MANOKOTAK VILLAGE

TRIBAL HAZARD MITIGATION PLAN [2019 – 2024]

FINAL Revision 0
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Prepared for:

Manokotak Village Council
PO Box 169
Manokotak, Alaska 99628

Prepared by:

Bristol Bay Native Association
Transportation and Infrastructure Development

Bristol
ENGINEERING SERVICES COMPANY, LLC

111 W. 16th Avenue, Third Floor
Anchorage, Alaska 99501-5109
Phone (907) 563-0013
Fax (907) 563-6713

Bristol Project No. 32190013

TABLE OF CONTENTS

SECTION **PAGE**

TABLES

EXHIBITS

FIGURES

APPENDICES

ACRONYMS AND ABBREVIATIONS

%	percent
°F	degrees Fahrenheit
BBAHC	Bristol Bay Area Health Corporation
Bristol	Bristol Engineering Services Company, LLC
BUILD	Better Utilizing Investments to Leverage Development
CFR	Code of Federal Regulations
City	City of Manokotak
Community	Manokotak
Council	Manokotak Village Council
DCCED	State of Alaska Department of Commerce, Community, and Economic Development
DOTID	Department of Transportation and Infrastructure Development
FEMA	Federal Emergency Management Agency
FMA	Flood Mitigation Assistance
Hill	Foothills of Acorn Peak
HMGP	Hazard Mitigation Grant Program
ID	Identification
IGAP	Indian General Assistance Program
km	kilometer
MM	Modified Mercalli Scale
MNL	Manokotak Natives Limited
mph	mile per hour
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
TPO	Tribal Police Officer
Tribe	Manokotak Village
USGS	US Geological Survey

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EXECUTIVE SUMMARY

The Tribal Hazard Mitigation Plan (THMP) for Manokotak, 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 Manokotak 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 Manokotak 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.

- Avalanche – Avalanches have occurred on the backside of the Mountain in the community. The school is located at the base of this mountain under steep slopes.
- Drought – Drought can cause low river levels which impacts barge access to the community. The dry conditions can also cause low berry production and increase dust emissions on roads.
- Earthquake – Earthquakes occur frequently and can result in damage to the Community's buildings, utilities, and wells. The movement and damage can possibly injure residents, especially elders.
- Erosion – The main village is at the base of a large hill that has heavy snowmelt and runoff in the spring which causes erosion in the community. The two boat launch areas on Igushik and Weary River are also eroding which has caused dangerous conditions and less storage area.
- Extreme Cold – Water pipes freeze and break in vacant homes and homes with old heat tape. These leaks affect the water system for the entire community.

- Flood – Flooding in the Community occurs due heavy seasonal rainfall events which fill ponds and creeks and drainage from surrounding mountains. This creates large drainage channels throughout the community and floods low areas like the Tribal Police Officer (TPO) Building.
- Landslide – Large slumping of rocks and dirt can occur due to erosion, floods, and earthquakes which can block the road. This has also caused issues with the water pump and had near misses with other infrastructure.
- 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 along the road which can have poor visibility and markings.
- Subsidence – The main village is located on flood prone areas and tundra. The effects of subsidence are causing buildings to shift and tilt which can cause damage.
- Tsunami – The fish camp located on Nushagak Bay could be impacted by tsunamis. This would have a large economic impact on the Community and would be life threatening to residents.
- 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 –Wildfires destroy subsistence resources, structures, and is a sever risk to human life. Homes in the main village are close together which increases the risk of widespread damage.

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:

- Build the capacity of the Tribe to prepare, respond to, and recover from disasters.
- Promote recognition and mitigation of all natural hazards that affect the Community.
- Promote cross-referencing of mitigation goals and actions with other Tribal planning mechanisms and projects.
- Reduce the possibility of damages due to avalanches.
- Reduce the possibility of damages due to drought.

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

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

- Complete the Community Emergency Plan, and educate the residents on the plan.
- Continue dust control efforts.
- Identify a new location for the boat launch in the main village and design and construct the facility.
- Construct the 2nd and 3rd Street Project.
- Install new heat tape in homes specifically older homes in the main village and those of elders.
- Upgrade drainage features in the Community.
- Install street lights between the Main Village and Manokotak Heights.
- Educate families on the importance of having a working communication device at fish camp.
- Educate homeowners about the importance of having a fire extinguisher in homes and encourage them to have one.

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.

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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 Manokotak Village Council (Council), BBNA contracted Bristol Engineering Services Company, LLC (Bristol) for the development of this Tribal Hazard Mitigation Plan (THMP) for Manokotak, 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 Manokotak 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 25 miles southwest of Dillingham on the Igushik River. It lies 347 miles southwest of Anchorage. The Community lies at approximately 58.9828° North Latitude and 159.0531° West Longitude (See Figures 1, 2, and 3). The Community is located in Section 28, Township 012S, and Range 045W along the Seward Meridian. The Community is located in the Bristol Bay Recording District. The area encompasses 36.4 square miles of land and 0.9 square miles of water (State of Alaska Department of Commerce, Community, and Economic Development [DCCED], 2018).

2.2 CLIMATE

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

The Community falls within the transitional climate zone, characterized by tundra interspersed with boreal forests, and weather patterns of long, cold winters and shorter, warm summers. Fog and high winds occur periodically through the year. The river is ice-free from June through mid-November (DCCED, 2018). The Community receives 83 inches of snow and 25.5 inches of rain annually. The average winter temperatures range from 4 to 30 degrees Fahrenheit (°F), and the average summer temperatures range from 40 to 70 °F (NOAA, November 2013).

2.3 HISTORY

The Community is one of the newer villages in the Bristol Bay region. It became a permanent settlement in 1946-47 with the consolidation of the villages of Igushik and Tuklung. People also migrated from Kulukak, Togiak, and Aleknagik. Igushik is now used as a summer fish camp by many of the residents of the Community. School was conducted in a church constructed in 1949 until a school was built in 1958-59. A post office was established in 1960. Trapping has been an attractive lure to the area, although it has declined since the 1960s. The city of Manokotak (City) was incorporated in 1970. The Community is the fourth most populated village in the Dillingham census area (DCCED, 2018).

2.4 ECONOMY

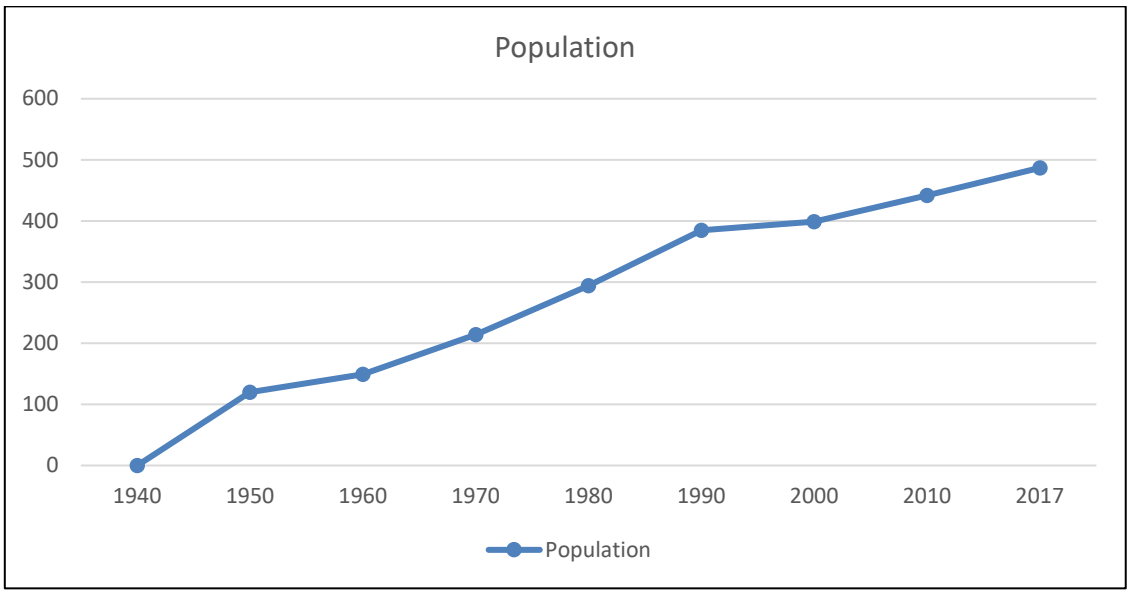
The local government, trade, transportation and utilities, and educational and health services provides the main employment opportunities in the Community (ALARI, 2018). Other Community employment opportunities include professional and business services, manufacturing, state government, construction, information, natural resources and mining, and financial activities. 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 $37,750. At that time there were approximately 127 individuals (19 percent [%]) that were reported to be living below the poverty level (DCCED, 2018).

2.5 DEMOGRAPHICS

The 2017 State of Alaska Department of Commerce, Community, and Economic Development (DCCED) certified population is 487 (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 442 residents with a median age of 27. The Community is principally an Alaska Native community with 96% Alaska Native. In 2010, the male and female population was 230 and 212 respectively. The 2010 census also revealed that there were 121 households with an average household size of 4 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 on November 7, 2018. The following steps describe the planning process to develop the THMP. 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 November 7, 2018 and participants were asked to help identify hazards that affect the Community, and critical infrastructure.
3. **Organize Resources:** Members of the Planning Team identified resources, including staff, agencies, and local community members who could provide technical expertise and historical information needed in the development of the THMP (see Sections 3.2 and 3.3.1).
4. **Assess Risks**: The Planning Team identified the hazards and assets within the Community. With the assistance of Bristol, the Planning Team developed a risk analysis for the community assets in relation to the identified hazards. The Planning Team identified the areas of greatest concern to the Community and developed vulnerability statements. Section 5.0 provides a detailed description of the Risk Assessment.

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

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

3.2 PLANNING TEAM

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

Table 3-1: Hazard Mitigation Planning Team

Name	Title	Organization
Diane Mochin	Vice President	Manokotak Village Council
Mike Minista	Member	Manokotak Village Council
Leona Black	Member	Manokotak Village Council
Louie Alakayak Jr.	Member	Manokotak Village Council
Barbara Moore	Administrator	Manokotak Village Council
Nancy George	City Administrator	City of Manokotak
Dan Breeden	Director	BBNA DOTID
Annie Fritze	Program Manager	BBNA DOTID
Isaac Pearson	Senior Engineer	Bristol (THMP Consultant)
Danielle Dance	Civil Engineer	Bristol (THMP Consultant)

3.3 PUBLIC INVOLVEMENT

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

A public meeting was held by BBNA DOTID and Bristol on November 7, 2018 in the Community to educate and receive feedback on the THMP. During the meeting, participants were given the opportunity to discuss how they have personally been impacted by the identified hazards in their community. They were also given the opportunity to discuss mitigation strategies that they felt would help prevent future losses due to the hazards. Additionally, the community was asked how they would like to be included in the remaining planning process and throughout the implementation of the mitigation strategies.

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

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

Five surveys were completed and returned. The residents of the Community identified through the survey that they are most concerned about wildfires (see Exhibit 3-1). Additionally, Exhibit 3-2 illustrates the opinions of the residents regarding the importance of community assets. A copy of the survey distributed to community members and a complete summary of responses can be found in Appendix B.

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

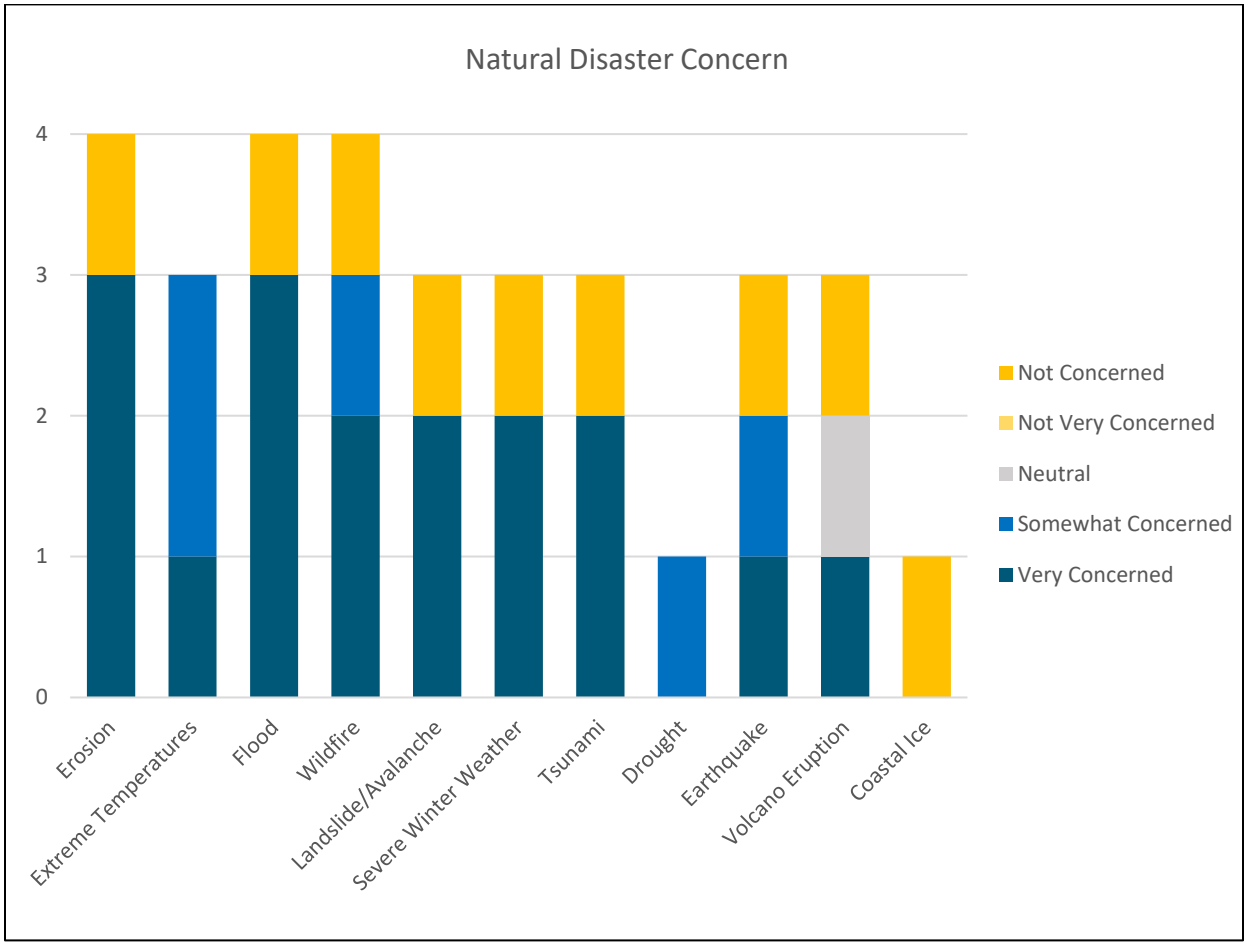
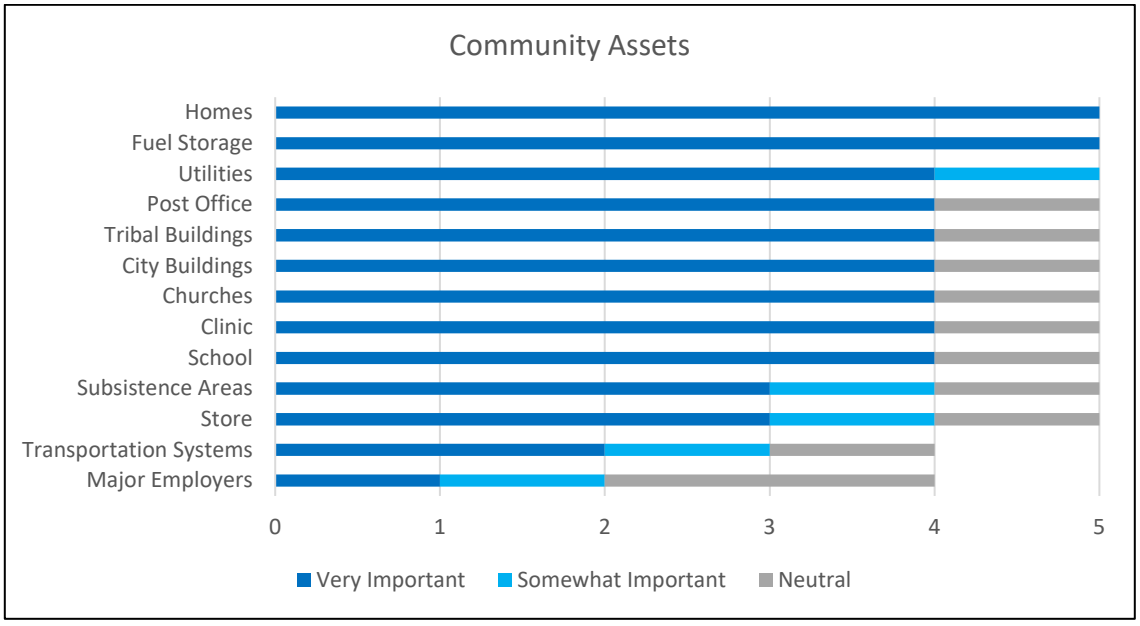


Exhibit 3-2: Community Assets (Survey Question #7)



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

3.3.1 Other Communities, Tribal Agencies, and Regional Agencies Involved

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

Table 3-2: Stakeholder Contacts

Stakeholder Type	Stakeholder	Contact Person (Title)	Contact Email
Village for Profit	Manokotak Natives Limited	Michael Alakayak (President)	mucky@gci.net
Regional For Profit	Bristol Bay Native Corporation	Jason Metrokin (President)	jmetrokin@bbnc.net
Regional Housing	Bristol Bay Housing Authority	Brenda Akelkok (Executive Director)	bakelkok@bbha.org
Regional Hospital	Bristol Bay Area Health Corporation (BBAHC)	Robert Clark (CEO)	rclark@bbahc.org
Regional Hospital	BBAHC	Rebecca Coupchiak (CHAP Supervisor)	rcoupchiak@bbahc.org
Sub-Regional Clinic	BBAHC	Jeweline Ayojiak (Lead Health Aide)	P.O. Box 129, Manokotak, AK 99628-0129; Phone: (907) 289-1077
Non-Profit Agency	BBNA	Gayla Hoseth (Natural Resource Director)	ghoseth@bbna.com
Non-Profit Agency	BBNA	Carla Akelkok (VPSO Program Manager)	cakelkok@bbna.com
Economic Development	BBNA	Kristina Andrew (Program Manager)	krandrew@bbna.com

Table 3-2 (Continued): Stakeholder Contacts

Stakeholder Type	Stakeholder	Contact Person (Title)	Contact Email
The Community Development Quota Program	Bristol Bay Economic Development	Norman VanVactor (CEO)	norm@bbedc.com
School District	Southwest Region Schools	Steve Noonkesser (Superintendent)	snoonkesser@swrsd.org
School	Manokotak School	Dustin Wright (Principal)	dwright@swrsd.org
Municipality	City of Manokotak	Melvin Andrew (Mayor)	kmo_city@hotmail.com
Municipality	City of Manokotak	Stella Pauk (City Clerk)	kmocity16@outlook.com
Municipality	City of Manokotak	Nancy George (Administrator)	panilkuk@yahoo.com
Electric Utility	Manokotak Power Company	Michael Alakayak (CEO/General Manager)	mucky@gci.net
Telephone	Nushagak Cooperative	Robert Himshoot (CEO)	rhimshoot@nushagak.coop
Telephone	GCI	Lana Woods (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

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
State of Alaska Hazard Mitigation Plan	Identifies profiled hazards, provides resources, and provides goals and mitigation strategies identified by the State of Alaska Division of Homeland Security and Emergency Management (DHS&EM) (DHS&EM, 2013).
Alaska Emergency Response Guide for Small Communities	This guide provides general procedures to assist local officials in preparing for, responding to, and recovering from emergency and disaster situations developed by the DHS&EM (DHS&EM, 2017).
Manokotak Community Comprehensive Plan	This report helps provide a vision and goals for the Community (City of Manokotak, 2015).
Engineering Study: Weary River Barge Dock and Boat Launch	This study provides a concept design and cost estimate for the design and construction of a boat launch, barge dock, and supporting staging and manuvering areas along Weary River (City of Manokotak, 2003).

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.

The City is in the process of developing a hazard mitigation plan with aid from AECOM. The THMP planning process integrated the information obtained by the City where applicable. The City was invited to attend the THMP planning meetings and public meetings to provide input during the planning process. The City and AECOM will have an opportunity to This THMP will be reviewed by the City and AECOM and incorporated as appropriate.

