlands)	☐	☐	☐	☐	☐
Protecting historical and cultural resources and landmarks	☐	☐	☐	☐	☐
Protecting and reducing damage to utilities	☐	☐	☐	☐	☐
Strengthening emergency services	☐	☐	☐	☐	☐

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?	☐	☐	☐	☐
Talked with members in your household about what to do in case of an emergency or natural disaster?	☐	☐	☐	☐
Developed a "Household/Family Emergency Plan" in order to decide what everyone would do in the event of an emergency or disaster?	☐	☐	☐	☐
Prepared a "Disaster Supply Kit" (stored extra food, water, batteries, or other emergency supplies)?	☐	☐	☐	☐

GENERAL HOUSEHOLD INFORMATION

We appreciate any information you are willing to share with us about you and/or your household.

11. Please indicate your age: _____

12. Gender **(Circle one)**: **Male** **Female**

13. How long have you lived in the community?

- ☐ Less than one (1) year
- ☐ 1 – 5 years
- ☐ 5 – 9 years
- ☐ 10 – 19 years
- ☐ 20 years or more

GENERAL COMMENTS

Please provide any additional comments about natural hazards in your community including historical disasters, existing efforts to prepare for or protect against a disaster, or comments about the Hazard Mitigation Plan Project in general.

Thank you for taking the time to complete this survey.

If you have any questions or comments, please contact **Danielle Dance** at **(907) 743-9394** or **ddance@bristol-companies.com**

SUMMARY - COMMUNITY SURVEY

A survey was distributed to the community members of Pedro Bay, 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

Twenty-eight questionnaires were completed and returned. Question 12 asked about the gender of the respondents. Twelve respondents were male, 12 female, and four declined to answer (See Figure 1). Question 13 asked about the length of time in the community. Forty-four percent (11 replies) of the questionnaires came from longtime residents that have lived in the community for 20 or more years (Figure 2).

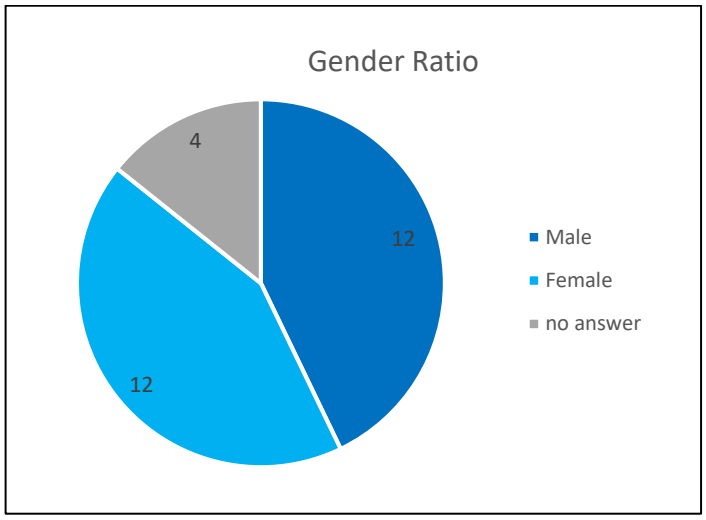

Figure 1: Gender Ratio (Question #12)

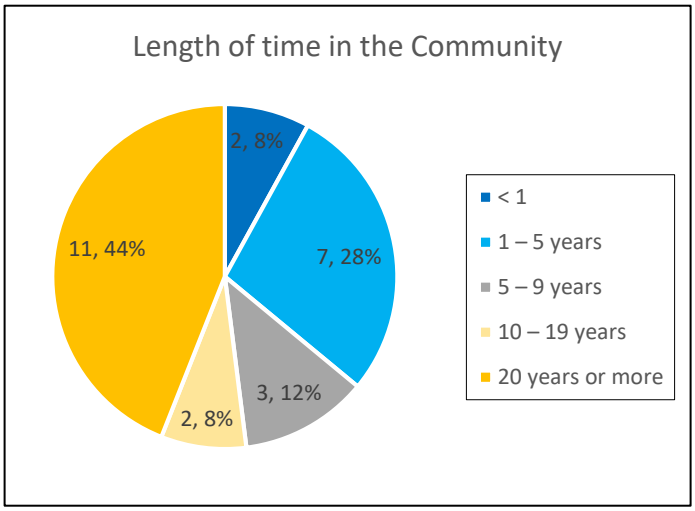

Figure 2: Length of Time in the Community (Question #13)

The residents that responded, ranged in age (Question 11) from 26 to 75. Forty-two percent of the respondents were over the age of 50 and another 29% were over 60 (Figure 3).

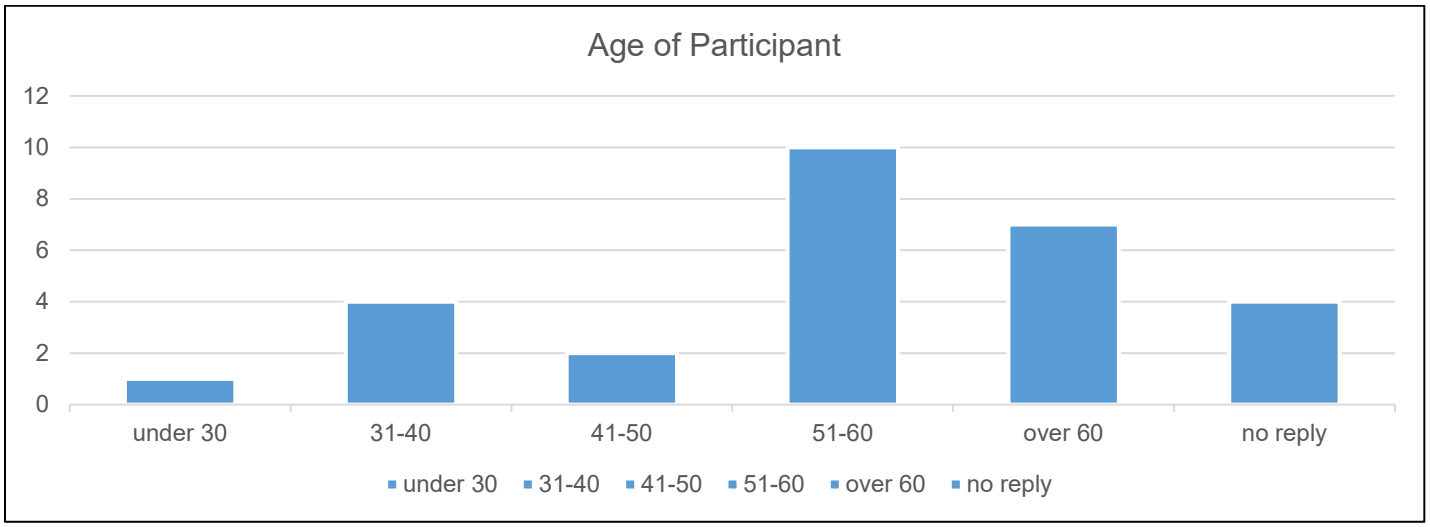

Figure 3: Age of Participant (Question #11)

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 (See Figure 4).