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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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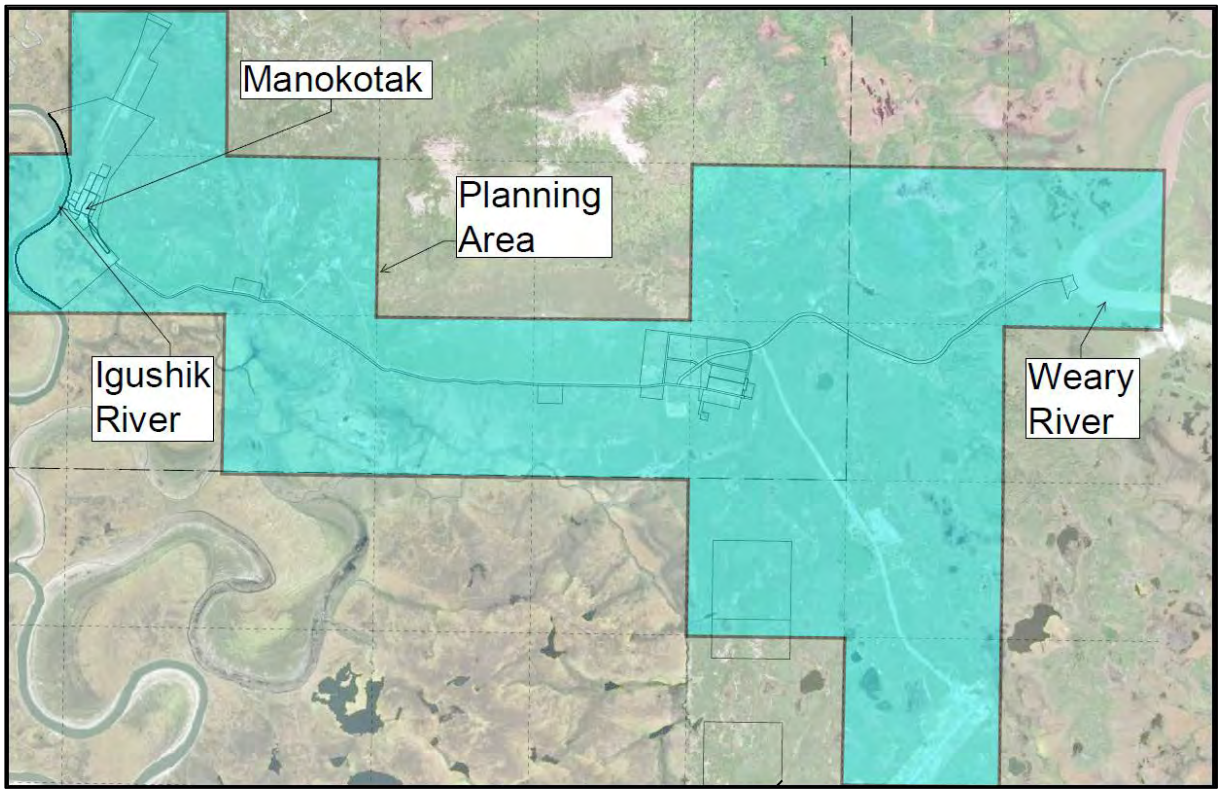
5.0 RISK ASSESSMENT

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 1, 2, 11 and 12 of Township 14 South Range 59 West, and Sections 7, 10-12, 14-18, 22, 23, and Section 26 of Township 15 South Range 58 West, of the Seward Meridian. Fish camp and other Community trails and subsistence areas may extend beyond the sections shown.

Exhibit 5-1: Planning Area



5.1 HAZARD ANALYSIS

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

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

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

Table 5-1: Location

Color Code	Area Affected	Definition
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	Yes	Although avalanches have not occured on the Community side and have not had a direct impact, they have happened on the backside of the nearby hill which has similar slopes to where the school currently resides.
Drought	Yes	Times with little to no rainfall can result in low river levels which can impact barge access for delivery of critical resources such as fuel, and can impact the susbsistence fishing activities. Drought also contributes to dust emissions and causes dry vegetation, increasing the risk of wildfires.
Earthquake	Yes	Earthquakes occur frequently in the Community, and can result in damage to buildings, utilities, and wells.
Erosion	Yes	The Community has two boat launches. One at the Igushik River and the other at Weary River. Both rivers are experiencing erosion along the banks. The boat storage area on the Igushik River is significantly reduced due to this erosoin.
Extreme Cold	Yes	Extreme cold conditions can cause damage to the water system for the whole Community because of bursting pipes in vacant homes.
Extreme Heat	No	The Community is beginning to experience warmer temperatures. However, this has not had an impact on the Community.
Flood	Yes	Flooding can occur due to heavy rainfall, ice jams in the river, or heavy spring snow melt. The police station and city maintenance building are located at a low point and floods every spring.
Landslide	Yes	Large slumping of rocks and dirt can occur due to erosion, floods, and earthquakes. Large rocks are in areas with landslide potential and could damage/block the road.
Severe Wind	Yes	Strong wind storms occur in the Community. These storms can damage roofs, blow over tall communication towers and trees, potentially leading to loss of power or cell and landline service.
Severe Winter Weather	Yes	Severe winter weather can affect plane access to the Community for travel, food and supplies, and medical emergency evacuations. Snow storms can also cause power outages. Severe winter weather can cause poor road conditions and a hazard to residents.

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

Hazard	Significant (Yes/No)	Explanation
Subsidence	Yes	Soils become noticeably soft during spring breakup. Roads and trails on the tundra are being impacted by subsidence.
Tsunami	Yes	The Community could be impacted by tsunamis, which could cause extreme damage to Igushik Fish Camp.
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 17 fires within roughly 23 miles of the Community since 1960, totaling 19,441 acres. Wildfires can destroy structures and subsistence resources, and is a severe risk to human life.

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

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

5.1.1 Avalanche

An avalanche is the movement of snow and debris down a slope by force of gravity. Avalanches occur when the stability of the slope changes from stable to unstable. This can be caused by storms, earthquakes, volcanic eruptions, rapid temperature changes, and other human activities. Steep slopes and long slopes have a higher probability to slide. Avalanches cause infrastructure and property damage, environmental disturbance, and possible injuries and fatalities.

5.1.1.1 Location

Avalanches occur in the Community along the back side of the foothills of Acorn Peak (Hill), which is part of the Wood River Mountain range, with the potential for avalanches near the school (see Figures 1, 2, and 3).

5.1.1.2 Extent

Avalanches occur on the back side of the Hill. The back side of the Hill has long, steep slopes. This is dangerous for residents should they be in the area when an avalanche occurs. This area of the Community is used for winter subsistence activities.

The Hill near the school has similar slopes. An avalanche has not occurred near the school, however, should one occur near the school this could have a severe impact on the Community.

5.1.1.3 History of Occurrences

Avalanches have not occurred on the village side of the Hill. However, community members are concerned about the school because it has the same type of slopes as the back side of the Hill where avalanches have happened. Residents stated that ptarmigan hunting happens on the back side of the Hill where the avalanches have occurred. There were no reports of injuries due to these avalanches.

5.1.1.4 Probability of Future Events

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

5.1.2 Drought

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

5.1.2.1 Location

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

5.1.2.2 Extent

Drought can impact subsistence foods, increase fire risks, decrease river water levels, and impede navigation. With limited rainfall or snowfall, local water bodies can see a reduction in water levels including rivers, streams, fishponds, and shallow groundwater aquifers. Residents of the Community rely on groundwater wells for drinking water and household sanitation. Low water levels of the Igushik River can restrict barge access to the Community, impeding delivery of critical resources such as heating oil, diesel generation for electricity, and other goods. This can result in higher fuel costs.

Weeks without sufficient rainfall can lower water levels in fishponds and tributaries, disrupting spawning areas available for salmon and resulting in poor subsistence harvest. During periods of low river levels, many subsistence-fishing areas may not be accessible by boat. Additionally, dry summers can result in poor production of natural berry patches. As a community with a subsistence lifestyle, residents can be especially impacted by drought because it can affect the quality of, and access to native food sources.

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

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

5.1.2.3 History of Occurrences

Due to limited data collection in rural Alaska, historical drought events are based on anecdotal evidence from community members. A summary of comments collected throughout the THMP planning process is provided below:

- Residents explained that the most severe drought summers (several weeks with little to no rainfall) tend to occur on a five-year cycle.
- A couple of years ago, the Community went 1-2 months with very little rain.

5.1.2.4 Probability of Future Events

Droughts are highly likely to continue to affect the Community.

5.1.3 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

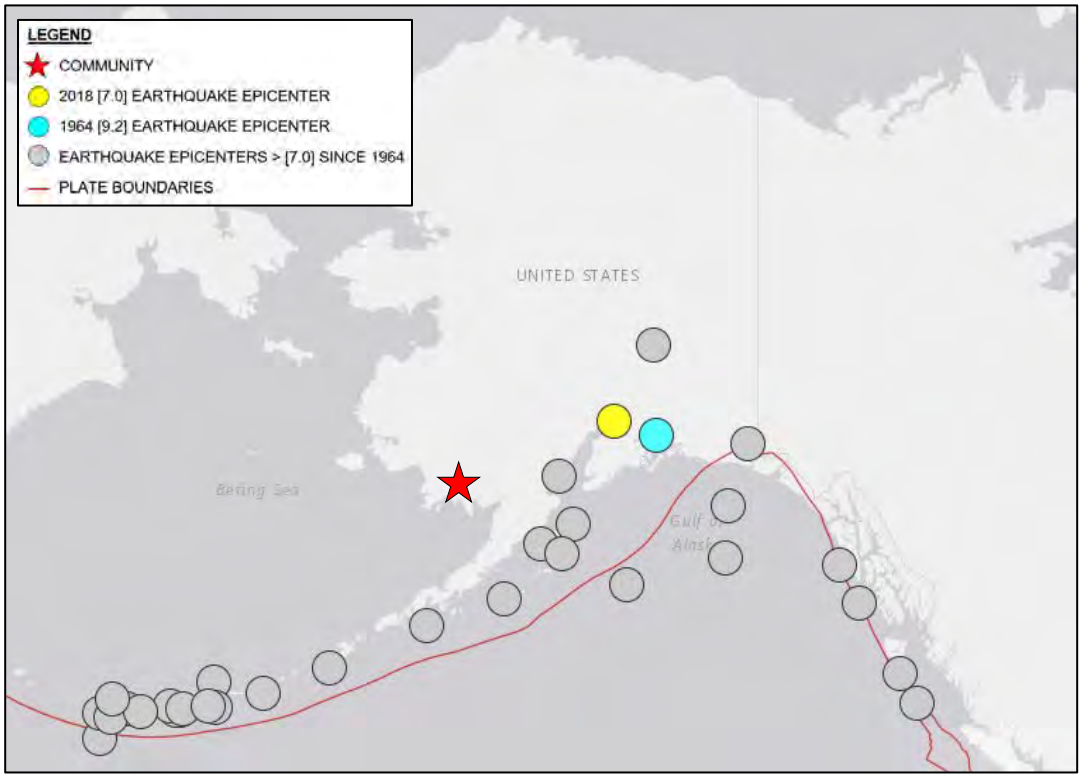
caused by the collapse and failure of structures due to ground shaking. The amount of damage depends upon the duration and extent of the shaking.

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.

5.1.3.1 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 417 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 4.4 on the Richter scale, located 61.3 miles away in Southern Alaska in February 1994. The closest earthquake to occur near the Community above a magnitude 2.5 was a magnitude 3.1 earthquake that occurred 16.8 miles away in May 2004 (USGS, 2018). More historic earthquakes information surrounding the community is provided in Section 5.1.2.3.

Exhibit 5-2: Major Earthquakes in Alaska

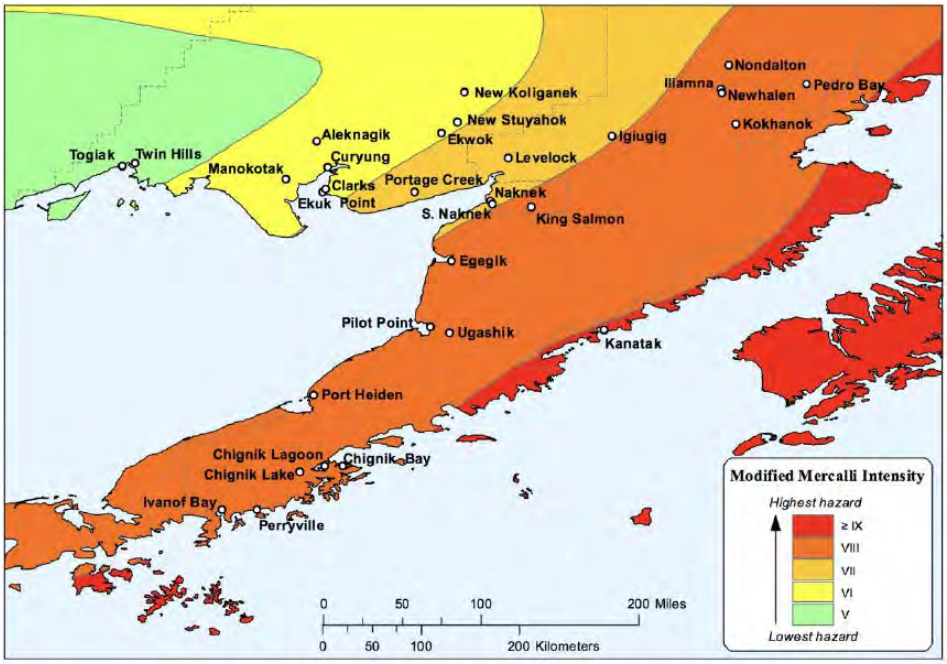


5.1.3.2 Extent

Earthquakes are rarely felt in the Community. Community members have reportedly felt slight tremors from major earthquakes in Alaska, but these earthquakes have not caused any known damage in the Community. The most severe earthquake felt in the Community was the Great Alaska Earthquake of 1964. Residents described the event saying cups and dishware were rattling and people were hesitant to walk around. 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 VI MM Intensity, indicating the earthquake risk is relatively low (Natalia Ruppert, Presentation, November 22, 2016). Exhibit 5-4 provides a description of damages that can occur at each magnitude of the MM. This exhibit also provides an approximate Richter Scale equivalent for each MM intensity (USGS, 2019 and SMS Tsunami Warning, 2018).

Exhibit 5-3: Bristol Bay Earthquake Hazard Map



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

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

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

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

Seismic activity can cause damage to older community structures and underground utilities. The Community is concerned that they do not have shelter prepared for children and elderly if they were to have a major earthquake.

Another concern regarding earthquakes in the Community is disruptions in groundwater. Groundwater is relied on for drinking water and household use. A large earthquake nearby the Community could potentially alter the mineralogy or quality of groundwater.

5.1.3.3 History of Occurrences

The USGS Search Earthquake Catalog was consulted for a history of recorded earthquakes with epicenters within 75 miles of the Community and magnitude of 2.5 or greater since 1964. Table 5-6 shows the top ten data results by distance from the Community, Table 5-7 by magnitude, and Table 5-8 by date (USGS, 2018).

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

Date	Magnitude	Distance from the Community (miles)	Location
May-2004	3.1	16.8	Bristol Bay
Mar-1997	3.3	19.2	Bristol Bay
Apr-2011	2.5	20.3	Bristol Bay
Sep-2018	3.0	25.8	31 kilometer (km) S* of Dillingham
May-2009	2.5	26.6	Bristol Bay
Apr-1995	3.1	34.5	Bristol Bay
Sep-2017	2.5	35.9	45 km SSE* of Dillingham
May-1992	4.2	43.6	Bristol Bay
Aug-2011	3.1	44.0	Alaska Peninsula
Feb-1994	3.5	46.0	Southern Alaska

* South (S), South Southeast (SSE)

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

Date	Magnitude	Distance from the Community (miles)	Location
Feb-1994	4.4	61.3	Southern Alaska
Sep-2001	4.2	63.6	Bristol Bay
May-1992	4.2	43.6	Bristol Bay
Feb-1994	4.0	58.1	Southern Alaska
Nov-1994	3.9	63.9	Alaska Peninsula
Oct-2016	3.7	73.1	117 km NNW* of Dillingham
Feb-2011	3.7	48.2	Alaska Peninsula
Sep-2000	3.7	74.0	Southern Alaska
Mar-2003	3.6	51.6	Alaska Peninsula
Sep-2001	3.6	67.2	Bristol Bay

* North Northwest (NNW)

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

Date	Magnitude	Distance from the Community (miles)	Location
Sep-2018	3.0	25.8	31 km S* of Dillingham
Sep-2017	2.5	35.9	45 km SSE* of Dillingham
May-2017	3.0	74.7	34 km WSW* of King Salmon
Oct-2016	3.7	73.1	117 km NNW* of Dillingham
Jun-2016	2.6	63.3	67 km ENE* of Dillingham
Jul-2015	2.8	68.5	82 km NE* of Dillingham
Jun-2015	2.8	52.3	51 km WNW* of King Salmon
Apr-2015	3.2	58.9	48 km W* of King Salmon
Jan-2015	3.3	63.5	85 km N* of Dillingham
Nov-2011	2.5	66.1	Alaska Peninsula

* South (S), South Southeast (SSE), West Southwest (WSW), North Northwest (NNW), East Northeast (ENE), Northeast (NE), West Northwest (WNW), West (W), North (N)

In addition to the earthquakes listed above, the largest earthquake felt in the Community was in 1964. Residents recall plates and cups rattling in homes, and not being able to walk.

5.1.3.4 Probability of Future Events

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

5.1.4 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.

5.1.4.1 Location

The Community experiences gradual erosion along the banks of two local waterways, the Igushik River and Weary River. Erosion also occurs due to runoff from the nearby hill. Significant erosion areas are identified on Figures 1, 2, and 3.

5.1.4.2 Extent

The Community THMP team has classed the area affected by erosion as "extensive." The erosion along the Igushik River has reduced the boat storage area. The erosion along the Weary River has caused damage to the boat launch. This erosion has caused muddy and hazardous conditions. Eroded soil is deposited in other areas of the river, creating areas of shallow water and potential boating hazards.

Erosion occurs within the Community along roads, around structures, and in residents' yards. This damage is due to large drainage channels caused by spring runoff and rainwater runoff from nearby hills.

5.1.4.3 History of Occurrences

Erosion is an on-going process. However, particular events can result in notable occurrences of erosion, such as floods.

5.1.4.4 Probability of Future Events

Significant erosion is visible along the riverbanks and in the Community from runoff from the nearby hill every year, particularly after spring breakup. It is highly likely for erosion

to continue to occur in the Community due to water runoff from nearby hills, ice dams, storms, wind, and the continuous flow of the river.

5.1.5 Extreme Cold

Extreme temperatures 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).

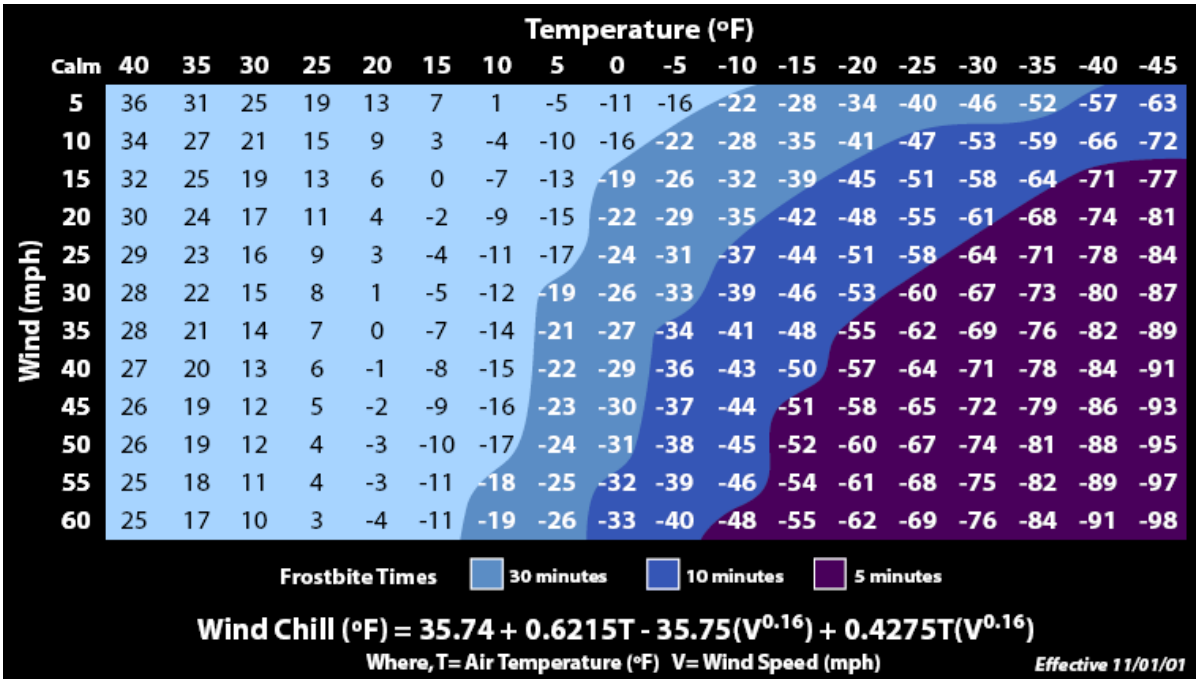
5.1.5.1 Location

Extreme cold affects the entire tribal planning area (see Exhibit 5-1).