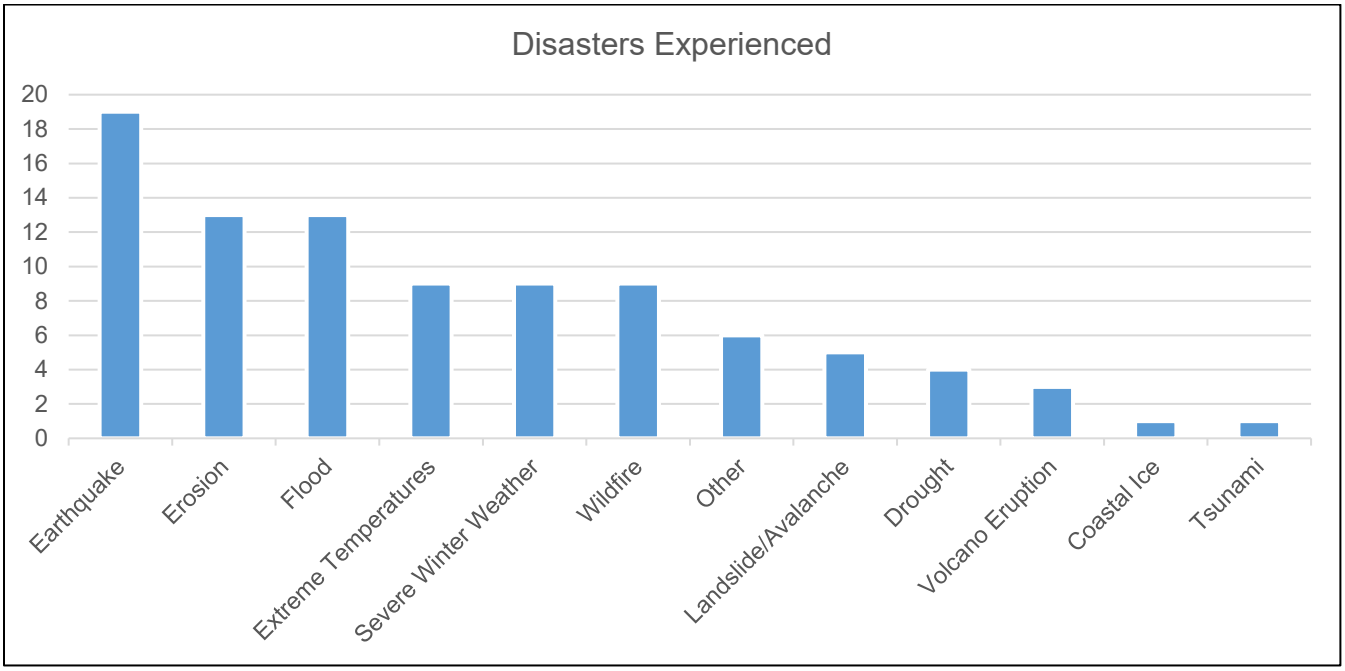

Figure 4: Disasters Experienced (Question #1)

Question 2 identified specific hazards that concerned the community members. The Community is most concerned about Wildfire. Twenty-seven individuals out of the 28 replies expressed they were somewhat or very concerned about Wildfires. Other disasters of concern are earthquakes and volcanic activity. Figure 5 identifies the concerns for the Community.

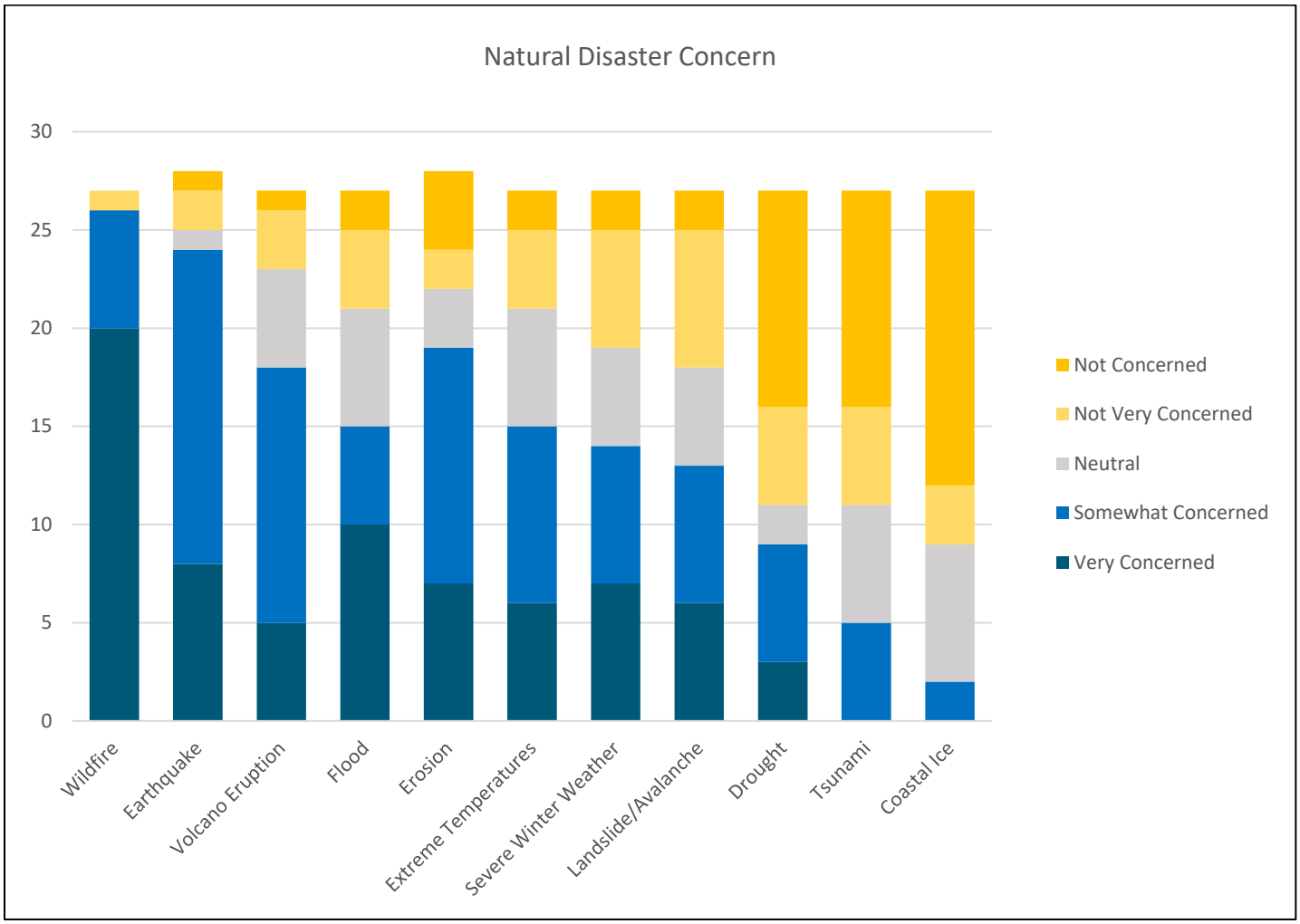

Figure 5: Natural Disaster Concern (Question #2)

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 (Question 3). Thirteen respondents noted that they received information. Of those, five received information within the last six months, one from within the last year, and one from 1-2 years ago. Figure 6 indicates the source of the information obtained by the residents (Question 4) that said they received this information.

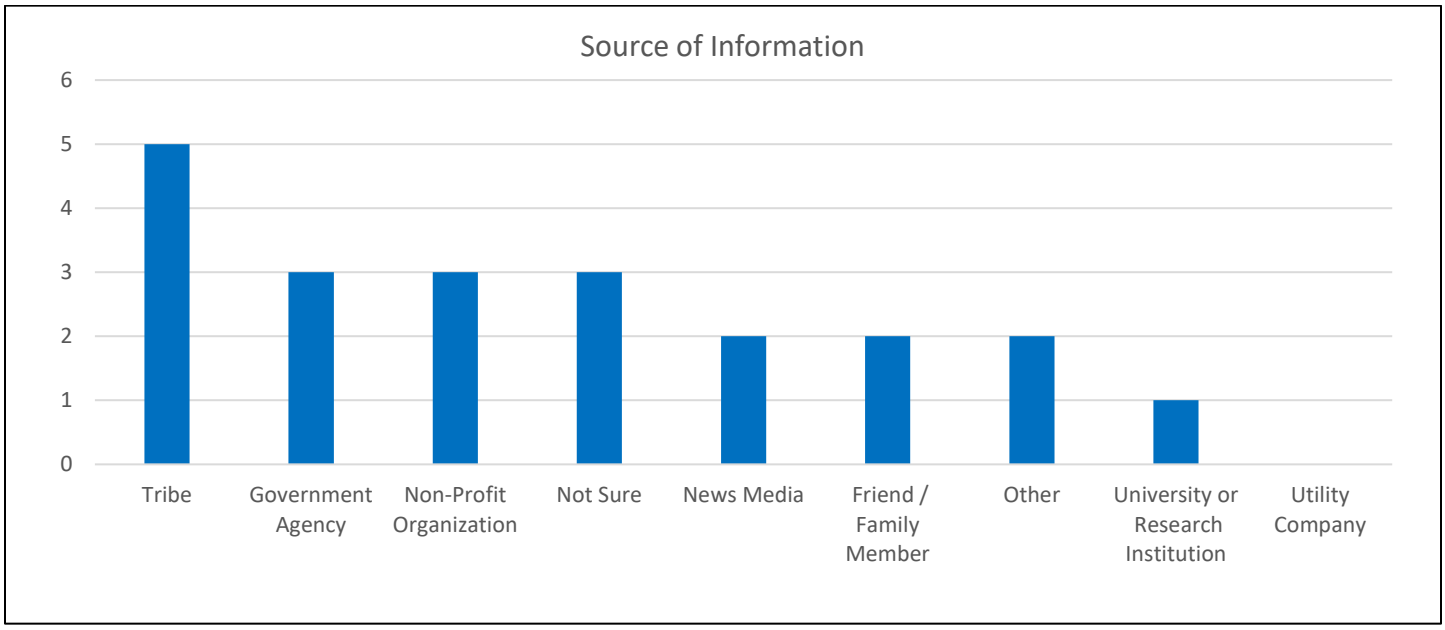

Figure 6: Source of Information (Question #4)

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 to this question, internet and mail 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. One respondent suggested the telephone and one listed the village council as the preferred method.

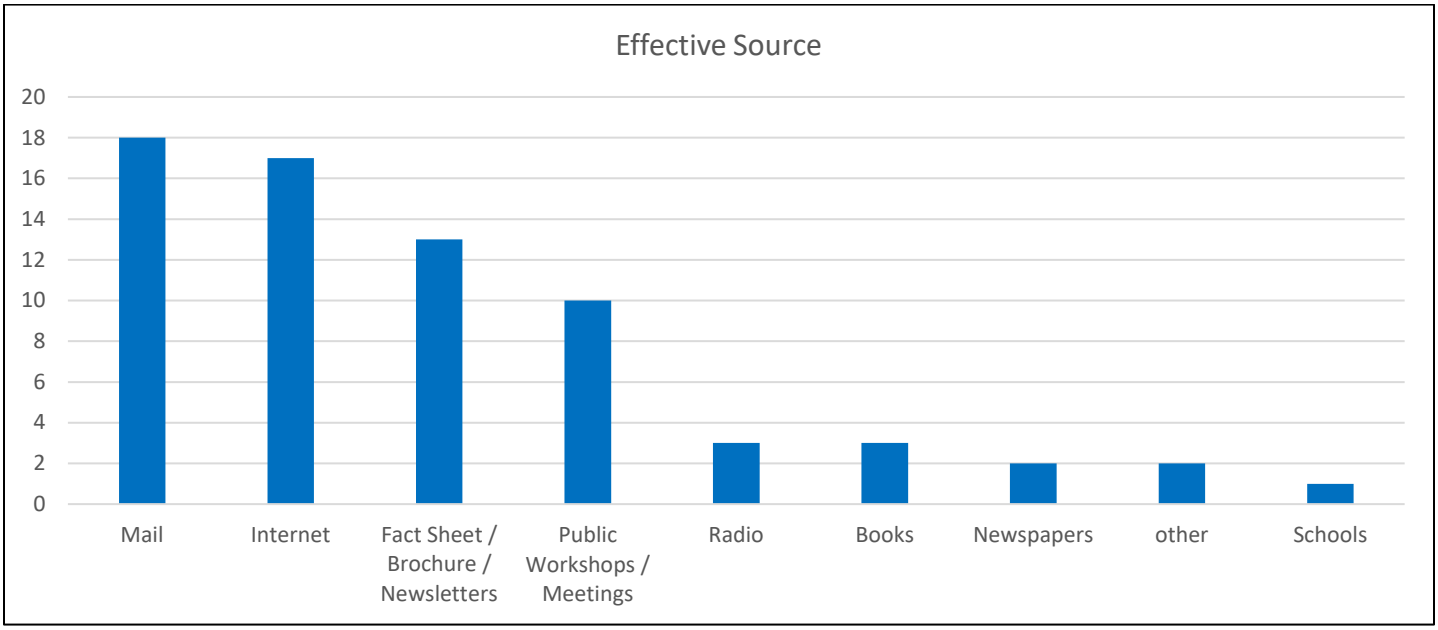

Figure 7: Effective Source (Question #5)

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.