5.1.5.2 Extent

Extreme cold varies from region to region. For the purpose of this report, extreme cold is being classified as the temperature at which frostbite occurs in 30 minutes, or less. This determination was based on the National Oceanic and Atmospheric Administration (NOAA) National Weather Service (NWS) wind chill chart in Exhibit 5-5 (NOAA NWS, 2018).

Exhibit 5-5: Wind Chill Chart



The Community has experienced temperatures as low as -34°F in 2010 and as high as 82°F in 2015 (Weather Underground, 2018). There are no known fatalities, injuries, or illnesses caused by extreme temperatures in the Community. However, residents are impacted by these events in various ways.

Most residents are aware of the dangers of extreme cold and know how to prepare for winter weather. The Community is most at risk of extreme cold during a power outage or during winter hunting expeditions. Extreme cold events makes it difficult to get vehicles to run and creates challenges for pumping oil. Extreme cold in the late spring early summer has the potential to impact plant growth and disrupt subsistence activities.

During extreme cold events, pipes freeze in private and public structures. Some of these structures are vacant. When the pipes freeze in the vacant homes it causes breaks and leaks in the main lines which impacts the water pressure to the rest of the Community.

5.1.5.3 History of Occurrences

History of extreme temperature events is based on accounts from community members. According to residents, extreme cold is occurring less often than in the past. Extreme cold events occur at least once every winter and can last up to several weeks at a time. Residents also stated that water pipes freeze and break vacant homes as well as populated homes. The populated homes in the main village have old heat tapes that residents are worried to use because they are afraid of starting a house fire, which as occurred in the past.

Data is not readily available for the Community, however, temperatures have been recorded in the nearby community of Dillingham, which is roughly 20 miles away. These communities experience similar temperatures. Therefore, Table 5-9 identifies historical extreme cold events recorded Dillingham (Weather Underground, 2018).

Table 5-9: Historical Extreme Cold Events

Year	Minimum Temperature (°F)	# of Days below -10°F
2018	-14	0
2017	-18	9
2016	-9	0
2015	-2	0
2014	0	0
2013	-15	4
2012	-31	33
2011	-29	11

Table 5-9 (Continued): Historical Extreme Cold Events

Year	Minimum Temperature (°F)	# of Days below -10°F
2010	-34	18
2009	-20	14
2008	-27	19

5.1.5.4 Probability of Future Events

It is highly likely that the Community will continue to experience the effects of extreme cold temperatures.

5.1.6 Flood

Flooding is the accumulation of water where normally none exists. There are various types of flooding, such as, coastal flooding, riverine flooding, and shallow flooding. Additionally, flooding can occur due to rapid snowmelt, ice jams, heavy rainfall, severe thunderstorms, tropical storms, and other high precipitation events. Flooding can damage buildings, personal property, and infrastructure. It can cause road or bridge closures. It can cause a disruption of services, such as, transportation, or utility services. It can also cause injuries or death.

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

5.1.6.1 Location

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

5.1.6.2 Extent

The Community experiences flooding primarily in the spring and during heavy rainfall events. Reportedly, the police station and City Maintenance building have flooded multiple times. Flooding also impacts other important assets in the Community such as the store, clinic, Manokotak Natives Limited (MNL) facilities, lift station, barge landing, and several roads and personal dwellings, and Community utilities. During long periods of heavy rainfall, these areas can flood and maintain standing water for days or weeks. The Weary River boat launch and boat storage also floods regularly.

5.1.6.3 History of Occurrences

The Community has experienced flooding in the past. There is no record of how high the river crested. Flooding occurs yearly around the MNL facilities, the police station and First Street. The garage on First Street has to be pumped and scrubbed for mold after spring break-up each year. Additionally, the new cemetery along Manokotak Heights Road has had flooding issues until a large culvert was installed.

5.1.6.4 Probability of Future Events

It is highly likely flooding will continue to happen in the Community due to the continuing effects of rain and spring thaw.

5.1.7 Landslide

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

5.1.7.1 Location

Landslides occur in the Community along the back side of the Hill, which is part of the Wood River Mountains, with the potential for landslides near the school and road (see Figures 1, 2, and 3). More gradual land movement occurs on the village side and an occasional boulder that has sloughed off is found on or near Manokotak Heights Road.

5.1.7.2 Extent

The Hills near the Community have areas with steep slopes. Reportedly, large masses of soil and rocks occasionally slough off on the back side of the Hills. Similar conditions and slopes

are present on the front side adjacent to Manokotak Heights Road is a heavily used road which connects the main village and Manokotak Heights. A landslide along this road would prohibit access to the school and airport for the main village and access to the store for residents that live in Manokotak Heights. Boulders that have sloughed off the Hill along Manokotak Heights Road present a driving hazard to residents as they commute between the main village and Manokotak Heights.

5.1.7.3 History of Occurrences

Residents reported the following:

- The gradual movement of the slopes on the village side near the water tank has caused issues with the water pump.
- There are big rocks that are ready to slide down.
- There are large rocks that have fallen almost hitting buildings and infrastructure.
- There was a landslide a couple of years ago. It was really loud and could be heard from far away. It took out the trees in its path.

5.1.7.4 Probability of Future Events

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

5.1.8 Severe Wind

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

5.1.8.1 Location

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

5.1.8.2 Extent

The Beaufort Wind Scale gives a force scale of 1 to 12 based on sustained wind speed. Exhibit 5-6 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 5-6: Beaufort Wind Scale

The Beaufort Wind Scale

Force	Name	Wind Speed knots	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 windy conditions can cause trees to blow over and damage homes, cause power outages when they land on overhead power lines, and interrupt communications. When power outages happen during cold temperatures it produces a hazard to residents.

In the winter, severe winds can cause snowdrifts that 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 of the roads in the Community are gravel. This produces large amounts of airborne dust, impacting subsistence harvests and producing a breathing risk to everyone, but especially young children and those with respiratory issues.

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

5.1.8.3 History of Occurrences

According to locals, severe windstorms occur more than once per year. Poles near the airport are starting to lean and some poles have fallen causing broken lines and power outages. Additionally, residents have reported that during bad wind storms streetlights are blown off of the poles.

Wind data is not readily available for the Community, however, wind speeds have been recorded in the nearby community of Dillingham, which is roughly 20 miles away. These communities are assumed to experience similar wind events. Therefore, Table 5-10 identifies historical severe wind events recorded in Dillingham (Weather Underground, 2018).

Table 5-10: Historical Severe Wind Events

Year	Max Wind Speed (mph)	# of Days Above 47 mph
2018	0	0
2017	38	0
2016	39	0
2015	48	1
2014	44	0
2013	38	0
2012	39	1
2011	38	0
2010	69	1
2009	59	3
2008	38	0

5.1.8.4 Probability of Future Events

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

5.1.9 Severe Winter Weather

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

5.1.9.1 Location

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

5.1.9.2 Extent

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

Traveling in severe winter conditions is dangerous for residents because of the blowing snow and reduced visibility. This is exacerbated by colder temperatures because of their effect on the snow ratio. Due to the average temperatures in Alaska being lower than the rest of the United States during winter months, a snow ratio of 1:20 was assumed. This means that for every 1 inch of precipitation, 20 inches of snow falls. 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).

Blowing snow is a hazard to residents. Many residents travel between nearby villages in the winter on all-terrain vehicles, and snowmobiles. This can be dangerous during severe winter conditions. Residents can become lost and are at risk of frost bite and hypothermia. These conditions also make it hard to see while driving around the Community.

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

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

5.1.9.3 History of Occurrences

Precipitation data is not readily available for the Community. However, precipitation has been recorded in the nearby community of Dillingham, which is roughly 20 miles away. These communities are assumed to experience similar amounts of precipitation. Table 5-11 identifies historical severe winter weather events recorded in Dillingham between the months of November and March. Precipitation data was not available between 2008 and 2012 (Weather Underground, 2018).

Table 5-11: Historical Severe Winter Weather Events

Year	Maximum One Day Precipitation (Inches)	# of Days Above 1.0 Inch
2018	0.67	0
2017	0.34	0
2016	0.92	0
2015	0.42	0
2014	0.48	0
2013	0.28	0

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

- People have gotten lost traveling home to Manokotak Heights from the main village because the road is long with limited lighting and no road markers. There are many creeks that do not freeze and cause a hazard should a resident get lost and get stuck in one of these creeks.
- When there is blowing snow, planes don't come in for days at a time.
- Freezing rain has caused accidents and fatalities due to vehicles sliding on icy roads. A 15 year old passed away in 2018 from one of these incidents.

5.1.9.4 Probability of Future Events

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

5.1.10 Subsidence

Subsidence is the settling of surface soils either gradually over time or a sudden sinking. This is often experienced in swampy areas with soft or wet soils. Many things including thawing permafrost, declining groundwater levels, compactions, mining, and drainage can cause subsidence. The collapse of surface areas can damage infrastructure and buildings.

5.1.10.1 Location

Subsidence does not impact the entire planning area. It is primarily noticed in the main village and on the tundra.

5.1.10.2 Extent

Subsidence throughout the main village is impacting the community infrastructure. Houses are settling and there is the potential of exposing different underground infrastructure in the Community. This can cause damage to the infrastructure.

Subsidence is impacting the community roads and trails, especially in swampy tundra areas. The gradual settling of earth around the Community is damaging roads and making residents more likely to get stuck in wet conditions as they travel on the tundra for hunting and other subsistence activities.

5.1.10.3 History of Occurrences

No specific reports have been reported regarding subsidence except the settling of residents' homes in the main village.

5.1.10.4 Probability of Future Events

Subsidence will continue to impact the Community as permafrost continues to thaw.

5.1.11 Tsunami

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

5.1.11.1 Location

The fish camp site could be impacted by tsunamis.

5.1.11.2 Extent

Tsunamis have not had an impact on the Community to this point. However, should a tsunami occur, it could have an extreme impact.

The fish camp for the Community is susceptible to impacts from tsunamis because it is located on Nushagak Bay. Should the Community lose the fish camp, it would have a large economic impact. A tsunami could be life threatening if one occurred because residents at fish camp may not have time to evacuate.

Additionally, a tsunami would increase erosion problems that are already occurring along the beach front of Nushagak Bay. This area provides subsistence resources as well as economic resources for community members.

5.1.11.3 History of Occurrences

No tsunamis have occurred in the Community. However, residents stated that they occasionally receive tsunami warnings for the Community and notice larger waves during those times.

5.1.11.4 Probability of Future Events

Tsunamis have a low probability to affect the Community. However, residents are concerned due to the impacts a tsunami could have, should one occur.

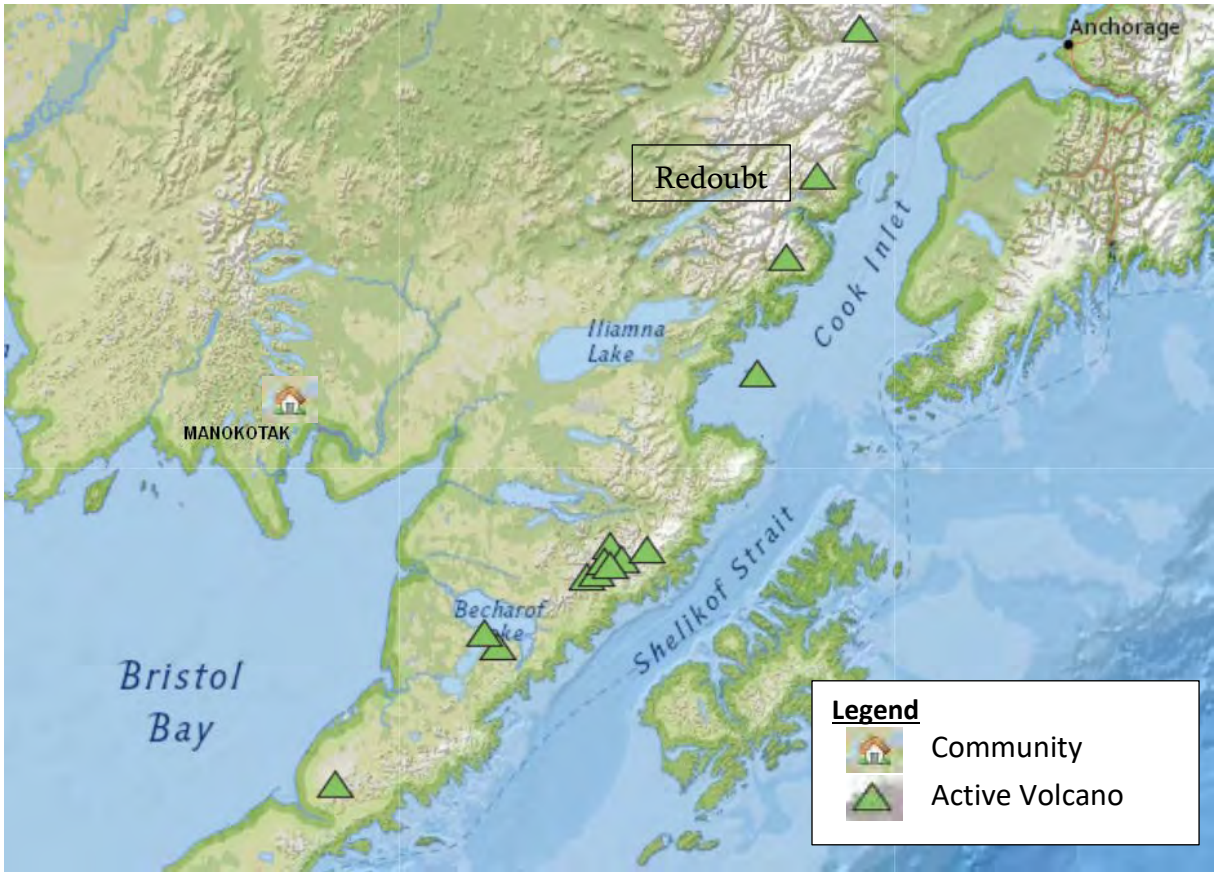
5.1.12 Volcano

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.

5.1.12.1 Location

There are no volcanos within 100 miles of the Community. Exhibit 5-7 identifies some of the volcanos that can impact the Community with ash fall. The entire planning community is at risk when ash fall enters the area (see Exhibit 5-1).

Exhibit 5-7: Volcanos Near the Community



5.1.12.2 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.

5.1.12.3 History of Occurrences

Residents in the Community recall the following impacts of volcanic ash:

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

- People were instructed to stay inside and couldn't go out and fish or do other subsistence activities and had to pull in their nets when Mount Redoubt erupted in 2009.

5.1.12.4 Probability of Future Events

Volcanos are anticipated to occasionally affect the Community. Volcanic eruptions are challenging to predict, and ash fall impacts are dependent on wind patterns.

5.1.13 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.

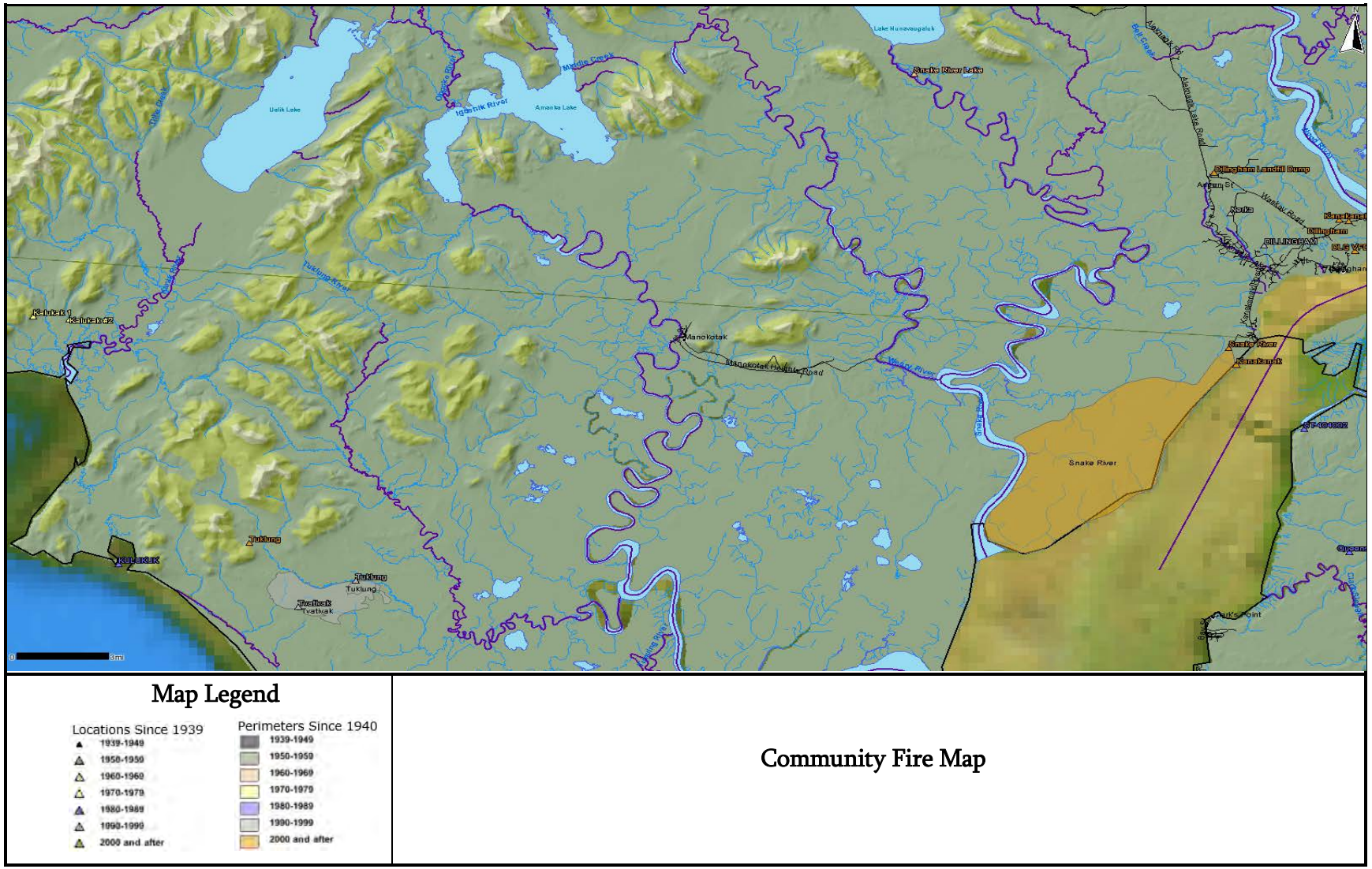
Fuel, weather, and topography contribute to the behavior of the wildfire (Idaho Firewise, 2018):

- 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.

5.1.13.1 Location

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

Exhibit 5-8: Community Fire Map



Source: (Alaska Interagency Coordination Center, 2018)

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5.1.13.2 Extent

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

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

The Community is equipped to deal with most minor fires if there is enough water pressure because there are fire hydrants throughout the Community. One source of concern is the close proximity of residential houses to each other in the main village.