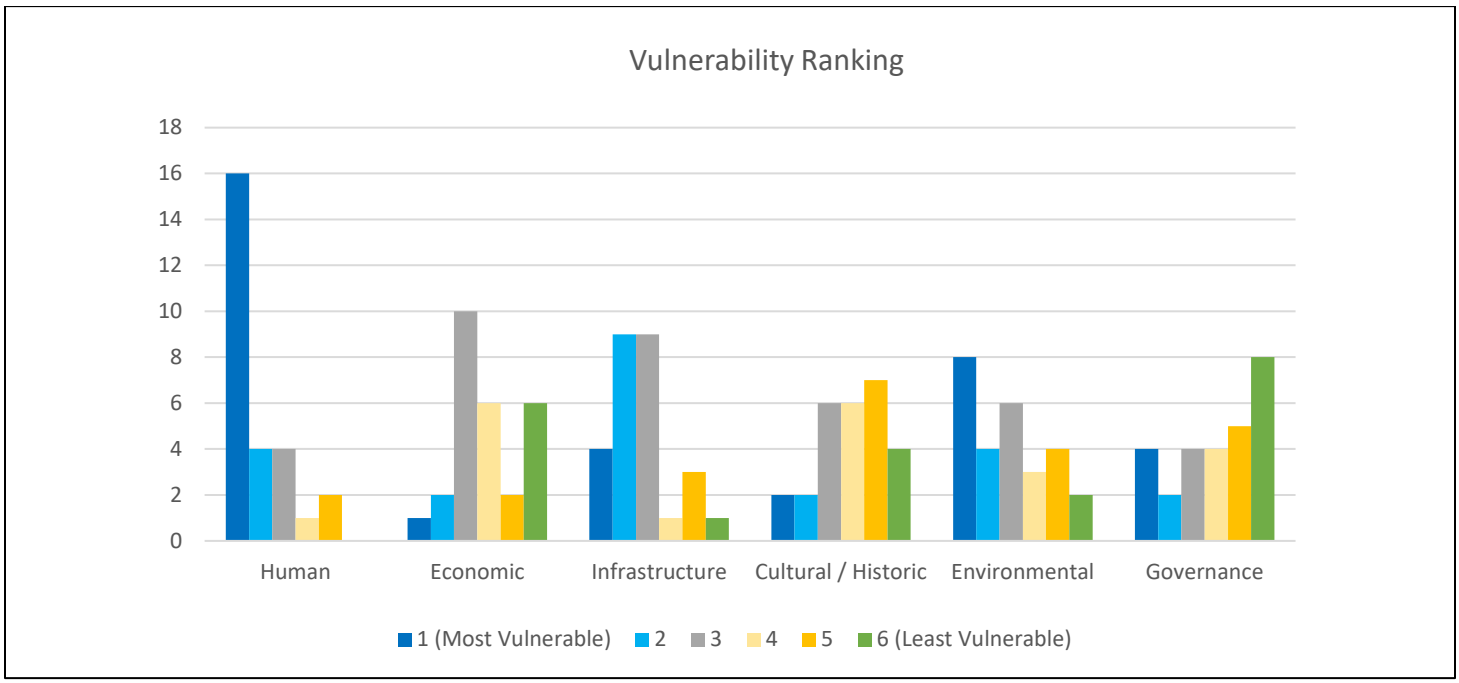

Figure 8: Vulnerability Ranking (Question #6)

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

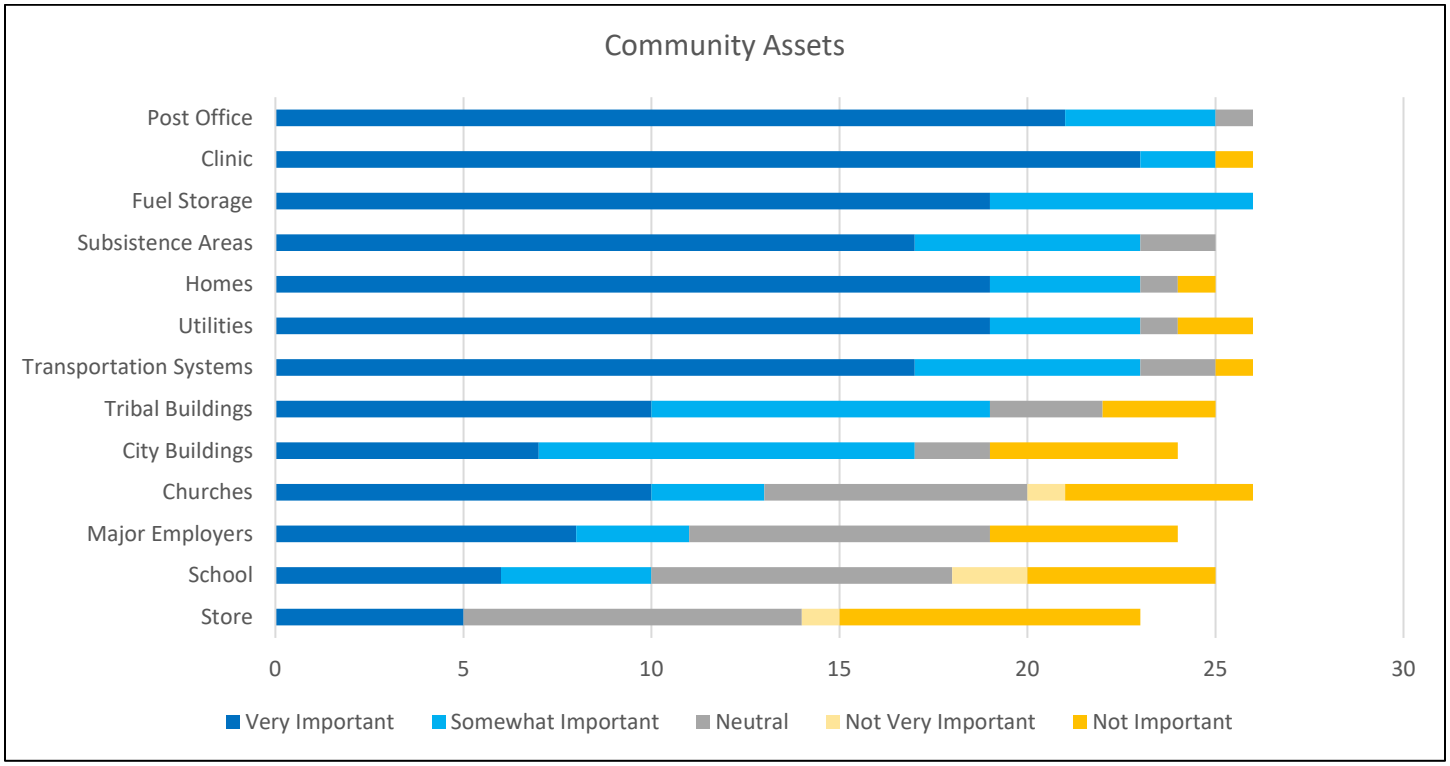

Figure 9: Community Assets (Question #7)

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

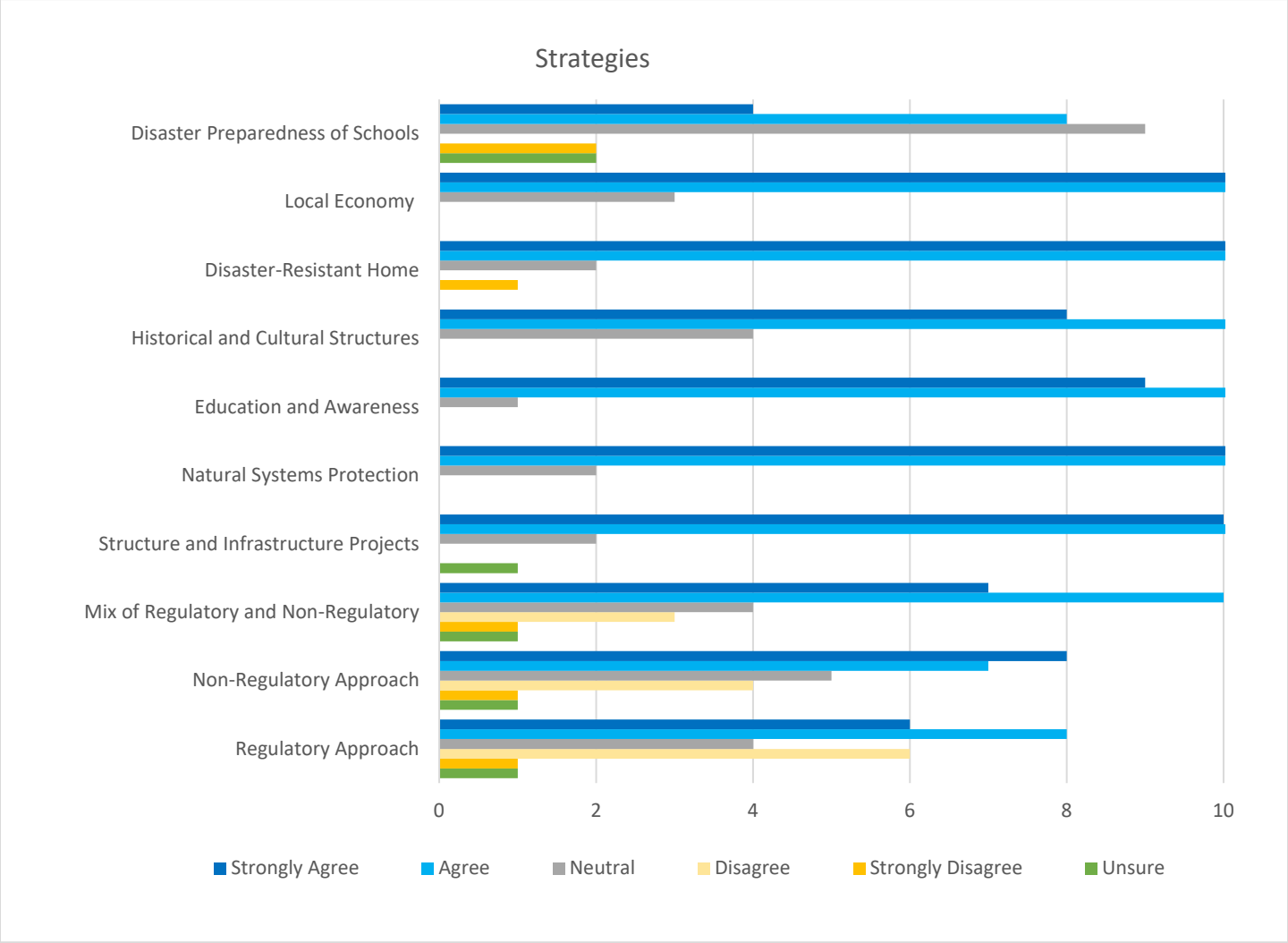

Figure 10: Mitigation Strategies (Question #8)

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

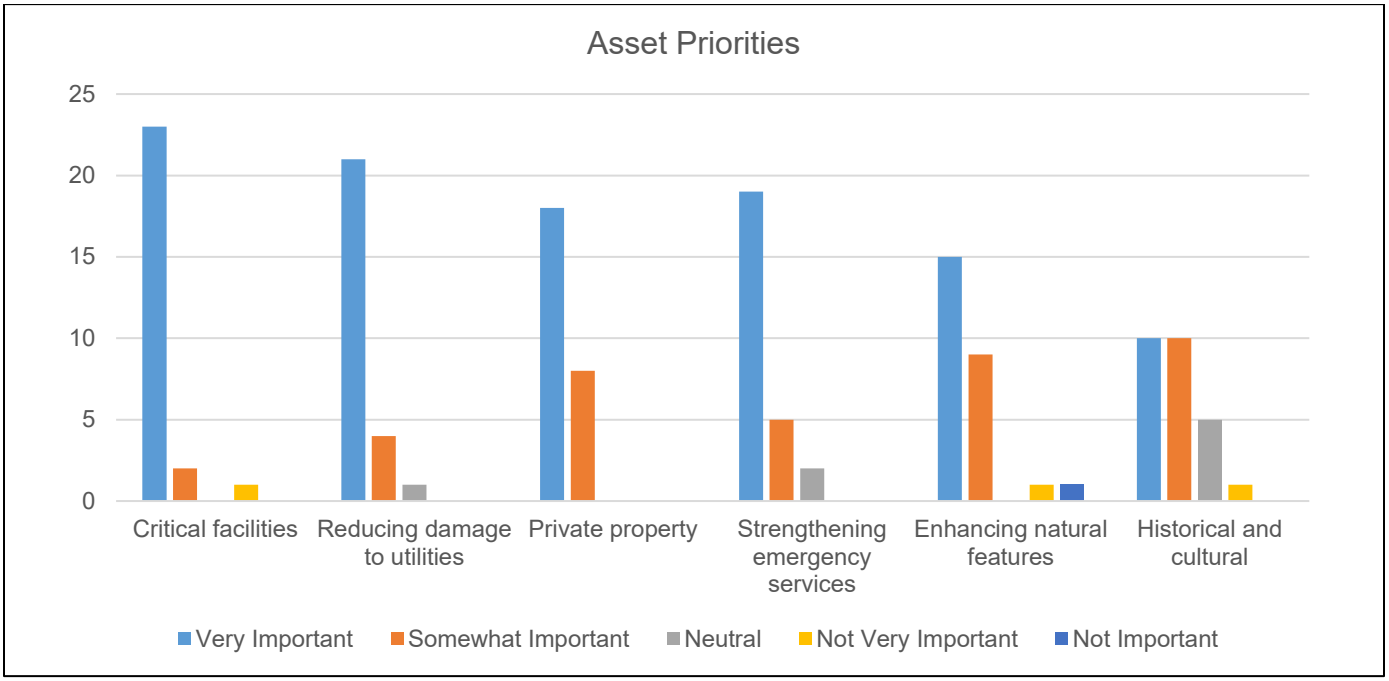

Figure 11: Asset Priorities (Question #9)