5.1.13.3 History of Occurrences

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

Table 5-12: History of Wildfires

Fire Name	Year	Estimated Impact (Acres)	Distance from the Community (Miles)
Dillingham	2015	2	20.9
Snake River	2012	16,566	16.3
Dillingham Landfill Dump	2012	0.5	17.3
Tuklung	2005	0.8	17.1
DLG VFD	2005	0.1	20.8
Kanakanak	2003	1	20.6
Kanakanak	2002	0.1	16.5
Tuklung	1997	250	14.8
Nerka	1997	0.3	17.2
Tvativak	1997	2,450	16.9
DILLINGHAM	1997	20	18.0
KULUKUK	1986	6	21.4

Table 5-12 (Continued): History of Wildfires

Fire Name	Year	Estimated Impact (Acres)	Distance from the Community (Miles)
ST-404002	1984	100	18.9
Queens	1981	1	21.5
Kalukak #2	1976	25	21.5
Kalukak 1	1976	14	22.7
Snake River Lake	1960	4	12.5

Residents recall moving down to fish camp in 1997 to avoid the smoke from nearby fires. During another fire, close to Weary Road, they were concerned about its proximity to the Community and considered evacuating children and the elderly to Anchorage. Another resident recalled a time when there was a fire at the power plant and people ran up the hill because they were afraid of an explosion.

5.1.13.4 Probability of Future Events

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

5.2 COMMUNITY ASSETS

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

5.2.1 People

The most important asset to the Community is the people. The 2017 DCCED certified population was 487. Residents are not always in their homes. The following list provides the main places that people are in large numbers during the day when not in their place of residence.

- School
- Store
- City Office
- Village Council Building
- Clinic
- Post Office

5.2.2 Economy

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

- Store
- MNL Gas Pump House
- MNL Gas Tank Farm / MNL Bulk Fuel Tank
- Fish Camp
- MNL Lumber Shop

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
  - School
  - Village Council Building
  - City Office
  - MNL Blue Building
  - MNL Gas Pump House
  - Moravian Church
  - MNL Armory Building
  - MNL Lumber Shop
  - Manokotak Heights Pump House
  - Fish Camp
  - Teacher Housing
  - Clinic
  - Store
  - MVC TPO Building
  - Moravian Church Parsonage
  - Post Office
  - MNL Office
  - Weary River Boat Storage
  - City Manokotak Pump House
  - Old Cemetery 1 and 2
- Infrastructure
  - New and Old Airports
  - New Sewage Lagoon
  - City KMO Lift Station (2)
  - City Water Tower
  - GCI Tower (Downtown)
  - New and Old Landfills
  - MNL Power Plant
  - Underground Water and Sewer
  - Main Village Sewage Lagoon
  - Overhead Power/Telephone

- Weary River Boat Launch
- Igushik River Boat Landing
- Nushagak Telephone Earth Station
- MNL Gas Tank Farm/MNL Bulk Fuel Tank
- Roads/Trails
- Airport GCI Towers (2)
- Tribally Owned Equipment

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.

- Gravel Pits (3)
- Weary River
- Subsistence areas (hunting and berry picking areas)
- Igushik River
- Drinking Water Aquifer

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.

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											
						Avalanche	Drought	Earthquake	Erosion	Extreme Cold	Flood	Landslide	Severe Wind	Severe Winter Weather	Subsidence	Volcano	Wildfire
Government	5	Village Council Building	25	58°58'43.94"N, 159° 3'20.39"W	$800K	X				X		X	X	X			X
	7	City Office	15	58°58'46.26"N, 159° 3'18.18"W	$100K	X		X		X		X	X	X			X
	20	Post Office	2	58°58'58.29"N, 159° 3'11.42"W	$200K								X	X			X
Transportation	1	New Airport	N/A	58°56'8.25"N, 158°53'52.91"W	$7M								X	X			X
	2	Old Airport	N/A	58°59'22.09"N, 159° 3'1.32"W	Unknown								X				
	14	MNL Gas Pump House	4	58°58'52.03"N, 159° 3'26.30"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											
						Avalanche	Drought	Earthquake	Erosion	Extreme Cold	Flood	Landslide	Severe Wind	Severe Winter Weather	Subsidence	Volcano	Wildfire
Transportation (Continued)	16	MNL Gas Tank Farm / MNL Bulk Fuel Tank	5	58°58'52.64"N, 159° 3'28.46"W	Unknown					X	X		X	X			X
	31	Weary River Boat Launch	N/A	58°58'30.06"N, 158°52'49.27"W	Unknown				X	X				X			
	32	Weary River Boat Storage	N/A	58°58'27.83"N, 158°53'10.37"W	--			X	X	X			X				
	37	Tribal Equipment	N/A	58°58'44.9292"N, 159°3'20.7756"W	Unknown					X							X
	38	Roads	N/A	31.0 miles	$62M	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											
						Avalanche	Drought	Earthquake	Erosion	Extreme Cold	Flood	Landslide	Severe Wind	Severe Winter Weather	Subsidence	Volcano	Wildfire
Transportation (Continued)	39	Trails	N/A	Community Wide	--	X			X		X	X		X	X		
	41	Igushik River Boat Landing	N/A	58°58'50.76"N, 159° 3'34.45"W	--				X		X		X	X			
	45	Elderly Bus	2	Community Wide	Unknown					X				X			X
Educational	3	School	200	58°57'57.11"N, 158°57'18.32"W	$25M	X		X		X		X	X	X			X
	4	Teacher Housing (2)	15	58°57'58.00"N, 158°57'15.83"W 58°57'55.18"N, 158°57'21.09"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											
						Avalanche	Drought	Earthquake	Erosion	Extreme Cold	Flood	Landslide	Severe Wind	Severe Winter Weather	Subsidence	Volcano	Wildfire
Medical	6	Clinic	10	58°58'49.83"N, 159° 3'21.47"W	$3M	X		X		X		X	X	X			X
Community	8	Store	15	58°58'49.04"N, 159° 3'24.92"W	Unknown			X		X			X	X			X
	12	MNL Blue Building	2	58°58'54.55"N, 159° 3'24.53"W	Unknown						X						
	13	MVC TPO Building	5	58°58'51.37"N, 159° 3'27.74"W	Unknown						X		X				
	18	Moravian Church Parsonage	3	58°58'58.71"N, 159° 3'16.10"W	Unknown			X		X			X	X			
	19	Moravian Church	25	58°58'58.48"N, 159° 3'17.85"W	Unknown			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											
						Avalanche	Drought	Earthquake	Erosion	Extreme Cold	Flood	Landslide	Severe Wind	Severe Winter Weather	Subsidence	Volcano	Wildfire
Community (Continued)	21	MNL Armory Building	N/A	58°59'4.89"N, 159° 3'9.52"W	Unknown					X			X				
	23	Old Cemetery 1	N/A	58°58'42.83"N, 159° 3'21.51"W	--						X						X
	24	Old Cemetery 2	N/A	58°58'46.90"N, 159° 3'27.04"W	--						X						X
	25	New Cemetery	N/A	58°58'22.16"N, 159° 1'33.32"W	--	X					X	X					X
	28	MNL Office	15	58°58'48.99"N, 159° 3'27.44"W	Unknown			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											
						Avalanche	Drought	Earthquake	Erosion	Extreme Cold	Flood	Landslide	Severe Wind	Severe Winter Weather	Subsidence	Volcano	Wildfire
Community (Continued)	29	MNL Lumber Shop	3	58°58'49.24"N, 159° 3'28.88"W	Unknown			X		X	X		X	X	X		
	46	Fish Camp	150	58° 41' 26.228'' N, 158° 51' 41.231'' W	--			X	X		X		X			X	
Utilities	9	New Landfill	2	58°58'25.28"N, 159° 1'1.77"W	$1M						X		X	X			
	11	New Sewage Lagoon	2	58°57'43.48"N, 158°56'43.04"W	Unknown					X				X			
	15	MNL Power Plant	5	58°58'54.47"N, 159° 3'24.47"W	Unknown					X	X		X	X			X
	17	City KMO Lift Station (2)	3	58°58'51.08"N, 159° 3'25.95"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											
						Avalanche	Drought	Earthquake	Erosion	Extreme Cold	Flood	Landslide	Severe Wind	Severe Winter Weather	Subsidence	Volcano	Wildfire
Utilities (Continued)	27	Utility Lines	N/A	Community Wide	--			X		X							
	22	City Water Tower	3	58°58'45.56"N, 159° 3'7.51"W	Unknown	X	X	X		X		X	X	X			
	26	Main Village Sewage Lagoon	5	58°58'39.69"N, 159° 3'18.41"W	Unknown					X				X			
	10	Old Landfill	N/A	58°58'31.19"N, 159° 3'5.36"W	--										X		
	30	GCI Tower (Main Village)	N/A	58°58'43.61"N, 159° 3'17.20"W	Unknown	X		X				X	X				
	27	Underground Water	N/A	Community Wide	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											
						Avalanche	Drought	Earthquake	Erosion	Extreme Cold	Flood	Landslide	Severe Wind	Severe Winter Weather	Subsidence	Volcano	Wildfire
Utilities (Continued)	27	Overhead Power / Telephone	N/A	Community Wide	Unknown			X					X		X		
	36	Manokotak Heights Pump House	3	58°57'52.20"N, 158°56'17.09"W	Unknown			X		X			X	X			X
	42	City Manokotak Pump House	3	58°58'46.93"N, 159° 3'19.55"W	Unknown			X	X	X			X	X			X
	43	Nushagak Telephone Earth Station	N/A	58°58'43.52"N, 159° 3'18.26"W	Unknown	X		X				X	X				
	44	Airport GCI Towers (2)	N/A	58°57'21.27"N, 158°55'22.87"W	Unknown			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											
						Avalanche	Drought	Earthquake	Erosion	Extreme Cold	Flood	Landslide	Severe Wind	Severe Winter Weather	Subsidence	Volcano	Wildfire
Natural Environment	33	Gravel Pit 1 (Near Old Airport)	N/A	58°59'9.30"N, 159° 3'1.41"W	--			X				X			X		
	34	Gravel Pit 2 (Near Landfill)	N/A	58°58'30.37"N, 159° 0'40.14"W	--			X				X			X		
	35	Gravel Pit 3 (Near New Airport)	N/A	58°57'5.20"N, 158°54'47.26"W	--			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).

- Avalanche – The school is at risk from avalanches because they are located at the base of a hill with steep slopes that can accumulate several feet of snow in the winter. Avalanches have occurred on the back of the hill in the past, which has a similar slope as that near the school.
- Drought – Subsistence activities are limited for community members during drought conditions that happen in the Community because of periods of low rainfall. This can cause low berry production and other impacts to wildlife. Additionally, periods of little rain increases the dust emissions on gravel roads, which is a health concern for children, elders, and people with respiratory conditions.
- Earthquakes – Residents, especially elders, are at risk of falling down and being injured due to earthquakes. The Community lacks an emergency plan and does not have an established shelter. Earthquakes can cause detrimental damage to homes or other structures and infrastructure.
- Erosion – The main village is located at the base of the hill that experiences heavy snow melt and rain water runoff in the spring which causes erosion and flooding of buildings and roads. The Weary River boat launch ramp is damaged and dangerous due to erosion. The City installed a "Launch at Your Own Risk" sign at the boat launch. Additionally, the Igushik boat storage yard is reducing in size due to erosion.
- Extreme Cold – Due to extreme cold conditions, water pipes freeze and break in vacant homes as well as homes of residents with old heat tape. When the pipes break in one home, it affects other homes connected to the water system. The water system is aging and has water leaks in the main lines.
- Flood – Significant flooding occurs in the TPO building during spring thaw. Spring thaw flooding also impacts homes and other facilities in the main village. Large drainage channels from the hill traverse through the subdivision, causing basements to flood and weeks of standing water on roads and in yards. The new cemetery is located at the base of a hill and has experienced flooding from spring thaw runoff and other major storm events. The road near the cemetery has experienced flooding and has been shut down until the flooding was resolved. This road connects the school and Manokotak Heights to the main village and critical facilities like the store, clinic, and post office. Additionally, the community boat

launch ramp and access road are located within the floodplain of the Weary River and its tributaries, which are often flooded during periods of heavy rainfall.

- Landslides – Landslides have occurred on the hill near the main village and have nearly impacted structures and utilities. Large rocks have fallen from the hill and are now a driving hazard on the side of the road. The land is gradually shifting in a downward motion and causing issues with the water pump. This shift is a concern because if it gave way it could close roads and cause other damage. The school and teacher accommodation are also at the base of a hill that is seeing similar shifts in rocks and hill features.
- Severe Wind – Power lines at the airport are starting to lean and some poles have broken and blown over due to severe wind events, causing power outages. These severe wind events also impact airplane service to the Community. This can hinder the community members from getting supplies and mail.
- Severe Winter Weather – The road between the main village and Manokotak Heights is very long with limited lighting and no road markers. Residents can easily get lost during a blizzard. Icy road conditions have caused accidents and fatalities due to vehicles sliding on Manokotak Heights Road. Severe winter weather events can also cause a lack of mail service, which could affect residents if their medications are not delivered.
- Subsidence - The main village is situated on flood prone areas and tundra. As a result homes and other structures are settling and starting to tilt, causing structural damage due to subsidence.
- Volcano – During times of volcanic ash there has been a lack of air traffic in and out of the community. This impacts delivery of mail and essential supplies. Volcanic ash is also a health hazard, particularly for elders, children, and people with respiratory conditions.
- Wildfire – Smoke from nearby wildfires cause a health risk to elders, babies, and those with respiratory issues. Homes in the main village are close together which increases the risk of fires from spreading quickly through the Community. Due to leaks in old, underground water lines and issues with the water pump, the fire hydrants may not have adequate water pressure to fight fires within the Community.

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	Yes	2015, developed by the City, Council, and Manokotak Natives Ltd. (Corporation)
Land Use Plan	No	--
Wildland Fire Protection Plan	No	--
Emergency Response Plan	No	--
Long Range Transportation Plan	Yes	Submitted 2016, Reviewed 2019, Update in 2021; developed by the Council
Tribal Transportation Safety Plan	No	--
Other Special Plans (e.g., climate change adaptation, coastal zone management)	No	--

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

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	No	--
Librarian	Yes	School
Village Public Safety Officer	No	--
Tribal Police Officer (TPO)	Yes	Tribe
Health Aide	Yes	BBAHC
Planner or engineer with knowledge of land development and land management practices	No	The Tribe hires consultants with this knowledge
Engineer or professional trained in construction practices related to buildings and / or infrastructure	No	The Tribe hires consultants with this knowledge
Planner or engineer with an understanding of natural and / or human-caused hazards	No	The Tribe hires consultants with this knowledge
Surveyors	No	The Tribe hires consultants with this knowledge
Floodplain Manager	No	--
Staff with education or expertise to assess the jurisdiction's vulnerability to hazards	No	The Tribe hires consultants with this knowledge

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

Staff / Personnel Resources	(Yes / No)	Department / Agency and Position
Personnel skilled in Geospatial Information System and / or HAZUS	No	The Tribe hires consultants with this knowledge
Finance (Grant Writers)	Yes	Tribe, City, 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 provides opportunities to raise public awareness and reduce future losses before disasters occur. PDM provides funds on an annual basis for hazard mitigation planning and projects. This funding is dependent on the amount congress appropriates each year (FEMA, 2018).

Hazard Mitigation Grant Program (HMGP)

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

Flood Mitigation Assistance (FMA) Program

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

6.2.2.2 Tribal Funds

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

6.2.2.3 Private Funds

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

6.3 MITIGATION GOALS

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

Table 6-3: Mitigation Goals

Goal Number	Goal Description
1	Build the capacity of the Tribe to prepare, respond to, and recover from disasters.
2	Promote recognition and mitigation of all natural hazards that affect the Community.
3	Promote cross-referencing of mitigation goals and actions with other Tribal planning mechanisms and projects.
4	Reduce the possibility of damages due to **avalanches**.
5	Reduce the possibility of damages due to **drought**.
6	Reduce the possibility of damages due to **earthquakes**.
7	Reduce the possibility of damages due to **erosion**
8	Reduce the possibility of damages due to **extreme cold** events.
9	Reduce the possibility of damages due to **floods**.
10	Reduce the possibility of damages due to **landslides**.
11	Reduce the possibility of damages due to **severe wind**.
12	Reduce the possibility of damages due to **severe winter weather**.
13	Reduce the possibility of damages due to **subsidence**.
14	Reduce the possibility of damages due to **tsunamis**.
15	Reduce the possibility of damages due to **volcanos**.
16	Reduce the possibility of damages due to **wildfires**.

6.4 POTENTIAL MITIGATION ACTIONS

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

of potential mitigation actions. The full list (Potential Mitigation Actions) is located in Appendix A.

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

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

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

6.5 MITIGATION ACTION PLAN

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

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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	Complete the Community Emergency Plan, and educate the residents on the plan.	High	BBNA	MVC	State SCERP/MVC	1-2 Years
1.B	Provide education to residents about how to build emergency boxes for families.	Medium	MVC	MVC	IGAP/MVC	2-3 Years
2.B	Ensure the school is conducting fire and earthquake drills.	Medium	BBNA/MVC	School	School	2-3 Years/ Quarterly
3.E	Conduct a yearly review of the plans and document progress towards their actions and goals.	Medium	BBNA/MVC	MVC	N/A	1-2 Years/ Yearly
4.B	Install Avalanche caution signs in appropriate areas.	Medium	MVC	IGAP/EPA	FEMA	2-3 Years
5.A	Continue dust control efforts.	High	MVC	Transportation	TTP Shares	Yearly
6.B	Develop educational earthquake handouts and distribute to the Community.	Medium	BBNA/MVC	IGAP/EPA	IGAP	2-3 Years
7.A	Identify a new location for the boat launch in the main village and design and construct the facility.	High	MVC	Transportation	Better Utilizing Investments to Leverage Development (BUILD) Grant	5 years
7.B	Construct the 2nd & 3rd Street Project.	High	MVC	Transportation	BUILD Grant	5 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
8.A	Install new heat tape in homes, specifically older homes in the main village and those of elders.	High	BBNA/MVC	Housing	BBAHC/HUD	1-2 Years
9.A	Upgrade drainage features in the Community.	High	MVC	Transporation	BUILD Grant	3-5 Years
10.B	Install Landslide caution signs in appropriate areas.	Medium	MVC	IGAP/EPA	FEMA/Safety	3-4 Years
11.C	Acquire a back up generator for the clinic.	Medium	BBNA/MVC	MVC	BBAHC	2-3 Years
12.C	Install street lights between the Main Village and Manokotak Heights.	High	MVC	Transportation	Safety	3-5 Years
13.A	Make sure correct geotechnical analysis is done and that proper gravel pads are in place on future development projects.	Medium	MVC	Housing/Transportation	TTP/FEMA/HUD	4-5 Years
14.B	Educate families on the importance of having a working communication device at fish camp.	High	BBNA/MVC	MVC	IGAP/MVC	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
15.C	Educate community members about the health risks of ash fall in the IGAP newsletter.	Medium	MVC	IGAP/EPA	IGAP	1-2 Years/ Quarterly
16.D	Conduct brush cutting around the Community.	Medium	MVC	MVC/Transportaion	TTP	1-2 Years/ Bi-Annually
16.G	Educate homeowners about the importance of having a fire extinguisher in homes and encourage them to have one.	High	MVC	IGAP/EPA	IGAP	1-2 Years/ Quarterly

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

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6.6 IMPLEMENTING ACTION PLAN INTO OTHER PLANNING MECHANISMS

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

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

6.7 REVIEWING PROGRESS GOALS

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

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

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

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

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7.0 PLAN ASSURANCES AND ADOPTION

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

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

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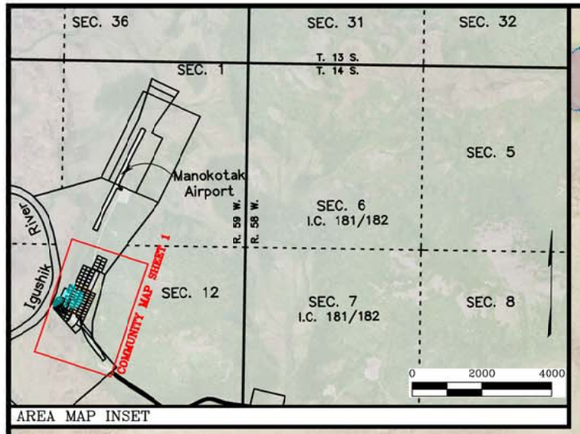
FIGURES



AREA MAP INSET

ASSET KEY:

5. VILLAGE COUNCIL OFFICE
6. CLINIC
7. CITY OFFICE
8. STORE
10. OLD LANDFILL
12. MNL BLUE BUILDING
13. MVC TPO BUILDING
14. MNL GAS PUMP HOUSE
15. MNL POWER PLANT
16. MNL GAS TANK FARM/ BULK FUEL TANK
17. CITY KMO LIFT STATION
18. MORAVIAN CHURCH PARSONAGE
19. MORAVIAN CHURCH
20. POST OFFICE
21. MNL ARMORY BUILDING
22. CITY WATER TOWER
23. OLD CEMETERY 1
24. OLD CEMETERY 2
26. MAIN VILLAGE SEWAGE LAGOON
27. UTILITIES LINES *
28. MNL OFFICE
29. MNL LUMBER SHOP
30. GCI TOWER
37. TRIBALLY OWNED EQUIPMENTS *
38. ROADS *
39. TRAILS *
41. IGUSHIK RIVER BOAT LAUNCH
42. CITY MANOKOTAK PUMP HOUSE
43. NUSHAGAK TELEPHONE EARTH STATION
45. ELDERLY TRANSIT BUS *
46. FISH CAMP *

* NOT SHOWN FOR CLARITY

MAP NOTES

This map was prepared by the Bristol Bay Native Association (BBNA) in cooperation with the Alaska Department of Community and Economic Development (DCED) using funding from the Bristol Bay Housing Authority, U.S. Bureau of Indian Affairs, Alaska Coastal Management Program, and funding from the Initiative for Accelerated Infrastructure Development (IAID). The IAID is supported by grants from the Alaska Native Tribal Health Consortium, Denali Commission, USDA Rural Development, Alaska Department of Transportation and Public Facilities and DCED. The Bristol Bay Native Association contracted with Bristol Environmental & Engineering Services in June of 2003 to prepare the map. McClintock Land Associates Inc. was subcontracted by Bristol Environmental and Engineering Corporation to perform aerial photography and control surveying.