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)

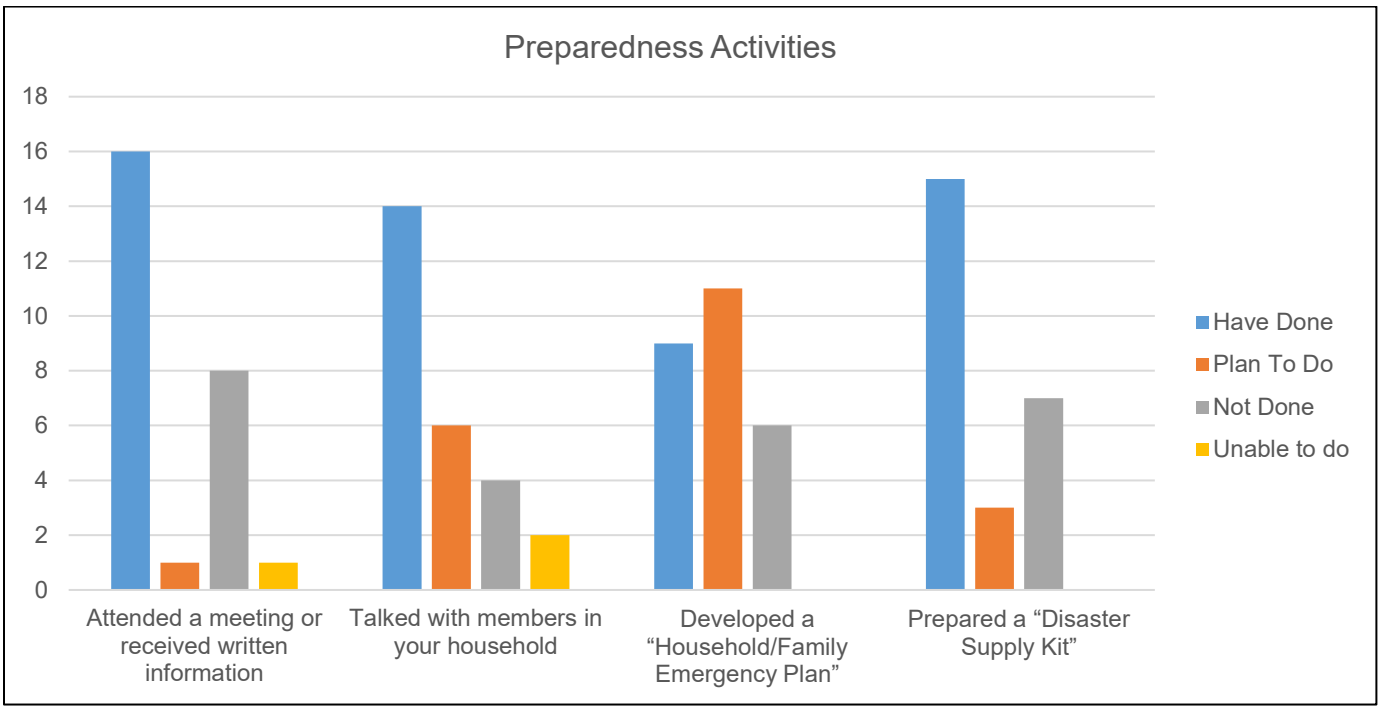

Figure 12: Preparedness Activities (Question #10)

GENERAL COMMENTS

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

- History of flooding / washing out the airport and public roads.
- Spruce bark beetle kill -> wildfires.
- Wildfire seems like the most likely natural disaster to affect Pedro Bay. (Thousands of acres of beetle kill).
- Flood from excessive rain or flood as effect of Mt. Iliamna eruption (glacial melt) is also a potential.
- Contact with other communities and state and federal organizations during and after a hazard is important, including different forms of communication.
- Def need this plan.
- Although Pebble Mine is not a project yet, it poses the largest threat to the natural environment in the Lake Iliamna area (and Bristol Bay) even though it is 15 miles away. Destruction of the salmon streams in the immediate area of the project (mine location, stream crossings, lake crossings, and air quality) will significantly affect the whole area. Politics needs to be removed from the equation to mitigate risk from the project. Time, peer-reviewed science needs to be used to mitigate risks.
- Potential to lose airport due to flooding. Concern of losing old disrupting power grid due to earthquake or volcano.
- There is no school or store in operation in Pedro Bay.
- Fire from ignitable material from Spruce bark beetle killed spruce trees, and/or windfall.
- I would like to see a community plan - where to go in and emergency - what goes in a kit.
- Protecting the currently drinkable lake water.
- Having a backup Power Plan.
- Having individual and community evacuation plan in place.
- Status of Fire protection - who runs fire dept.
- Knutson River Floods / airport.
- Cottonwood Creek road wash out.
- Wind damage, forest fire due to spruce bark beetle infestation.
- We had a flood (small) this year that washed out a road and threatened (but did not damage) the runway.
- My biggest concern is wildfire because of the significant beetle kill in the area's trees.
- I believe the largest/most hazardous Disaster to our area would be the creation & functioning of the Pebble Mine. One sizeable earthquake in this seismologically active area won't cause destruction to not only the renewable resources of salmon, but to the water supply for residents around the lake.
- My family and I are part time residence but have lived here for over 20 years and feel part of the Pedro Bay community. We are concerned about our community and would like our community to be safe from Natural disasters as well as manmade disasters. We would like to continue participating in these types of programs. Our best way of communication is by email.
- We need to have a first responder crew, made up of community members. If there was a big disaster, or even a small one, people need to have training to help out.

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

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 TMP 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

Team Member	Title	Involvment
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:

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

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*** TX REPORT ***
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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 -

Thank you -
AF

8/20/2018
All but Chignik Bay faxed - will refax - AF

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Chignik Bay

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DATE: August 20, 2018

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TO: Vlg Admin

FAX:

SENDER: Annie Fritze

RE: Please Post and Share w/in your community - I will email and followup with a phone call -

Quyana -

Bristol Bay Native Association
Transportation and Infrastructure Development

January 2019 Pedro Bay Newsletter 2

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

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 Pedro Bay Village Council is available at the Tribal office for public review and comment, January 2-15, 2019. This plan is also available on BBNA's web page at 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 **January 15, 2019**. Comments can be made via email, fax, or phone to Danielle Dance, Bristol Engineering Services Company, LLC at: 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. 16th Avenue, Third Floor
Anchorage, Alaska 99501
(907)563-0013
ddance@bristol-companies.com

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

From: Annie Fritze
To: Program Managers
Cc: Dance, Danielle; Dan Breeden; Pearson, Isaac
Subject: FW: Pedro Bay THMP Public Comment
Date: Thursday, January 3, 2019 11:05:28 AM
Attachments: Bristol Bay Native Association FEMA Newsletter2 Final_Pedro Bay.pdf

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BBNA Program Managers:

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 Pedro Bay will be made available to the Tribal offices for public review and comment January 2-15, 2019.
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-
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Please contact me should you have any additional questions at afritze@bbna.com, (907)842-6143 or Danielle Dance at ddance@bristol-companies.com, (907)563-0013
Quyana.