This map is based upon a digital orthophoto prepared to National Map Accuracy Standards from July 13, 2003 photography (nominal scale 1" = 800'). An orthophoto is as aerial photo which has been corrected, by rectification to ground control stations, to remove aircraft distortions and warpage. The distortions are generally caused by topography and the aircrafts tilt and trim.

Property and utility information has been generated from readily available sources with limited accuracy checks. Property information is not intended to represent a comprehensive title search of Recorders Office records. Utility locations are a approximate and show only the main lines. Generally, the information is current as of July, 2003.

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

COORDINATE SYSTEMS

Horizontal Datum–NAD 83 Alaska State Plane Zone 6 (USS FEET)
based on TRI STATION "Dillingham Ax Mk"
Vertical Datum–NAVD 88, based on CORS 1e to "Kenai" & "Cold Bay" & "Kodiak"

Magnetic Declination computed by U.S.G.S. Geomag program using IGRF2000 model as of January, 2004.

TOPOGRAPHIC & PLANIMETRIC DATA

All topographic and planimetric data was collected utilizing stereo photography correlated with the photography used for the orthophoto production. Topographic data was prepared to National Map Accuracy Standards for a 2 foot contour interval. Topographic data located in densely vegetated areas should be considered less accurate and may not meet those standards aforereferenced.

Community Map
MANOKOTAK

58° 59' 23" N 159° 02' 57" W (NAD 83)
Approximate Elevation: 34'
Township 14 South, Range 59 West, S.M., AK
U.S.G.S. Quadrangle "NUSHAGAK BAY D–4" Alaska
BRISTOL BAY RECORDING DISTRICT

LEGEND

EROSION
FLOODING

0 100 200 300
SCALE IN FEET

FIGURE 1 of 3

MANOKOTAK COMMUNITY MAP SHEET 1 1"=100' (2003 PHOTOGRAPHY)

Community Map
MANOKOTAK

58° 59' 23" N 159° 02' 57" W (NAD 83)
Approximate Elevation: 34'
Township 14 South, Range 59 West, S.M., AK
U.S.G.S. Quadrangle "NUSHAGAK BAY D-4" Alaska
BRISTOL BAY RECORDING DISTRICT

LEGEND

EROSION
FLOODING

0 200 400 600
SCALE IN FEET

FIGURE
2 of 3

MAP NOTES

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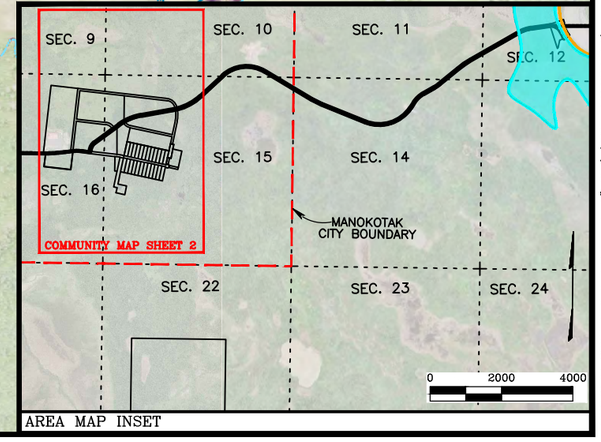
ASSET KEY:

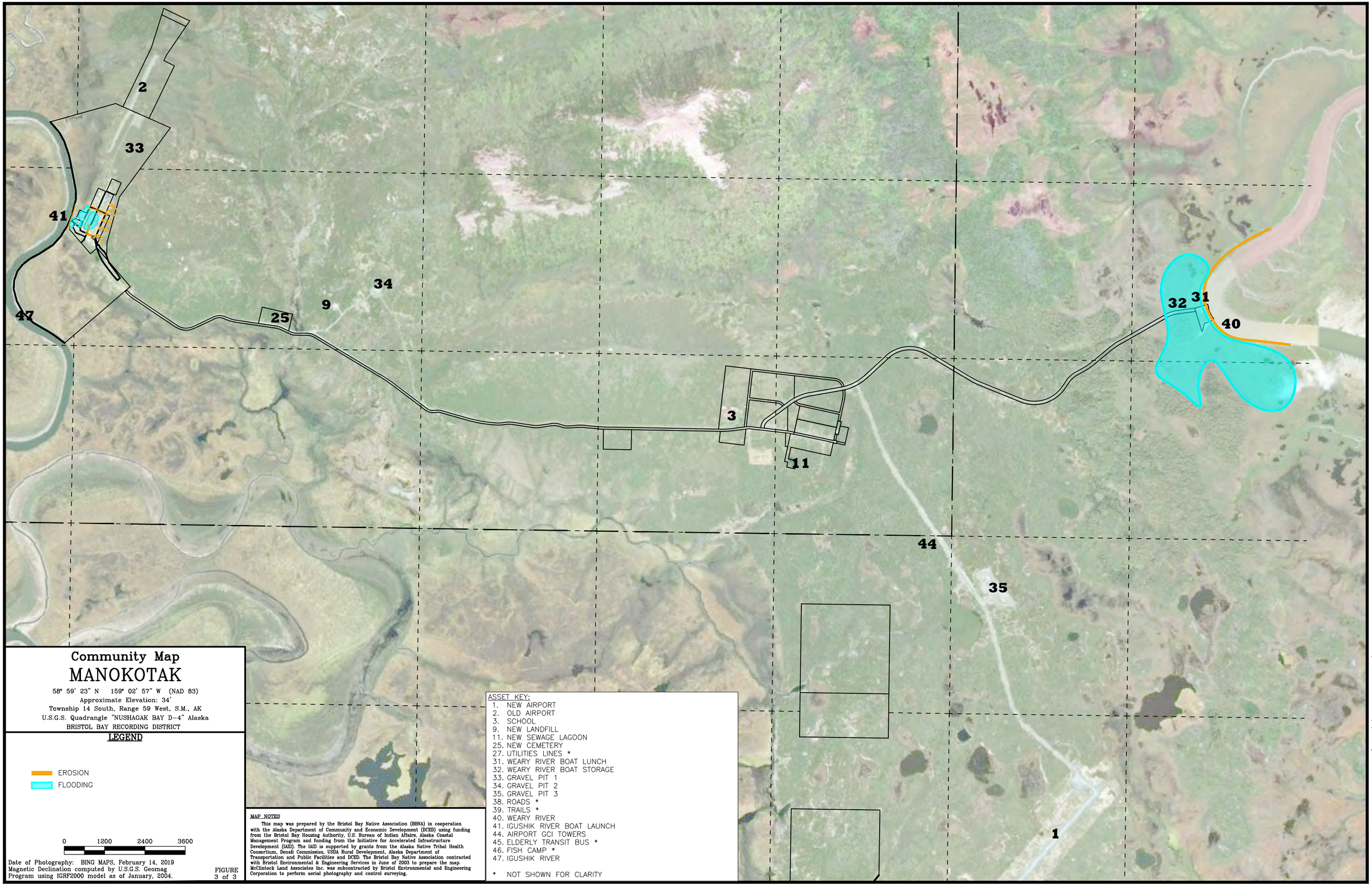
3. SCHOOL
4. TEACHER HOUSING
5. VILLAGE COUNCIL OFFICE
11. NEW SEWAGE LAGOON
27. UTILITIES LINES *
36. MANOKOTAK HEIGHTS PUMP HOUSE
38. ROADS *
39. TRAILS *
45. ELDERLY TRANSIT BUS *
46. FISH CAMP *

* NOT SHOWN FOR CLARITY

AREA MAP INSET



MANOKOTAK COMMUNITY MAP SHEET 2 1"=200' (2003 PHOTOGRAPHY)



Community Map
MANOKOTAK

58° 59' 23" N 159° 02' 57" W (NAD 83)
Approximate Elevation: 34'
Township 14 South, Range 59 West, S.M., AK
U.S.G.S. Quadrangle "NUSHAGAK BAY D-4" Alaska
BRISTOL BAY RECORDING DISTRICT

LEGEND

EROSION
FLOODING

0 1200 2400 3600

Date of Photography: BING MAPS, February 14, 2019
Magnetic Declination computed by U.S.G.S. Geomag Program using IGRF2000 model as of January, 2004.

FIGURE 3 of 3

ASSET KEY:
1. NEW AIRPORT
2. OLD AIRPORT
3. SCHOOL
9. NEW LANDFILL
11. NEW SEWAGE LAGOON
25. NEW CEMETERY
27. UTILITIES LINES *
31. WEARY RIVER BOAT LUNCH
32. WEARY RIVER BOAT STORAGE
33. GRAVEL PIT 1
34. GRAVEL PIT 2
35. GRAVEL PIT 3
38. ROADS *
39. TRAILS *
40. WEARY RIVER
41. IGUSHIK RIVER BOAT LAUNCH
44. AIRPORT GCI TOWERS
45. ELDERLY TRANSIT BUS *
46. FISH CAMP *
47. IGUSHIK RIVER

* NOT SHOWN FOR CLARITY

MAP NOTES

This map was prepared by the Bristol Bay Native Association (BBNA) in cooperation with the Alaska Department of Community and Economic Development (DCED) using funding from the Bristol Bay Housing Authority, U.S. Bureau of Indian Affairs, Alaska Coastal Management Program and funding from the Initiative for Accelerated Infrastructure Development (IAID). The IAID is supported by grants from the Alaska Native Tribal Health Consortium, Denali Commission, USDA Rural Development, Alaska Department of Transportation and Public Facilities and DCED. The Bristol Bay Native Association contracted with Bristol Environmental & Engineering Services in June of 2003 to prepare the map. McClintock Land Associates Inc. was subcontracted by Bristol Environmental and Engineering Corporation to perform aerial photography and control surveying.

MANOKOTAK AREA USE MAP SHEET 3 1"=1200' (2003 PHOTOGRAPHY)

APPENDIX A

Planning Process

- Meeting Minutes (November 7, 2018)
- Planning Team Sign In Sheet
- Meeting Agenda
- Hazard Identification Worksheet
- Risk Analysis Worksheet
- Map Markups
- Mitigation Action Types & Examples
- Potential Mitigation Actions
- Mitigation Action Evaluation Worksheet

Bristol
ENGINEERING SERVICES COMPANY, LLC

111 W. 16th Avenue, Third Floor
Anchorage, AK 99501-5169
phone (907) 563-0013
fax (907) 563-6713
www.bristol-companies.com

TRIP REPORT & MEETING MINUTES

Project: **BBNA THMP & TTSP Project**
Bristol Project No: 32190013
Reference: Manokotak Planning Team Meetings & Public Meetings
Date of Meeting: November 7, 2018
Location of Meeting: Manokotak Village Council Office & School
Participants:
Bristol: Danielle Dance, Jackie Wander
Planning Team: See attached sign in sheet
Public Meeting: See attached sign in sheet

Summary

Jackie and Danielle arrived in Manokotak around 12:30 PM on Tuesday, November 6, 2018 and stayed overnight in the school housing. They met with the Village Council Planning Team the next morning from 11:00 AM to 3:00 PM to discuss the Tribal Hazard Mitigation Plan (THMP) and collect background data. They determined which hazards to profile, discussed local history of natural disasters, identified community assets, reviewed vulnerability statements and mitigation goals, and brainstormed mitigation strategies for each profiled hazard.

While in Manokotak, Jackie gave an update on the Second and Third Street Road Rehabilitation project and right-of-way process. The Village would like Bristol to talk one-on-one with property owners about the decision to either use revocable use permits or permanent right-of-way takes for the native restricted lots.

Then from 4:00 PM to 5:00 PM, they held a public meeting in the school to discuss the project and collect public comment. Jackie and Danielle departed Manokotak around 5:30 PM on Wednesday.

THMP Planning Team Meeting Notes

Worksheet #1 – Hazard Identification

- See attached Worksheet #1 for list of hazards & color coding table
- Avalanche
    - Never has happened on the village side, but has happened on the back of the mountain, which has about the same slope as on the school side
    - Concerned about the school
    - People go ptarmigan hunting on the other side of the hill where the avalanches have occurred
    - PROFILE
- Drought
    - Every five years, land will be very dry, no berries, ponds will dry out

  - A couple of years ago, hardly had any rain, almost 1-2 months without rain or with only very light rain where the land would soak up the moisture instantly
  - PROFILE
- Earthquake
  - 1964 earthquake was felt here, plates and cups were rattling in homes, could not walk, a big concern especially for elders
  - Need to be prepared to have church or school ready as shelter for elders & people
  - Have not felt earthquakes, only minor tremors between magnitude 3.0-4.5, only see water moving, no projectile objects
  - Feel slight tremors every 2-3 years, felt the 8.0 that happened in Port Heiden
  - PROFILE
- Erosion
  - A lot of erosion at the rivers both at Weary and Igushik at both of the boat launch areas, the Igushik boat storage area is getting smaller. The Weary River boat launch is damaged, muddy and hazardous.
  - Don't have a compactor to crown roads better for drainage, working on getting a compactor for road maintenance
  - Structural damage, roads get soft and flooded, yards have large eroded drainage channels from the spring breakup/snowmelt/rainwater runoff from the mountain, the road project will address these issues
  - See maps for erosion areas
  - PROFILE
- Extreme Cold
  - Heat tape issues, pipes breaking issues, vehicles won't start
  - Vacant homes will freeze up, which affects other homes on the water system, there are water leaks causing issues in the subsurface
  - Happens every single year
  - PROFILE
- Extreme Heat
  - Once in a while get into the 80s, but never the 90s
  - Winters start later in the year, should already have snow by November but don't have it yet
  - Sometimes the heat prevents people from wanting to cook inside the house because it makes the house uncomfortably hot, but never had heat stroke
  - DO NOT PROFILE
- Flooding
  - Flooding goes to MNL silver building, police station, and flooding will always have flooding in the garage on First Street, they had to scrub down the mold, and also have to pump out the water every spring
  - Happens worst at police station (TPO) and blue building (city maintenance)
  - Happens significantly in the spring time
  - Homes get flooded
  - Used to have flooding at the new cemetery, but installed a large culvert to mitigate, had to shut down the road because it was pure water, took most of the day to resolve the flooding on the road

    - The boat launch area and road on Weary River floods in low lying areas / flood plain of Weary River and creek that flows through that area
    - Takes up to 2 weeks for flooding to subside, depending on spring thaw and extent of rainfall
    - PROFILE
- Landslide
    - Landslides occur on the main village side, rocks and land is visibly sliding throughout the years
    - The land shifting at the water tank has caused issues with the water pump
    - There are big rocks that are ready to slide down, are concerned about the road – will have to rebuild the road, would like to see an alternate road (such as along the trail between the two mountains) in case this happens
    - Has almost hit buildings and utilities
    - PROFILE
- Severe Wind
    - Poles near the airport are starting to lean, busted lines, poles falling/blown over, caused power outages
    - Plane service halted
    - Igushik fish camp has a lot of homes on the Igushik, they are being impacted by erosion and flooding, some homes are right on the edge of the bank, planes and choppers land there on the beach – there used to beach a strip for the planes to land but it eroded away, sometimes Fish and Game land with float planes on the river, people move there for 2 months in the summer, sometimes the wind blocks
    - PROFILE
- Severe Winter Weather
    - People get lost going to home to Manokotak Heights, Last winter they had to do search and rescue to find people. There are creeks that don't freeze and people get lost.
    - Freezing rain has caused accidents and fatalities due to vehicles sliding on icy roads, 15 year old son passed away last year
    - There are large boulders that rolled down from the mountain and are a hazard on the road near Manokotak Heights
    - Sometimes mail and medications cannot be brought in due to weather for up to a week and a half
    - Happens every year
    - PROFILE
- Subsidence
    - Have seen deep sink holes on the roads and in the tundra
    - All the houses are settling
    - Large sinkhole, two operators fell in and had to use a ladder to pull out, in 1970s they put beams and plywood and covered with dirt but they put beams have rotted and it still a hazard, need fencing around to protect kids
    - These sink holes are manmade from when people used to store food in the ground
    - PROFILE
- Tsunami
    - Does not occur in Manokotak

    - The fish camp has had large waves, when there was a tsunami warning
    - Some people had to move up the houses and boats up higher due to waves and erosion
    - Happens during extreme winds, 2-3 times per year, boats get swamped
    - PROFILE
- Volcano
    - There was a little bit of ash when Redoubt erupted (mid 2000s? and in 1992)
    - Has happened about 2 or 3 times, maybe every 12 years
    - It was in the news for small villages to look out for ashes, and stay inside
    - Caused black ash on the snow
    - Planes did not come in for 2-3 days, people couldn't go out to fish/subsist, had to pull in their nets
    - Lower concern
    - PROFILE
- Wildfire
    - Had smoke in 1997, people had to move down fish camp to escape the smoke
    - Was a fire close to Weary Road, were concerned about elders and babies to evacuate to Anchorage, fire coming from Dillingham
    - Houses are too close together in the main village
    - When there was a fire at the power plant, people were running up the hill, they were afraid of an explosion
    - There are fire hydrants, can deal with a fire if there is good water pressure
    - PROFILE

Worksheet #3 – Risk Analysis

- Bristol will use information collected to complete the risk assessment, which will be sent to the Council for review.
- See attached Worksheet #3 for full list of community assets
- There is no Fire Hall anymore, it is now the TPO building
- In the process of transferring the old National Guard Armory building to MNL
- Dump truck is on its way, also have boats, snow machines, ATVs, etc., MVC to send the full list of village equipment to Danielle
- Store has workers that are on and off for 2 weeks, truck drivers, etc.
- City office occupants includes the water workers and most City personnel but there are 3 people that work in the building
- People still work on the old sewage lagoon because it serves the main village
- There are 2 road operators always working on the roads

Worksheets #4-#5 – Vulnerability Statements & Mitigation Goals

- Bristol will use the information collected at this meeting to develop vulnerability statements, which will be sent to the Council for review
- The community was in the process of developing an emergency plan, but it was never finished, would like to make a goal to finish & distribute the plan
- They have had lock downs at the school due to active shooters
- Fishermen are wanting to get a new cannery, work with them on disaster resistance