Annie Fritze
Transportation and Infrastructure Program Manager
afritze@bbna.com
907-842-6143

From:	Annie Fritze
To:	Rayn Aaberg; Jason Metrokin; bakelkok@bbha.org; Kristina Andrew; keith.jensen@pedrobay.com
Cc:	Dan Breeden; Dance, Danielle; Pearson, Isaac
Subject:	Pedro Bay THMP Public Comment
Date:	Thursday, January 3, 2019 9:12:48 AM
Attachments:	Bristol Bay Native Association FEMA Newsletter2 Final_Pedro Bay.pdf

Pedro Bay 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.

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

Annie Fritze
Transportation and Infrastructure Program Manager
afritze@bbna.com
907-842-6143

Dance, Danielle

From: Kristina Andrew <krandrew@bbna.com>
Sent: Thursday, January 3, 2019 9:27 AM
To: Dance, Danielle
Subject: RE: comment for Pedro Bay THMP

Also my job title is wrong I am a program manager.

From: Dance, Danielle <ddance@bristol-companies.com>
Sent: Thursday, January 3, 2019 9:25 AM
To: Kristina Andrew <krandrew@bbna.com>
Cc: Annie Fritze <afritze@bbna.com>
Subject: RE: comment for Pedro Bay THMP

Kristina,

Thank you so much for catching that! It is noted and will be corrected. Please let me know if you have any other comments.

Thanks,

Danielle Dance
Civil Engineer I
Bristol Engineering Services Company, LLC
Phone: (907) 563-0013
Direct: (907) 743-9394

From: Kristina Andrew <krandrew@bbna.com>
Sent: Thursday, January 3, 2019 9:21 AM
To: Dance, Danielle <ddance@bristol-companies.com>
Cc: Annie Fritze <afritze@bbna.com>
Subject: comment for Pedro Bay THMP

Danielle-the email listed in this plan for myself is wrong. There is supposed to be an r after K.
Krandrew@bbna.com

Kristina Andrew
Economic Development Program Manager
Bristol Bay Native Association
krandrew@bbna.com
907-842-6223
907-842-5257 ext. 323

From:	Annie Fritze
To:	Representative.Bryce.Edgmon@akleg.gov
Cc:	Dan Breeden; Dance, Danielle; DeeDee Bennis; Ralph Andersen; Pearson, Isaac
Subject:	Pedro Bay THMP Comment Period
Date:	Thursday, January 3, 2019 11:21:46 AM
Attachments:	Signed letter Rep. Edgmon Pedro Bay.pdf Bristol Bay Native Association FEMA Newsletter2 Final_Pedro Bay.pdf

Honorable Bryce 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.

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.

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This plan will also be made available on BBNA's web page for public comment at https://www.bbna.com/wp-content/uploads/DRAFT_FEMA-THMP-PedroBay_26Dec2018.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 January 15, 2019. Comments can be made via email, fax, or phone to Danielle Dance, Bristol Engineering Services Company, LLC at ddance@bristol-companies.com, (907)563-0013 or by fax at (907)563-6713.

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

Annie Fritze
Transportation and Infrastructure Program Manager
afritze@bbna.com
907-842-6143

Attachments:
Letter signed by BBNA CEO/President Ralph Andersen
BBNA FEMA Newsletter

Annie Fritze
Transportation and Infrastructure Program Manager
afritze@bbna.com
907-842-6143

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

Aleknagik
Clarks Point
Curyung
Ekuk
Ekwok
Igiugig
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 2, 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.

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.

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.

It is the goal of the Tribal organizations to create a disaster-resistant community for the Tribal members and the general public. The THMP includes information to assist government leaders and residents with current and future planning efforts to efficiently and effectively mitigate natural hazards in their communities.

We are excited to announce that the draft THMP for the Tribal Council of Pedro Bay will be made available to the Tribal offices for public review and comment January 2-15, 2019. This plan will also be made available on BBNA's web page for public comment at 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.

Public comments should be received no later than January 15, 2019. Comments can be made via email, fax, or phone to Danielle Dance, Bristol Engineering Services Company, LLC at ddance@bristol-companies.com, (907)563-0013 or by fax at (907)563-6713.

Sincerely,
Bristol Bay Native Association

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

From:	Annie Fritze
To:	Senator.Lyman.Hoffman@akleg.gov
Cc:	Dan Breeden; Dance, Danielle; DeeDee Bennis; Ralph Andersen; Pearson, Isaac
Subject:	FW: Pedro Bay THMP Comment Period
Date:	Thursday, January 3, 2019 11:24:17 AM
Attachments:	Signed letter Rep. Edgmon Pedro Bay.pdf Bristol Bay Native Association FEMA Newsletter2 Final_Pedro Bay.pdf

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Honorable Lyman Hoffman:

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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approval and returned back to the Tribal Council for formal adoption.

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

Annie Fritze
Transportation and Infrastructure Program Manager
afritze@bbna.com
907-842-6143

Attachments:
Letter signed by BBNA CEO/President Ralph Andersen
BBNA FEMA Newsletter

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

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:

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.

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.

It is the goal of the Tribal organizations to create a disaster-resistant community for the Tribal members and the general public. The THMP includes information to assist government leaders and residents with current and future planning efforts to efficiently and effectively mitigate natural hazards in their communities.

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. 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

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** *(Brief Status Overview of Mitigation Actions)*

Date	**Evaluator**	**Comments** *(Brief Status Overview of Mitigation Actions)*

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			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	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						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-Pager.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/ACCAP.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/aoos.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

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

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

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=&ddvalue=&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

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

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

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

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

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

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

US Amy 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

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.

Mitigation Action / Project Title:	
Background / Issues:	
Ideas for Integration:	
Responsible Agency:	
Partners:	
Potential Funding:	
Cost Estimate:	
Benefits (Losses Avoided):	
Timeline:	
Priority:	
Worksheet Completed By:	*(Name / Department)*

MITIGATION ACTION PROGRESS REPORT

Progress Report Period:	*From Date:*	*To Date:*
Action / Project Title:		
Responsible Agency:		
Contact Name:		
Contact Phone / Email:	*Phone:*	*Email:*
Project Status:	❑ Project Completed ❑ Project Canceled ❑ Project on Schedule Anticipated completion date: _____ ❑ Project Delayed Explain:_____	

Summary of Project Progress for this Report Period

1. What was accomplished for this project during this reporting period?

2. What obstacles, problems, or delays did the project encounter, if any?

3. If uncompleted, is the project still relevant? Should the project be changed or revised?

4. Other Comments:

Next Step: What is / are the next step(s) to be accomplished over the next reporting period?