Worksheet #6

- Need a siren system, and use VHF, in case communication/power goes down for avalanches and other hazards
- Have a pumphouse that has backup capability for water in case water goes down
- Have to go to "17A" past Togiak to harvest berries if there is a very dry summer and no berries around Manokotak
- The school does a safety/survival class (teach about hypothermia, how to build fires without matches, etc.) and fire drills, but does not have earthquake drills
- Would FEMA be able to pay for educational documents (such as pamphlets telling people how to secure bookcases and protect their homes against earthquakes, etc.)
- Could use IGAP newsletters to educate the public about hazards
- IGAP provides smoke detectors & carbon monoxide monitors, flashlights, etc.
- The Second and Third Street rehabilitation project includes larger culverts, drainage ditches, and rock lined drainage channels to reduce flooding and erosion in Main Village
- Heat tape is getting really old in residential homes, some homes burnt down because of that, so people are afraid to plug in their heat tapes in the winter, need to be replaced
- Some homes do not have wood stoves, so if the power goes out, they do not have a way to heat their homes, people could get electric heaters
- Have been wanting to build a safety cabin/house between Manokotak and Togiak because there have been deaths
- Existing trail tripods are falling down, sinking, and the beavers take the wooden posts, need metal markers and a maintenance crew to repair if needed
- In the process of getting a backup generator for the clinic in case of power outages
- Since planes cannot access fish camp as easily anymore, they need an airstrip or a road to fish camp (road would be too expensive, the land is not owned by MNL, and the land is majority wetlands), there is a place on the other side of the river for an airstrip but there would need to be a ferry or access system
- Need bright streetlights along road connecting main village to Manokotak Heights because they are very far apart and currently only located on the sharp turn, to help with visibility during whiteout/blizzard conditions, people sometimes get lost on the road to Manokotak Heights, could also use reflective mile marker posts
- There was one elderly ladies house that was tilting due to subsidence and getting worse over time, and had to build a new home
- Educate people with homes in fish camp to keep emergency supplies on hand such as candles, peanut butter, granola bars, flashlights, etc.
- Water well is getting low, which causing low water pressure, need to upgrade water system (getting old and leaking), potentially need to find a new well/water source or fix the leaks, so there is high pressure to fight fires
- Need better funding to cut the brush because it grows back quickly, need a wood chipper
- Some homes do not have fire extinguishers or five gallon buckets for water
- Need to upgrade firefighting equipment, gear, and vehicles, need designated fire crew and training

- The incinerator operators do not light it when it is dry, need to educate about fire dangers during drought conditions
- The fish camp has five different places where people dump trash, the IGAP people and other agencies are trying to find a solution to deal with trash because it is an environmental issue as well as a potential fire hazard (mirrors/glass, batteries, etc.) causing sparks during dry conditions, see if trash could be hauled out via barge

Public Meeting Notes

- Need to send more hard copies of the surveys to the Village Council
- Basements fill with water in the spring, need to divert water somewhere else
- There is erosion at the fish camp, people are having to move their structures
- There was a landslide at the lake a couple of years ago, it was really loud and could be heard from far away, took out trees
- In their area of the fish camp, they had to move up their drying rack due to erosion
- Erosion was so bad between homes in main village in the yard/road that it caused a huge hole and had to place a lot of gravel to fill, hazard for kids
- If there is a bad wind storm, the streetlights fly off, power poles get knocked down and need to be reinforced with concrete or better tied down, also would prefer to have power poles in main village in a line instead of splaying out in multiple directions from one pole because that is a hazard and very unorganized
- Everyone needs wood stoves as an emergency plan, a concern for elders and babies
- Make a list of all the trained emergency response and HAZWOP so people know who to call in an emergency
- Community wide first aid and CPR training
- Need search and rescue and trained first responders
- Need a fire department
- Since the community is growing, and babies are growing up, the Councils need to get together and do airport searches to stop people bring drugs and alcohol into the village from Dillingham
- If there is an earthquake, tsunami, or invaders from other countries/war, the community needs an evacuation plan up the mountain and a shelter
- Concerned about children damaging things around the village, need a playground in main village instead of just at the school
- People prefer community gatherings, village and city council meetings, etc.
- They could use the IGAP newsletter
- Pamphlets or instructional postings (like in the airplane)
- Could there be a class at the school?
- Have another store and post office on the Manokotak Heights so housing could get supplies and mail, sometimes people cannot get a ride and if the road is blocked off, that could be an issue
- House always shifts, and during wind and rain, they would need to wipe up water with towels, and her room was very cold, need to fix elders homes with insulation

Attachments:

1. Planning Team Meeting Sign-in Sheet
2. Planning Team Meeting Agenda
3. Worksheet #1: Hazard Identification
4. Worksheet #3: Risk Analysis (Assets)
5. Worksheet #5: Mitigation Goals
6. Worksheet #6: Mitigation Strategies
7. Public Meeting Sign-in Sheet
8. Public Meeting Flyer
9. Public Meeting Handouts
10. Public Meeting Presentation Slides

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

End Meeting Minutes

CC: File

Planning Team Meeting

Manokotak Tribal Hazard Mitigation Plan (2019 - 2024)

Date / Location: November 7 , 2018

Sign In Sheet

Name	Phone	Email
Leona Black	289-6091	Leona Black 84 @ yahoo.com
Mike Minista	289-6122	N/A
Nancy George	289-1027	Kmocity16@outlook.com
Diane Mochin	289-6570	
Louie Alakayak, JR	744-1843	
Barbara Moore	538-5949	manokotakadmin@bbna.com

HAZARD MITIGATION PLAN

PLANNING TEAM MEETING AGENDA

Time	Topic
11:00 AM	Introductions & Project Background
11:15 PM	Worksheet 1 – Hazard Identification Worksheet 2 – Hazard Analysis
12:15 PM	**LUNCH BREAK**
12:45 PM	Worksheet 3 – Risk Analysis
1:15 PM	Worksheet 4 – Vulnerability Statements Worksheet 5 – Mitigation Goals
1:45 PM	**BREAK**
2:00 PM	Worksheet 6 – Mitigation Action Plan Closing Statements & Next Steps
3:00 PM	**BREAK**

4:00 PM **PUBLIC MEETING (1 HOUR)**

WORKSHEET #1: HAZARD IDENTIFICATION

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

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

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

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

***** 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.

Risk Analysis Worksheet *(Profiled Hazards Only)*

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)*												
				Avalanche	Drought	Earthquake	Erosion	Extreme Cold	Flood	Landslide	Severe Wind	Severe Winter Weather	Subsidence	Tsunami	Volcano	Wildfire
New Airport	N/A															
Old Airport	N/A															
School	200															
Teacher Housing (2)	15															
Village Council Building	25															
Clinic	10															
City Office	15															
Store	15															
New Landfill	2															
New Sewage Lagoon	2															
MNL Blue Building	2															
MVC TPO Building	5															
MNL Gas Pump House	4															
MNL Power Plant	5															
MNL Gas Tank Farm / MNL Bulk Fuel Tank	5															
City KMO Lift Station (2)	3															
Underground Sewer	N/A															

Risk Analysis Worksheet *(Profiled Hazards Only)*

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)*												
				Avalanche	Drought	Earthquake	Erosion	Extreme Cold	Flood	Landslide	Severe Wind	Severe Winter Weather	Subsidence	Tsunami	Volcano	Wildfire
Moravian Church Parsonage	3															
Moravian Church	25															
Post Office	2															
MNL Armory Building	N/A															
City Water Tower	3															
Old Cemetery 1	N/A															
Old Cemetery 2	N/A															
New Cemetery	N/A															
Main Village Sewage Lagoon	5															
Old Landfill	N/A															
MNL Office	15															
MNL Lumber Shop	3															
GCI Tower (Downtown)	N/A															
Underground Water	N/A															
Overhead Power / Telephone	N/A															
Weary River Boat Launch	N/A															
Weary River Boat Storage	N/A															

Risk Analysis Worksheet *(Profiled Hazards Only)*

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)*												
				Avalanche	Drought	Earthquake	Erosion	Extreme Cold	Flood	Landslide	Severe Wind	Severe Winter Weather	Subsidence	Tsunami	Volcano	Wildfire
Gravel Pit 1 (Near Old Airport)	N/A															
Gravel Pit 2 (Near Landfill)	N/A															
Gravel Pit 3 (Near New Airport)	N/A															
Manokotak Heights Pump House	3															
Tribal Equipment (grader, dozer, loader, dump truck, Clinic Truck, TPO Truck, MVC Truck, VPSO Truck, etc.	N/A															
Roads	N/A															
Trails	N/A															
Igushik River Boat Landing	N/A															
City Manokotak Pump House	3															
Nushagak Telephone Earth Station	N/A															
Airport GCI Towers (2)	N/A															
Elderly Bus	2															
Fish Camp	150															

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 possibility of damages due to avalanches.

2.) Reduce the possibility of damages due to drought.

3.) Reduce the possibility of damages due to earthquakes.

4.) Reduce the possibility of damages due to erosion.

5.) Reduce the possibility of damages due to extreme cold.

6.) Reduce the possibility of damages due to flood.

7.) Reduce the possibility of damages due to landslides.

8.) Reduce the possibility of damages due to severe wind.

9.) Reduce the possibility of damages due to severe winter weather.

10.) Reduce the possibility of damages due to subsidence.

11.) Reduce the possibility of damages due to tsunamis.

12.) Reduce the possibility of damages due to volcanos.

13.) Reduce the possibility of damages due to wildfires.

14.) Promote development that is disaster-resistant.

15.) Build the capacity of the Tribe to prepare, respond to, and recover from disasters.

16.) Promote recognition and mitigation of all natural hazards that affect the Community.

17.) Promote cross-referencing of mitigation goals and actions with other Tribal planning mechanisms and projects.

Worksheet #6 Mitigation Actions

Column B

ACTIONS
Column B2
Description
Avalanche - Guardrails, alternate route, caution signs (landslides / avalanche areas), warnings,
Drought - continue dust control (truck water tank), educate about when appropriate to burn
Earthquake - Earthquake drills, Educational handouts, securing objects to wall,
Erosion - *boat launch relocation, 2nd & 3rd Street Project, drainage channels, culverts, expand Weary River Boat Landing (encourage people to park at Weary River Storage), Continue road maintenance
Extreme Cold - *New heat tape, continue education about plugging heat tapes, Wood stoves in all homes, Electric heaters, safety cabin, maintenance of trail markers, Replace wooden markers with metal markers
Flood - improve drainage (Road Rehabilitation of 2nd and 3rd Street), relocate Weary River boat launch, cones around large puddles to protect kids, continue to education families and children to stay away from large puddles
Landslide - Guardrails, alternate routes, warnings, road signs (landslide)
Severe Wind - Education homeowners on ways to secure roofs, repair / secure power lines, back up generator for clinic, wood stoves in homes, new airstrip at fish camp (ferry or boat service across the spit)
Severe Winter Weather - Continue road plowing, trail markers (new metal ones), *street lights between Main Village and Manokotak Heights (solar powered?), Reflective mile markers along Manokotak Heights Road, Survival classes for community,

Worksheet #6 Mitigation Actions

Column B

ACTIONS
Column B2
Description
Subsidence - future development making sure correct geotechnical is done and proper gravel pads are in place,
Tsunami - Educate families on having an emergency box, Emergency plan
Volcano - stash of mask at clinic (elderly and young kids and those with breathing problems), Continue warning via VHF to keep inside, education on health risks of ash fall (IGAP newsletter)
Wildfire - Village Training for firefighting (how to operate truck), upgrade water system (fix leaks), New water well, brush cutting, wood chipper (need), reminders about cutting brush around homes, Fire extinguishers for homes, New fire fighting equipment, landfill for fish camp
Emergency Plan, How to build an Emergency Box for families

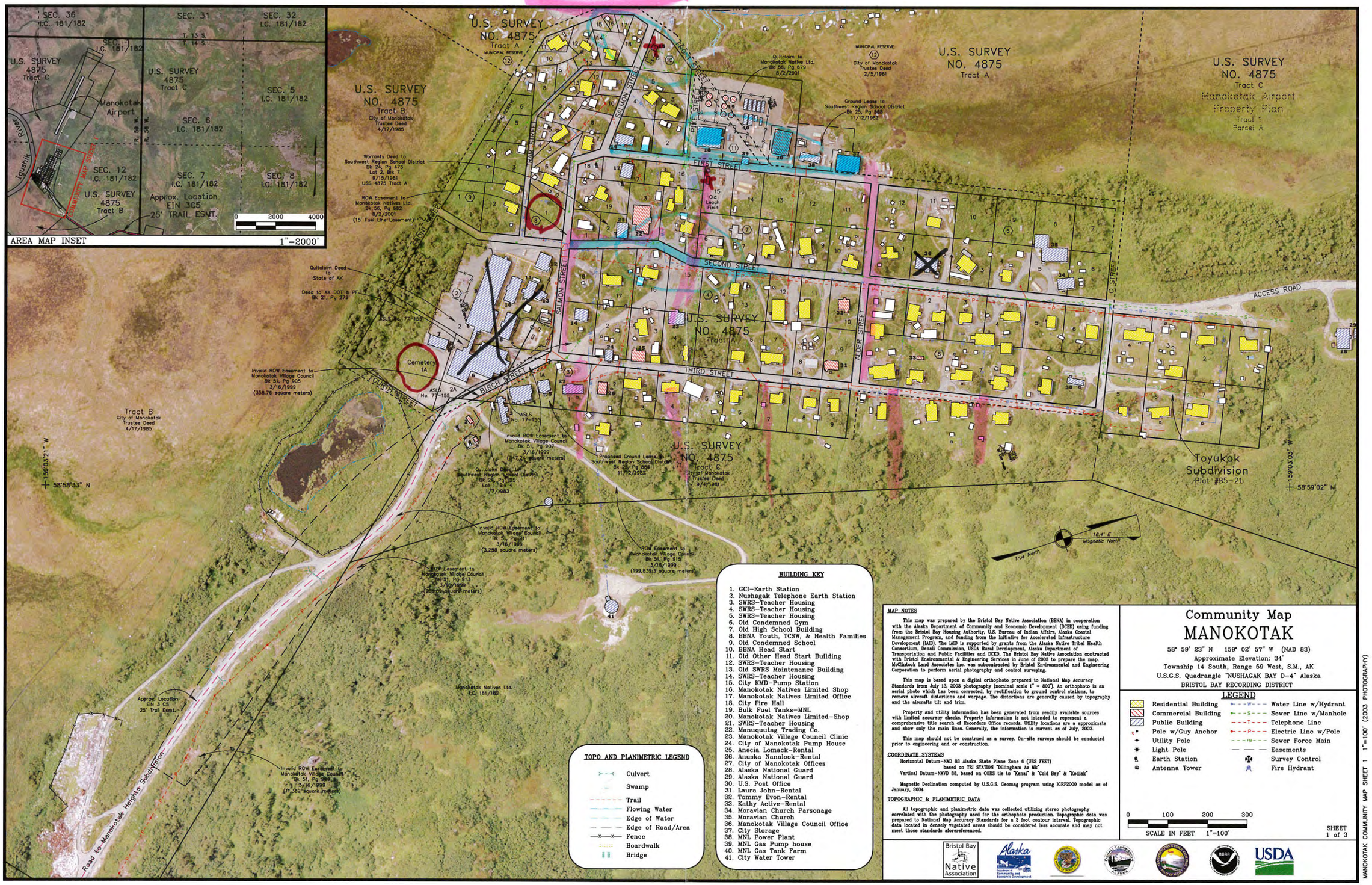
X demolished

O cemetery

x sewer lift station

erosion

flooding



BUILDING KEY

1. GCI–Earth Station
2. Nushagak Telephone Earth Station
3. SWRS–Teacher Housing
4. SWRS–Teacher Housing
5. SWRS–Teacher Housing
6. Old Condemned Gym
7. Old High School Building
8. BBNA Youth, TCSW, & Health Families
9. Old Condemned School
10. BBNA Head Start
11. Old Other Head Start Building
12. SWRS–Teacher Housing
13. Old SWRS Maintenance Building
14. SWRS–Teacher Housing
15. City KMD–Pump Station
16. Manokotak Natives Limited Shop
17. Manokotak Natives Limited Office
18. City Fire Hall
19. Bulk Fuel Tanks–MNL
20. Manokotak Natives Limited–Shop
21. SWRS–Teacher Housing
22. Manuquutag Trading Co.
23. Manokotak Village Council Clinic
24. City of Manokotak Pump House
25. Anecia Lomack–Rental
26. Anuska Nanalook–Rental
27. City of Manokotak Offices
28. Alaska National Guard
29. Alaska National Guard
30. U.S. Post Office
31. Laura John–Rental
32. Tommy Evon–Rental
33. Kathy Active–Rental
34. Moravian Church Parsonage
35. Moravian Church
36. Manokotak Village Council Office
37. City Storage
38. MNL Power Plant
39. MNL Gas Pump house
40. MNL Gas Tank Farm
41. City Water Tower

TOPO AND PLANIMETRIC LEGEND

- Culvert
- Swamp
- Trail
- Flowing Water
- Edge of Water
- Edge of Road/Area
- Fence
- Boardwalk
- Bridge

MAP NOTES

This map was prepared by the Bristol Bay Native Association (BBNA) in cooperation with the Alaska Department of Community and Economic Development (DCED) using funding from the Bristol Bay Housing Authority, U.S. Bureau of Indian Affairs, Alaska Coastal Management Program, and funding from the Initiative for Accelerated Infrastructure Development (IAID). The IAID is supported by grants from the Alaska Native Tribal Health Consortium, Denali Commission, USDA Rural Development, Alaska Department of Transportation and Public Facilities and DCED. The Bristol Bay Native Association contracted with Bristol Environmental & Engineering Services in June of 2003 to prepare the map. McClintock Land Associates Inc. was subcontracted by Bristol Environmental and Engineering Corporation to perform aerial photography and control surveying.

This map is based upon a digital orthophoto prepared to National Map Accuracy Standards from July 13, 2003 photography (nominal scale 1" = 800'). An orthophoto is an aerial photo which has been corrected, by rectification to ground control stations, to remove aircraft distortions and warpage. The distortions are generally caused by topography and the aircrafts tilt and trim.

Property and utility information has been generated from readily available sources with limited accuracy checks. Property information is not intended to represent a comprehensive title search of Recorders Office records. Utility locations are a approximate and show only the main lines. Generally, the information is current as of July, 2003.

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

COORDINATE SYSTEMS

Horizontal Datum–NAD 83 Alaska State Plane Zone 6 (USS FEET) based on TRI STATION "Dillingham As NK"

Vertical Datum–NAVD 88, based on CORS tie to "Kenai" & "Cold Bay" & "Kodiak"

Magnetic Declination computed by U.S.G.S. Geomag program using ICRF2000 model as of January, 2004.

TOPOGRAPHIC & PLANIMETRIC DATA

All topographic and planimetric data was collected utilizing stereo photography correlated with the photography used for the orthophoto production. Topographic data was prepared to National Map Accuracy Standards for a 2 foot contour interval. Topographic data located in densely vegetated areas should be considered less accurate and may not meet those standards aforereferenced.

Community Map
MANOKOTAK

58° 59' 23" N 159° 02' 57" W (NAD 83)
Approximate Elevation: 34'
Township 14 South, Range 59 West, S.M., AK
U.S.G.S. Quadrangle "NUSHAGAK BAY D-4" Alaska
BRISTOL BAY RECORDING DISTRICT

LEGEND

- Residential Building
- Commercial Building
- Public Building
- Pole w/Guy Anchor
- Utility Pole
- Light Pole
- Earth Station
- Antenna Tower
- Water Line w/Hydrant
- Sewer Line w/Manhole
- Telephone Line
- Electric Line w/Pole
- Sewer Force Main
- Easements
- Survey Control
- Fire Hydrant

0 100 200 300
SCALE IN FEET 1"=100'

SHEET 1 of 3

Bristol Bay Native Association

MANOKOTAK COMMUNITY MAP SHEET 1 1"=100' (2003 PHOTOGRAPHY)

Community Map
MANOKOTAK

58° 59' 23" N 159° 02' 57" W (NAD 83)
Approximate Elevation: 34'
Township 14 South, Range 59 West, S.M., AK
U.S.G.S. Quadrangle "NUSHAGAK BAY D-4" Alaska
BRISTOL BAY RECORDING DISTRICT

LEGEND

- Residential Building
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- Public Building
- Pole w/Guy Anchor
- Utility Pole
- Light Pole
- Earth Station Antenna Tower
- Water Line w/Hydrant
- Sewer Line w/Manhole
- Buried Phone Cable
- Electric Line w/Pole
- Force Main
- Easements
- Survey Control

0 200 400 600
SCALE IN FEET 1"=200'

SHEET 2 of 3

BUILDING KEY

1. Manokotak Nunaniq School
2. Manokotak Village Council
3. Manokotak Village Council Duplex
4. Pumphouse for Well
5. Principal House

TOPO AND PLANIMETRIC LEGEND

- Culvert
- Swamp
- Trail
- Flowing Water
- Edge of Water
- Edge of Road/Area
- Fence
- Boardwalk
- Bridge

Approx. location EIN 3 C5 "An easement for an existing access trail 25 feet in width from Dillingham westerly to Manokotak and Twin Hills."

Tract 6 ANCSA 14(c) Plat# 2003-2
Tract 7 ANCSA 14(c) Plat# 2003-2
Tract 28
Tract 23 ANCSA 14(c) Plat# 2003-2
Tract 24 ANCSA 14(c) Plat# 2003-2
Tract 3 ANCSA 14(c) Plat# 2003-2
Tract 22 ANCSA 14(c) Plat# 2003-2
Tract 29 ANCSA 14(c) Plat# 2003-2
Tract 10 ANCSA 14(c) Plat# 2003-2
Tract 21 ANCSA 14(c) Plat# 2003-2
Tract 28 ANCSA 14(c) Plat# 2003-2
Lagoon Road Easement Plat #86-6
10' Drainage Easement
Public Right of Way
Manokotak Heights Subdivision Plat #86-6
Tract 20 ANCSA 14(c) Plat# 2003-2
Tract 25 ANCSA 14(c) Plat# 2003-2
Tract 26 ANCSA 14(c) Plat# 2003-2
Tract 12
Tract 11 ANCSA 14(c)
Tract 13 ANCSA 14(c) Plat# 2003-2
Tract 27
Weary Access Road
Manokotak Natives Ltd. I.C. 181/182
SEC 16 | SEC 9
SEC 15 | SEC 10

MAP NOTES

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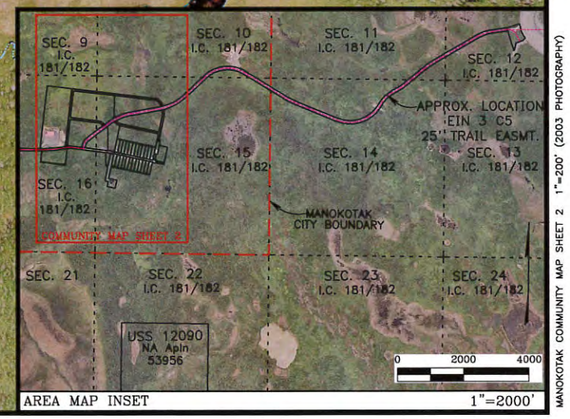

AREA MAP INSET 1"=2000'

MANOKOTAK COMMUNITY MAP SHEET 2 1"=200' (2003 PHOTOGRAPHY)

SEC. 35
ANCSA 12(a)
I.C. 181/182

SEC. 36
ANCSA 12(a)
I.C. 181/182

SEC. 31

SEC. 32
ANCSA 12(a)
I.C. 181/182

SEC. 33
ANCSA 12(a)
I.C. 181/182

SEC. 34
ANCSA 12(a)
I.C. 181/182

SEC. 35
ANCSA 12(a)
I.C. 181/182

SEC. 36

Manokotak Airport

Tract IV

SEC. 2
ANCSA 12(a)
I.C. 181/182

ANCSA 14(c)
Tracts 1 & 2
Plat 2003-2
ANCSA 14(c)(4)
Deed to AK DOT & PF

Tract II

City of Manokotak
Municipal Boundary

SEC. 6
ANCSA 12(a)
I.C. 181/182

SEC. 5
ANCSA 12(a)
I.C. 181/182

SEC. 4
ANCSA 12(a)
I.C. 181/182

SEC. 3
ANCSA 12(a)
I.C. 181/182

SEC. 2
ANCSA 12(a)
I.C. 181/182

SEC. 1

USS 4875
Tract B
Tract BY

SEC. 1
ANCSA 12(a)
I.C. 181/182

gravel pit

USS 4875
Tract A

APPROX. LOCATION
EIN 103 C5
1 ACRE SITE EASEMENT

SEC. 11

USS 4875
Tract B

SEC. 12
ANCSA 12(a)
I.C. 181/182

SEC. 7
ANCSA 12(a)
I.C. 181/182

gravel

dump

SEC. 8
ANCSA 12(a)
I.C. 181/182

SEC. 9
ANCSA 12(a)
I.C. 181/182

SEC. 10
ANCSA 12(a)
I.C. 181/182

SEC. 11
ANCSA 12(a)
I.C. 181/182

ROW ESMNT to
Manokotak Village Council
Bk 51, Pg 920
3/16/1999
(30.48 meters wide)

APPROX. LOCATION
EIN 3 C5
25' TRAIL ESMNT

SEC. 12
ANCSA 12(a)
I.C. 1731/1732

ANCSA 14(c)
Tract 16

ANCSA 12(a)
I.C. 181/182

ANCSA 14(c)
Tract 24

ANCSA 14(c)
Tract 29

ANCSA 14(c)
Tract 25

ANCSA 14(c)
Tract 7
Plat 2003-2

ANCSA 14(c)
Tracts 26 & 20

ANCSA 14(c)
Tract 28

ANCSA 14(c)
Tract 27

ANCSA 14(c)
Tract 3

ANCSA 14(c)
Tracts 12, 13, & 11

SEC. 14
ANCSA 12(a)
I.C. 181/182

APPROX. LOCATION
EIN 3 C5
25' TRAIL ESMNT

ROW ESMNT to
Manokotak Village Council
Bk 51, Pg 920
3/16/1999
(30.48 meters wide)

ANCSA 14(c)
Tract 5

SEC. 13
ANCSA 12(a)
I.C. 181/182

SEC. 18
ANCSA 12(a)
I.C. 181/182

SEC. 17
ANCSA 12(a)
I.C. 181/182

SEC. 16
ANCSA 12(a)
I.C. 181/182

SEC. 15
ANCSA 12(a)
I.C. 181/182

ANCSA 14(c)
Tracts 6, 23 & 22

ANCSA 14(c)
Tracts 21 & 10

ANCSA 14(c)
Tract 29

SEC. 14
ANCSA 12(a)
I.C. 181/182

SEC. 13
ANCSA 12(a)
I.C. 1731/1732

City of Manokotak
Municipal Boundary

gravel pit
area

SEC. 23
ANCSA 12(a)
I.C. 181/182

SEC. 24
ANCSA 12(a)
I.C. 181/182

SEC. 22
ANCSA 12(a)
I.C. 181/182

SEC. 19

SEC. 20

SEC. 21

USS 12090
NA Apln
53956

SEC. 23
ANCSA 12(a)
I.C. 181/182

SEC. 24
ANCSA 12(a)
I.C. 181/182

USS 11786
NA Apln
54755

ANCSA 12(b)
Selection

Lot 1

Lot 2

SEC. 29

SEC. 28

SEC. 27

SEC. 26

SEC. 25

Area Use Map
MANOKOTAK

58° 59' 23" N 159° 02' 57" W (NAD 83)
Approximate Elevation: 34'
Township 14 South, Range 59 West, S.M., AK
U.S.G.S. Quadrangle "NUSHAGAK BAY D-4" Alaska
BRISTOL BAY RECORDING DISTRICT

SEE SHEETS 1 & 2 FOR DETAILED COMMUNITY MAP

0 1200 2400 3600

Scale 1"=1200'
Date of Photography: July 13, 2003
Magnetic Declination computed by U.S.G.S. Geomag
Program using IGRF2000 model as of January, 2004.

SHEET
3 of 3

MAP NOTES

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MANOKOTAK AREA USE MAP SHEET 3 1"=1200' (2003 PHOTOGRAPHY)

MITIGATION ACTION TYPES AND EXAMPLES

Mitigation Type	Description	Examples
Local Plans and Regulations	These actions include government authorities, policies, or codes that influence the way land and buildings are developed and built	• 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	
No.	**Goal**	**ID**	**Description**
1	Build the capacity of the Tribe to prepare, respond to, and recover from disasters.	**1.A**	Complete the Community Emergency Plan, and educate the residents on the plan.
		1.B	Provide education to residents about how to build emergency boxes for families.
		1.C	Construct a pumphouse for the Community for a back-up water supply.
		1.D	Continue effort to supply smoke detectors, carbon monoxide monitors, and flashlights to residents through IGAP.
		1.E	Create and post a list of all HAZWOP personnel.
		1.F	Provide first aide and CPR training for the Community.
2	Promote recognition and mitigation of all natural hazards that affect the Community.	2.A	Develop safety / survival classes for all hazards.
		2.B	Ensure the school is conducting fire and earthquake drills.
		2.C	Develop an alert system for the Community to let residents know about hazards.
3	Promote cross-referencing of mitigation goals and actions with other Tribal planning mechanisms and projects.	3.A	Incorporate the continued effort of dust control in LRTP.
		3.B	Identify ways to include mitigation efforts in the next Community Comprehensive Plan Update.
		3.C	Identify the need for street lights on Manokotak Heights Road in the LRTP.
		3.D	Identify the construction of the 2nd & 3rd Street road rehabilitation project in the LRTP.
		3.E	Conduct a yearly review of the plans and document progress towards their actions and goals.
4	Reduce the possibility of damages due to avalanches.	4.A	Identify an alternate route to safely manuver around avalanches.
		4.B	Install Avalanche caution signs in appropriate areas.
		4.C	Develop a warning system to inform residents of avalanche areas.
5	Reduce the possibility of damages due to drought.	**5.A**	Continue dust control efforts.
		5.B	Educate residents about appropriate times to burn during dry conditions.

Potential Mitigation Actions

GOALS		ACTIONS	
No.	**Goal**	**ID**	**Description**
6	Reduce the possibility of damages due to earthquakes.	6.A	Ensure earthquake drills are conducted at the school.
		6.B	Develop educational earthquake handouts and distribute to the Community.
		6.C	Educate residents about the importance of securing objects to the wall.
		6.D	Secure objects to walls in public buildings.
7	Reduce the possibility of damages due to erosion.	**7.A**	Identify an new location for the boat launch in the main village and design and construct the facility.
		7.B	Construct the 2nd & 3rd Street Project.
		7.C	Improve and install drainage features throughout the Community as needed.
		7.D	Expand Weary River Boat Landing and encourage people to park at Weary River Storage.
		7.E	Continue road maintenance on existing roads.
8	Reduce the possibility of damages due to extreme cold events.	**8.A**	Install new heat tape in homes, specifically holder homes in the main village and those of elders.
		8.B	Continue educating residents about inspecting and plugging in heat tapes.
		8.C	Identify back up heat sources and acquire for public facilities and educate residents of the importance of having a back up heat source.
		8.D	Construct a safety cabin between Togiak and Manokotak.
		8.E	Maintain trail markers and replace as needed.
9	Reduce the possibility of damages due to floods.	**9.A**	Upgrade drainage features in the Community.
		9.B	Construct the 2nd & 3rd Street road rehabilitation project.
		9.C	Relocate the Weary River Boat Launch.
		9.D	Acquire cones to place around large puddles to warn children.
		9.E	Educate families and children about the dangers of playing in large puddles around and to stay away from them.

Potential Mitigation Actions

GOALS		ACTIONS	
No.	**Goal**	**ID**	**Description**
10	Reduce the possibility of damages due to landslides.	10.A	Identify an alternate route to safely manuver around landslides.
		10.B	Install Landslide caution signs in appropriate areas.
		10.C	Develop a warning system to inform residents of landslide areas.
11	Reduce the possibility of damages due to severe wind.	11.A	Educate homeowners on ways to secure roofs.
		11.B	Repair / secure power lines.
		11.C	Acquire a back up generator for the clinic.
		11.D	Educate community members about the need to have a back up heat source like a wood stove.
		11.E	Design and construct a new airstrip at fish camp and develop a ferry or boat service across the spit.
12	Reduce the possibility of damages due to severe winter weather.	12.A	Continue snow removal efforts on existing roads throughout the Community.
		12.B	Upgrade wooden trail markers to metal trail markers.
		12.C	Install street lights between the Main Village and Manokotak Heights.
		12.D	Investigate the feasibility of installing solar powered street lights between the Main Village and Manokotak Heights.
		12.E	Install reflective mile markers along Manokotak Heights Road.
		12.F	Develop and conduct survival classes for the Community.
13	Reduce the possibility of damages due to subsidence.	**13.A**	Make sure correct geotechnical analysis is done and that proper gravel pads are in place on future development projects.
14	Reduce the possibility of damages due to tsunamis.	14.A	Educate families about the importance of having a stocked emergency box at fish camp.
		14.B	Educate families on the importance of having a working communication device at fish camp.
		14.C	Ensure there are working communication devices at fish camp.

Potential Mitigation Actions

GOALS		ACTIONS	
No.	**Goal**	**ID**	**Description**
15	Reduce the possibility of damages due to volcanos.	15.A	Maintain a supply of masks at the clinic for community members, especially for the elderly, young kids, and those with breathing problems.
		15.B	Continue warning efforts via VHF to stay inside during an ash fall event.
		15.C	Educate community members about the health risks of ash fall in the IGAP newsletter.
16	Reduce the possibility of damages due to wildfires.	16.A	Provide firefighting training for the village, and how to operate the fire truck.
		16.B	Upgrade the underground Community water system to fix the leaks to maintain needed pressure.
		16.C	Install a new water well.
		16.D	Conduct brush cutting around the Community.
		16.E	Acquire a wood chipper.
		16.F	Educate community members about the importance of cutting brush around homes to maintain a fire barrier.
		16.G	Educate homeowners about the importance of having a fire extinguisher in homes and encourage them to have one.
		16.H	Acquire new and updated fire equipment.
		16.I	Identify a location, design and construct a landfill for fish camp.
		16.J	Educate about fire dangers during drought conditions.

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	0	1	-1	0	1	0	0	1	1	4
1.B	1	1	1	1	0	0	1	0	1	1	7
2.B	1	0	0	0	0	0	0	1	1	0	3
3.E	0	0	1	1	1	0	0	1	1	0	5
4.B	1	1	1	1	1	1	0	1	0	0	7
5.A	1	1	1	1	1	1	1	1	1	1	10
6.B	1	0	0	0	0	0	1	0	0	1	3
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
8.A	1	1	1	1	1	1	1	1	1	1	10
9.A	1	1	1	1	1	1	1	1	1	1	10
10.B	1	1	1	0	0	0	0	0	0	0	3
11.C	1	1	1	1	1	1	1	1	1	1	10
12.C	1	1	1	1	1	1	1	1	1	1	10
13.A	0	1	0	-1	1	0	-1	0	0	-1	-1
14.B	1	0	-1	-1	0	-1	0	0	0	0	-2
15.C	1	1	1	0	-1	0	0	1	1	0	4
16.D	1	1	1	1	1	1	1	1	1	1	10
16.G	1	1	1	1	1	1	1	1	1	1	10

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

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APPENDIX B

Public Involvement

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

Bristol
ENGINEERING SERVICES COMPANY, LLC

111 W. 16th Avenue, Third Floor
Anchorage, AK 99501-5169
phone (907) 563-0013
fax (907) 563-6713
www.bristol-companies.com

TRIP REPORT & MEETING MINUTES

Project: **BBNA THMP & TTSP Project**
Bristol Project No: 32190013
Reference: Manokotak Planning Team Meetings & Public Meetings
Date of Meeting: November 7, 2018
Location of Meeting: Manokotak Village Council Office & School
Participants:
Bristol: Danielle Dance, Jackie Wander
Planning Team: See attached sign in sheet
Public Meeting: See attached sign in sheet

Summary

Jackie and Danielle arrived in Manokotak around 12:30 PM on Tuesday, November 6, 2018 and stayed overnight in the school housing. They met with the Village Council Planning Team the next morning from 11:00 AM to 3:00 PM to discuss the Tribal Hazard Mitigation Plan (THMP) and collect background data. They determined which hazards to profile, discussed local history of natural disasters, identified community assets, reviewed vulnerability statements and mitigation goals, and brainstormed mitigation strategies for each profiled hazard.

While in Manokotak, Jackie gave an update on the Second and Third Street Road Rehabilitation project and right-of-way process. The Village would like Bristol to talk one-on-one with property owners about the decision to either use revocable use permits or permanent right-of-way takes for the native restricted lots.

Then from 4:00 PM to 5:00 PM, they held a public meeting in the school to discuss the project and collect public comment. Jackie and Danielle departed Manokotak around 5:30 PM on Wednesday.

THMP Planning Team Meeting Notes

Worksheet #1 – Hazard Identification

- See attached Worksheet #1 for list of hazards & color coding table
- Avalanche
    - Never has happened on the village side, but has happened on the back of the mountain, which has about the same slope as on the school side
    - Concerned about the school
    - People go ptarmigan hunting on the other side of the hill where the avalanches have occurred
    - PROFILE
- Drought
    - Every five years, land will be very dry, no berries, ponds will dry out

  - A couple of years ago, hardly had any rain, almost 1-2 months without rain or with only very light rain where the land would soak up the moisture instantly
  - PROFILE
- Earthquake
  - 1964 earthquake was felt here, plates and cups were rattling in homes, could not walk, a big concern especially for elders
  - Need to be prepared to have church or school ready as shelter for elders & people
  - Have not felt earthquakes, only minor tremors between magnitude 3.0-4.5, only see water moving, no projectile objects
  - Feel slight tremors every 2-3 years, felt the 8.0 that happened in Port Heiden
  - PROFILE
- Erosion
  - A lot of erosion at the rivers both at Weary and Igushik at both of the boat launch areas, the Igushik boat storage area is getting smaller. The Weary River boat launch is damaged, muddy and hazardous.
  - Don't have a compactor to crown roads better for drainage, working on getting a compactor for road maintenance
  - Structural damage, roads get soft and flooded, yards have large eroded drainage channels from the spring breakup/snowmelt/rainwater runoff from the mountain, the road project will address these issues
  - See maps for erosion areas
  - PROFILE
- Extreme Cold
  - Heat tape issues, pipes breaking issues, vehicles won't start
  - Vacant homes will freeze up, which affects other homes on the water system, there are water leaks causing issues in the subsurface
  - Happens every single year
  - PROFILE
- Extreme Heat
  - Once in a while get into the 80s, but never the 90s
  - Winters start later in the year, should already have snow by November but don't have it yet
  - Sometimes the heat prevents people from wanting to cook inside the house because it makes the house uncomfortably hot, but never had heat stroke
  - DO NOT PROFILE
- Flooding
  - Flooding goes to MNL silver building, police station, and flooding will always have flooding in the garage on First Street, they had to scrub down the mold, and also have to pump out the water every spring
  - Happens worst at police station (TPO) and blue building (city maintenance)
  - Happens significantly in the spring time
  - Homes get flooded
  - Used to have flooding at the new cemetery, but installed a large culvert to mitigate, had to shut down the road because it was pure water, took most of the day to resolve the flooding on the road

    - The boat launch area and road on Weary River floods in low lying areas / flood plain of Weary River and creek that flows through that area
    - Takes up to 2 weeks for flooding to subside, depending on spring thaw and extent of rainfall
    - PROFILE
- Landslide
    - Landslides occur on the main village side, rocks and land is visibly sliding throughout the years
    - The land shifting at the water tank has caused issues with the water pump
    - There are big rocks that are ready to slide down, are concerned about the road – will have to rebuild the road, would like to see an alternate road (such as along the trail between the two mountains) in case this happens
    - Has almost hit buildings and utilities
    - PROFILE
- Severe Wind
    - Poles near the airport are starting to lean, busted lines, poles falling/blown over, caused power outages
    - Plane service halted
    - Igushik fish camp has a lot of homes on the Igushik, they are being impacted by erosion and flooding, some homes are right on the edge of the bank, planes and choppers land there on the beach – there used to beach a strip for the planes to land but it eroded away, sometimes Fish and Game land with float planes on the river, people move there for 2 months in the summer, sometimes the wind blocks
    - PROFILE
- Severe Winter Weather
    - People get lost going to home to Manokotak Heights, Last winter they had to do search and rescue to find people. There are creeks that don't freeze and people get lost.
    - Freezing rain has caused accidents and fatalities due to vehicles sliding on icy roads, 15 year old son passed away last year
    - There are large boulders that rolled down from the mountain and are a hazard on the road near Manokotak Heights
    - Sometimes mail and medications cannot be brought in due to weather for up to a week and a half
    - Happens every year
    - PROFILE
- Subsidence
    - Have seen deep sink holes on the roads and in the tundra
    - All the houses are settling
    - Large sinkhole, two operators fell in and had to use a ladder to pull out, in 1970s they put beams and plywood and covered with dirt but they put beams have rotted and it still a hazard, need fencing around to protect kids
    - These sink holes are manmade from when people used to store food in the ground
    - PROFILE
- Tsunami
    - Does not occur in Manokotak