APPENDIX F

Adoption Resolution

Pedro Bay Village Council

P.O. Box 47020, Pedro Bay, Alaska 99647
Phone 907.850.2225 / Fax 907.850.2221

Resolution 2019-03

ADOPTING THE PEDRO BAY TRIBAL HAZARD MITIGATION PLAN

WHEREAS, Pedro Bay Village Council is the federally recognized governing entity of the tribe of Pedro Bay Village, and

WHEREAS, Pedro Bay Village Council recognizes the threat that natural hazards pose to people and property, and

WHEREAS, Pedro Bay Village Council has prepared a tribal hazard mitigation plan, hereby known as the Native Village of Pedro Bay Tribal Hazard Mitigation Plan [2019-2024] hereafter "Plan," dated May 14, 2019 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 Pedro Bay 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 Pedro Bay Village Council (Tribe) hereby adopts the Native Village of Pedro Bay Tribal Hazard Mitigation Plan [2019-2024] as an official plan.

CERTIFICATION

This resolution was duly adopted by a quorum of the Pedro Bay Village Council during a meeting held on the 14th of May, 2019, in Pedro Bay, Alaska.

For 4 Against 0 Abstain 0 Present 4 Absent 1

ATTEST

Keith Jensen, President

Verna Kolyaha, Secretary

APPENDIX G

FEMA Approval & THMP Plan Review Tool

U.S. Department of Homeland Security
Region X
130 228th Street, SW
Bothell, WA 98021-9796

FEMA

JUN 04 2019

The Honorable Keith Jensen
President, Pedro Bay Village Council
P.O. Box 47020
Pedro Bay, Alaska 99647

Dear President Jensen:

Congratulations, on May 31, 2019, the United States Department of Homeland Security's Federal Emergency Management Agency (FEMA) Region X approved the Native Village of Pedro Bay's Tribal Hazard Mitigation Plan as a Tribal Mitigation Plan, in accordance with the Code of Federal Regulations Title 44 Part 201.

An approval provides the Native Village of Pedro Bay with eligibility to apply directly with FEMA for Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) programs, i.e., Pre-Disaster Mitigation project grants, Public Assistance (Categories C-G), Fire Management Assistance and Hazard Mitigation Grant Program projects through May 30, 2024. Recipients are required to develop and maintain hazard mitigation plans compliant with FEMA standards as a condition for receiving funds. To continue eligibility, within five years from date of this letter, tribes must review, revise as appropriate, and re-submit plans for approval. For further assistance on hazard mitigation planning, please contact our Regional Mitigation Planning Program Manager, John Schelling, at (425) 487-2104.

FEMA evaluates applications for funding according to the specific requirements of the applicable program. A mitigation action identified in the plan may, or may not, meet a program's eligibility requirements. For assistance with hazard mitigation grant funding, please contact FEMA-R10-HMA@fema.dhs.gov.

We look forward to continuing a productive relationship between FEMA Region X and the Native Village of Pedro Bay. Our Regional Tribal Liaison Ramona VanCleve, at 907-271-4302, is available to facilitate this relationship and delivery of our programs. You are also welcome to contact me directly, at (425) 487-4604.

Sincerely,

Michael F. O'Hare
Regional Administrator

Enclosures

cc: Brent Nichols, Alaska Division of Homeland Security and Emergency Management

FEMA Region 10 Tribal Mitigation Plan Review Tool

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*.

Tribal Jurisdiction: *Pedro Bay Village*	**Title of Plan:** *Pedro Bay Village Hazard Mitigation Plan [2019 – 2024]*	**Date of Plan:** *January 2019*
Tribal Point of Contact: *Ben Foss* **Title:** *EPA / IGAP* **Agency:** *Pedro Bay Tribal Council*	**Address:** *Pedro Bay Tribal Council* *P.O. Box 47020* *Pedro Bay, AK 99647*	
Phone Number: *907-850-2342*	**Email:** b.foss@pedrobay.com	

State Reviewer (if applicable):	**Title:**	**Date:**

FEMA Reviewer:	**Title:**	**Date:**
Kate Skaggs John Schelling	Mitigation Champion Regional Hazard Mitigation Planning Manager	03-15-2019 03-29-2109
Date Received in FEMA Region 10	02-19-2019	
Plan Not Approved		
Plan Approvable Pending Adoption	03-29-2019	
Plan Approved	05-31-2-10	

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**
ELEMENT A. PLANNING PROCESS			
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	X	
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	X	
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	X	
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 Cited Throughout Plan	X	
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	X	
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	X	
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	X	
ELEMENT A: REQUIRED REVISIONS			
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT			
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	X	
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	X	

1. **Standard Regulation Checklist** **Regulation** (44 CFR § 201.7 Tribal Mitigation Plans)	**Location in Plan** (section and/or page number)	**Met**	**Not Met**
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 Table 5-13	X	
ELEMENT B: REQUIRED REVISIONS			
ELEMENT C. MITIGATION STRATEGY			
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	X	
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	X	
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	X	
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	X	
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 PDF Pg 72	X	
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	X	
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	X	
ELEMENT C: REQUIRED REVISIONS			

1. **Standard Regulation Checklist** **Regulation** (44 CFR § 201.7 Tribal Mitigation Plans)	**Location in Plan (section and/or page number)**	**Met**	**Not Met**
ELEMENT D. PLAN UPDATES			
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		
ELEMENT D: REQUIRED REVISIONS			
ELEMENT E. ASSURANCES AND PLAN ADOPTION			
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		
ELEMENT E: REQUIRED REVISIONS			

2. Enhanced Regulation Checklist **Regulation** (44 CFR § 201.5 Enhanced Tribal Mitigation Plans)	**Location in Plan (section and/or page number)**	**Met**	**Not Met**
ENHANCED ELEMENT F. STANDARD PLAN REQUIREMENTS			
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		
ENHANCED ELEMENT F: REQUIRED REVISIONS			
ENHANCED ELEMENT G. INTEGRATED PLANNING			
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		
ENHANCED ELEMENT G: REQUIRED REVISIONS			
ENHANCED ELEMENT H. TRIBAL MITIGATION CAPABILITIES			
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		
ENHANCED ELEMENT H: REQUIRED REVISIONS			

2. Enhanced Regulation Checklist **Regulation** (44 CFR § 201.5 Enhanced Tribal Mitigation Plans)	**Location in Plan (section and/or page number)**	**Met**	**Not Met**
ENHANCED ELEMENT I. HMA GRANTS MANAGEMENT PERFORMANCE			
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		
ENHANCED ELEMENT I: REQUIRED REVISIONS			

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.

Plan Strengths

- Thorough documentation of planning process, survey results, and how to maintain the plan while engaging with the community.
- Great community outreach, including the community-wide dessert potluck.
- Clear map of planning area.
- Comprehensive data gathering using hazard assessments and interviews with residents to incorporate local knowledge.
- Clear and useful 'Risks to Vulnerable Assets' table.

Opportunities for Improvement

- Consider organizing the mitigation actions by the hazard they address; even though some actions are clear, a separate column or color code could help finding actions after a disaster, specific to those actions.