    - The fish camp has had large waves, when there was a tsunami warning
    - Some people had to move up the houses and boats up higher due to waves and erosion
    - Happens during extreme winds, 2-3 times per year, boats get swamped
    - PROFILE
- Volcano
    - There was a little bit of ash when Redoubt erupted (mid 2000s? and in 1992)
    - Has happened about 2 or 3 times, maybe every 12 years
    - It was in the news for small villages to look out for ashes, and stay inside
    - Caused black ash on the snow
    - Planes did not come in for 2-3 days, people couldn't go out to fish/subsist, had to pull in their nets
    - Lower concern
    - PROFILE
- Wildfire
    - Had smoke in 1997, people had to move down fish camp to escape the smoke
    - Was a fire close to Weary Road, were concerned about elders and babies to evacuate to Anchorage, fire coming from Dillingham
    - Houses are too close together in the main village
    - When there was a fire at the power plant, people were running up the hill, they were afraid of an explosion
    - There are fire hydrants, can deal with a fire if there is good water pressure
    - PROFILE

Worksheet #3 – Risk Analysis

- Bristol will use information collected to complete the risk assessment, which will be sent to the Council for review.
- See attached Worksheet #3 for full list of community assets
- There is no Fire Hall anymore, it is now the TPO building
- In the process of transferring the old National Guard Armory building to MNL
- Dump truck is on its way, also have boats, snow machines, ATVs, etc., MVC to send the full list of village equipment to Danielle
- Store has workers that are on and off for 2 weeks, truck drivers, etc.
- City office occupants includes the water workers and most City personnel but there are 3 people that work in the building
- People still work on the old sewage lagoon because it serves the main village
- There are 2 road operators always working on the roads

Worksheets #4-#5 – Vulnerability Statements & Mitigation Goals

- Bristol will use the information collected at this meeting to develop vulnerability statements, which will be sent to the Council for review
- The community was in the process of developing an emergency plan, but it was never finished, would like to make a goal to finish & distribute the plan
- They have had lock downs at the school due to active shooters
- Fishermen are wanting to get a new cannery, work with them on disaster resistance

Worksheet #6

- Need a siren system, and use VHF, in case communication/power goes down for avalanches and other hazards
- Have a pumphouse that has backup capability for water in case water goes down
- Have to go to "17A" past Togiak to harvest berries if there is a very dry summer and no berries around Manokotak
- The school does a safety/survival class (teach about hypothermia, how to build fires without matches, etc.) and fire drills, but does not have earthquake drills
- Would FEMA be able to pay for educational documents (such as pamphlets telling people how to secure bookcases and protect their homes against earthquakes, etc.)
- Could use IGAP newsletters to educate the public about hazards
- IGAP provides smoke detectors & carbon monoxide monitors, flashlights, etc.
- The Second and Third Street rehabilitation project includes larger culverts, drainage ditches, and rock lined drainage channels to reduce flooding and erosion in Main Village
- Heat tape is getting really old in residential homes, some homes burnt down because of that, so people are afraid to plug in their heat tapes in the winter, need to be replaced
- Some homes do not have wood stoves, so if the power goes out, they do not have a way to heat their homes, people could get electric heaters
- Have been wanting to build a safety cabin/house between Manokotak and Togiak because there have been deaths
- Existing trail tripods are falling down, sinking, and the beavers take the wooden posts, need metal markers and a maintenance crew to repair if needed
- In the process of getting a backup generator for the clinic in case of power outages
- Since planes cannot access fish camp as easily anymore, they need an airstrip or a road to fish camp (road would be too expensive, the land is not owned by MNL, and the land is majority wetlands), there is a place on the other side of the river for an airstrip but there would need to be a ferry or access system
- Need bright streetlights along road connecting main village to Manokotak Heights because they are very far apart and currently only located on the sharp turn, to help with visibility during whiteout/blizzard conditions, people sometimes get lost on the road to Manokotak Heights, could also use reflective mile marker posts
- There was one elderly ladies house that was tilting due to subsidence and getting worse over time, and had to build a new home
- Educate people with homes in fish camp to keep emergency supplies on hand such as candles, peanut butter, granola bars, flashlights, etc.
- Water well is getting low, which causing low water pressure, need to upgrade water system (getting old and leaking), potentially need to find a new well/water source or fix the leaks, so there is high pressure to fight fires
- Need better funding to cut the brush because it grows back quickly, need a wood chipper
- Some homes do not have fire extinguishers or five gallon buckets for water
- Need to upgrade firefighting equipment, gear, and vehicles, need designated fire crew and training

- The incinerator operators do not light it when it is dry, need to educate about fire dangers during drought conditions
- The fish camp has five different places where people dump trash, the IGAP people and other agencies are trying to find a solution to deal with trash because it is an environmental issue as well as a potential fire hazard (mirrors/glass, batteries, etc.) causing sparks during dry conditions, see if trash could be hauled out via barge

Public Meeting Notes

- Need to send more hard copies of the surveys to the Village Council
- Basements fill with water in the spring, need to divert water somewhere else
- There is erosion at the fish camp, people are having to move their structures
- There was a landslide at the lake a couple of years ago, it was really loud and could be heard from far away, took out trees
- In their area of the fish camp, they had to move up their drying rack due to erosion
- Erosion was so bad between homes in main village in the yard/road that it caused a huge hole and had to place a lot of gravel to fill, hazard for kids
- If there is a bad wind storm, the streetlights fly off, power poles get knocked down and need to be reinforced with concrete or better tied down, also would prefer to have power poles in main village in a line instead of splaying out in multiple directions from one pole because that is a hazard and very unorganized
- Everyone needs wood stoves as an emergency plan, a concern for elders and babies
- Make a list of all the trained emergency response and HAZWOP so people know who to call in an emergency
- Community wide first aid and CPR training
- Need search and rescue and trained first responders
- Need a fire department
- Since the community is growing, and babies are growing up, the Councils need to get together and do airport searches to stop people bring drugs and alcohol into the village from Dillingham
- If there is an earthquake, tsunami, or invaders from other countries/war, the community needs an evacuation plan up the mountain and a shelter
- Concerned about children damaging things around the village, need a playground in main village instead of just at the school
- People prefer community gatherings, village and city council meetings, etc.
- They could use the IGAP newsletter
- Pamphlets or instructional postings (like in the airplane)
- Could there be a class at the school?
- Have another store and post office on the Manokotak Heights so housing could get supplies and mail, sometimes people cannot get a ride and if the road is blocked off, that could be an issue
- House always shifts, and during wind and rain, they would need to wipe up water with towels, and her room was very cold, need to fix elders homes with insulation

Attachments:

1. Planning Team Meeting Sign-in Sheet
2. Planning Team Meeting Agenda
3. Worksheet #1: Hazard Identification
4. Worksheet #3: Risk Analysis (Assets)
5. Worksheet #5: Mitigation Goals
6. Worksheet #6: Mitigation Strategies
7. Public Meeting Sign-in Sheet
8. Public Meeting Flyer
9. Public Meeting Handouts
10. Public Meeting Presentation Slides

Meeting Minute attachments included in Appendix B. The previous 6 attachments can be found in Appendix A.

End Meeting Minutes

CC: File

Community Meeting

Manokotak Tribal Hazard Mitigation Plan (2019 - 2024)

Date / Location: November 7, 2018 at 4 PM / School Commons

Sign In Sheet

Name	Name	Name
Blanche Echuck	Chris Gloko	
Connie Atumukpa	Doreen Tugatuk	
Nancy Sharp	[illegible] Tugatuk	
Nellie Kolbe	Carolyn Darling	
Erlene Pat		
* Laura John		
Gerald Nanalook		
Larry Gloko		
Sharon West		
Judy Itumulria		
Carl K. Itumulria		
Olga Dick		
Mike Mimsh		
Donna Jenkins		
[illegible]		
Roy Kuzgta		
Alice Pukanakyak		

MANOKOTAK TRIBAL HAZARD MITIGATION PLAN

COMMUNITY MEETING

Come learn about a new project in the works! The Manokotak Village Council is developing a Tribal Hazard Mitigation Plan, which proposes strategies to protect the community against natural disasters such as wildfires, floods, earthquakes, & more.

We want to hear from you!

Attendees can provide input about hazard priorities for the community. The project planners will be available for any questions or feedback from the public.

Posting date 10/24/2018

Wednesday
November 7, 2018
4:00 PM

School Commons

Door Prizes!

Snacks & Refreshments

Discuss the future of Manokotak

For more information or to submit comments contact:

Jackie Wander
(907) 563-0013
jwander@bristol-companies.com

Bristol
ENGINEERING SERVICES COMPANY, LLC

Bristol
ENGINEERING
SERVICES COMPANY, LLC

111 W. 16th Avenue, Third Floor
Anchorage, AK 99501-5169
phone (907) 563-0013
fax (907) 563-6713
www.bristol-companies.com

Community Meeting Handout
Manokotak Tribal Hazard Mitigation Plan
November 7, 2018

Dear Participant;

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

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

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

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

Sincerely,

Danielle Dance
Civil Engineer I

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

Bristol Bay Native Association
Transportation and Infrastructure Development

August 2018 Newsletter 1

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

Useful web links

Volcano Information

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

Weather Information

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

WEBSITES

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


TAKE ACTION
AND
PREPARE
FEMA
FEMA V-1021
Catalog No. 1872-3
April 2018
There are many ways to take action and prepare before a disaster occurs. The actions on this card include some of the most important ways to help yourself, your family, and your community increase your preparedness. Simple actions at home and in your neighborhood can make a big difference!
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12 WAYS TO PREPARE

- ☐  Sign up for Alerts and Warnings
- ☐  Make a Plan
- ☐  Save for a Rainy Day
- ☐  Practice Emergency Drills
- ☐  Test Family Communication Plan
- ☐  Safeguard Documents
- ☐  Plan with Neighbors
- ☐  Make Your Home Safer
- ☐  Know Evacuation Routes
- ☐  Assemble or Update Supplies
- ☐  Get Involved in Your Community
- ☐  Document and Insure Property

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Manokotak Village
Public Meeting
November 7, 2018

Manokotak FEMA Tribal Hazard Mitigation Plan

Bristol Engineering Services Company, LLC
Danielle Dance

Bristol

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Public Meeting
November 7, 2018

Safety Minute

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Presentation Overview

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

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Project Background

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

Bristol Bay Native Association

Bristol ENGINEERING SERVICES COMPANY, LLC

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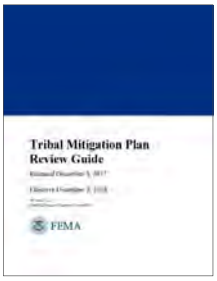
FEMA Tribal Hazard Mitigation Plan (THMP)

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



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Funding

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

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Identified Hazards

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

7

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Community Assets

- Asset
  - People
  - Economy
  - Built Environment
  - Natural Environment

- Major Community Assets
  - Airport
  - School
  - Roads / Trails
  - Utilities
  - Tribal & City Office
  - Church / Cemeteries
  - Boat Launch Ramp / Storage
  - Clinic
  - Store
  - Post Office
  - Others

8

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Mitigation Goals

- Goals Based on Vulnerability Statements
  - The main village is located at the base of the hill that experiences heavy snow melt and rain water runoff in the spring which causes erosion and flooding of buildings and roads.
  - During white out conditions residents can get lost on the road to Manokotak Heights.

FEMA Local Mitigation Planning Handbook
March 2013

9

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Mitigation Goals

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

10

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Mitigation Actions

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

FEMA Local Mitigation Planning Handbook
March 2013

11

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Mitigation Actions (Continued)

- Mitigation Actions
  - Boat Launch Ramp Relocation
  - 2nd & 3rd Street Rehabilitation
  - New heat tapes in homes
  - Street lights between Main Village and Manokotak Heights
  - Fire extinguishers
  - Culverts
  - Emergency Plan
  - Education for residents on how to stock homes with additional emergency supplies.
  - Backup generator for the clinic.
- What other suggestions do you have?

12

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Continued Public Involvement

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

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

13

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Questions or Comments

14

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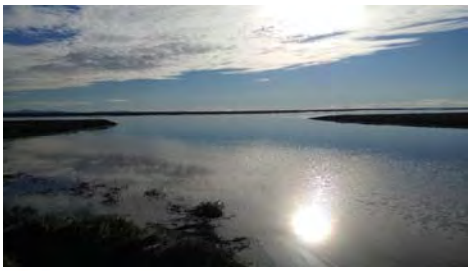
QUYANA!



15

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 Manokotak, 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

Five questionnaires were completed and returned. Question 12 asked about the gender of the respondents. All five were female. Question 13 asked about the length of time in the community. All five respondents had lived in Manokotak for over 20 years. The residents that responded ranged in age from 52 to 74 (Question 11) (Figure 3).

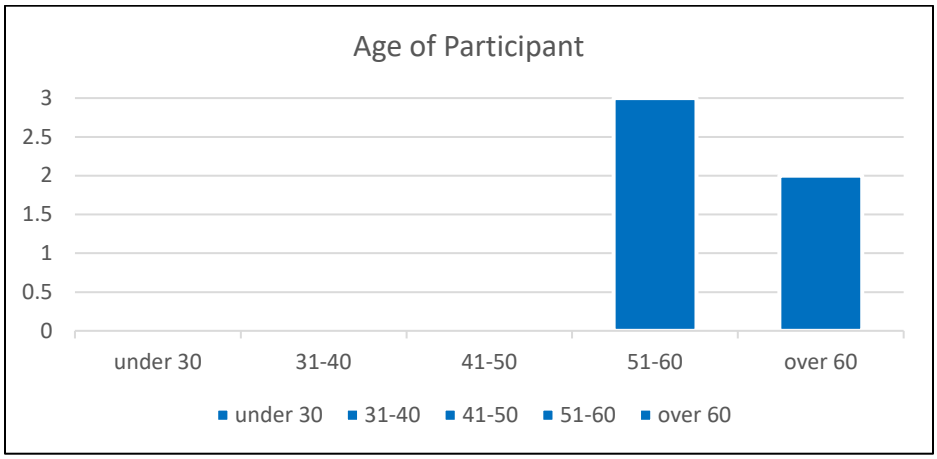


Figure 1: Age of Participant (Question #11)

NATURAL HAZARD INFORMATION

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

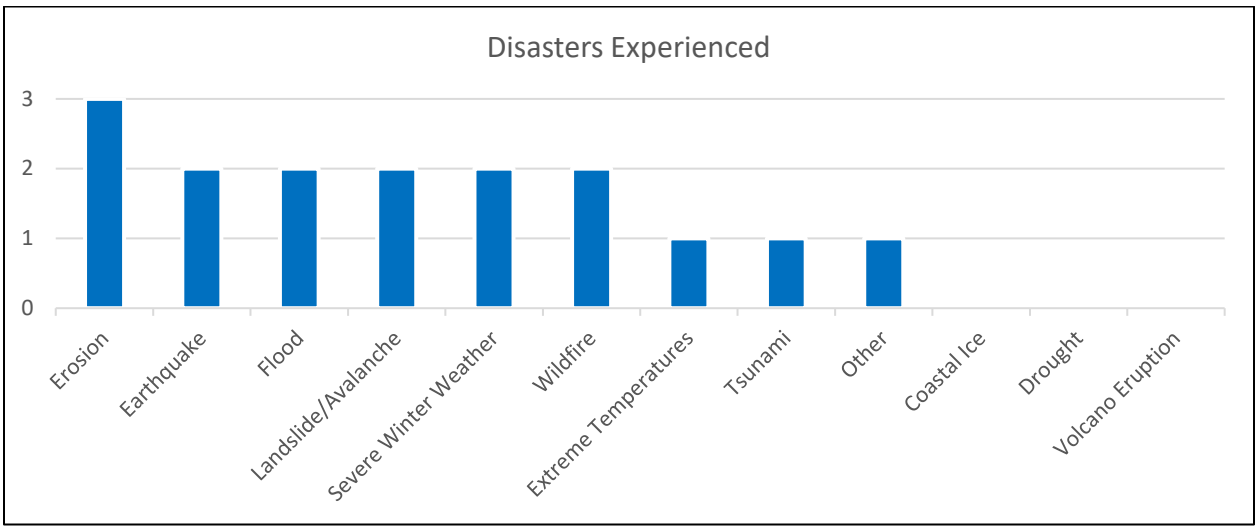


Figure 2: Disasters Experienced (Question #1)

Question #2 identified specific hazards that concerned the community members. The Community is most concerned about erosion. Three individuals out of the five replies expressed they were very concerned about erosion. Other disasters of concern are extreme temperatures, floods, and wildfires. Not all of the respondents identified concern levels for all of the listed hazards. Figure 5 identifies the concerns for the Community.

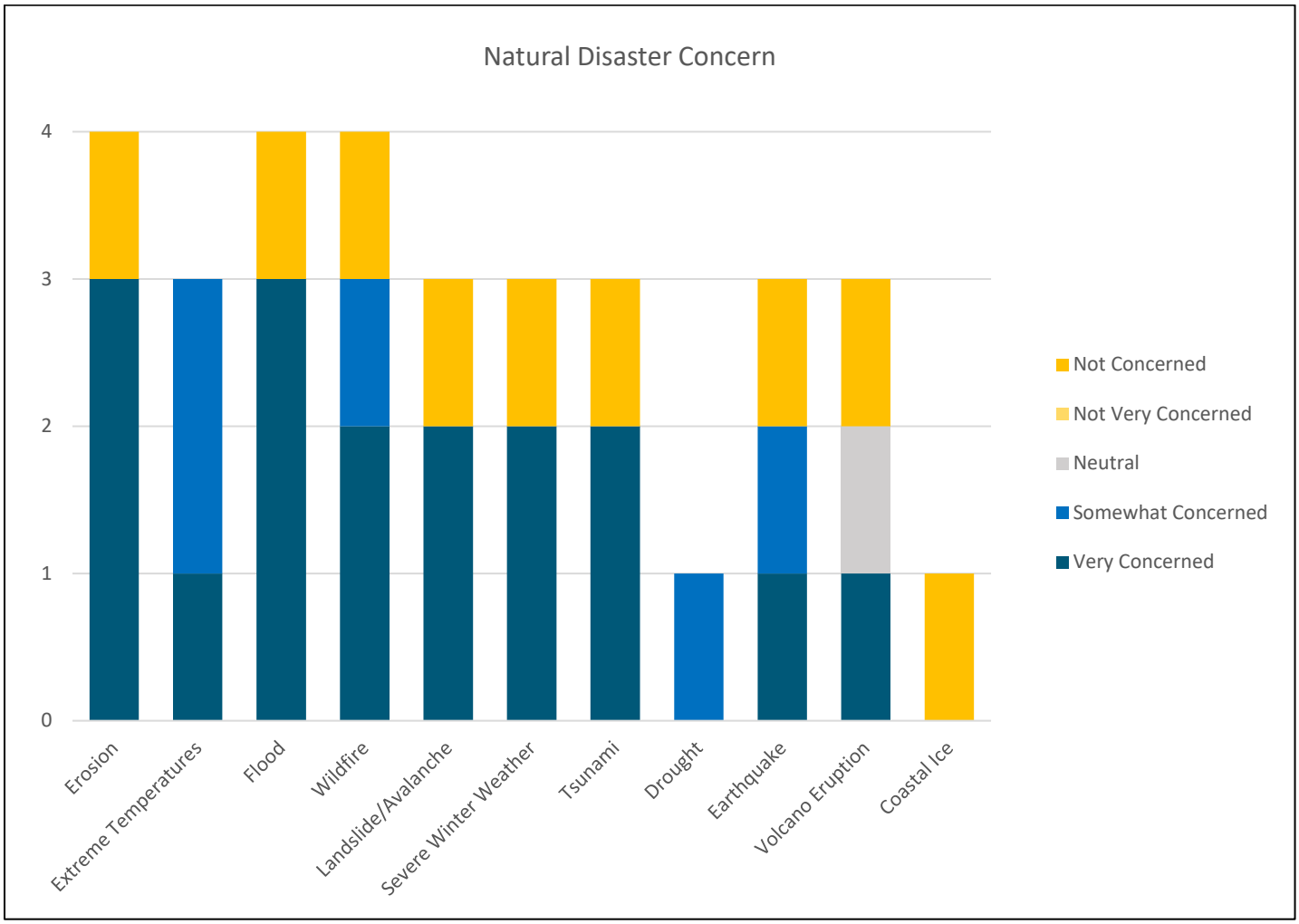


Figure 3: Natural Disaster Concern (Question #2)

The residents were asked if they received any information on how to make their homes and members of their household safe from a natural disaster (Question 3). One respondent noted that they received information five or more years ago. They received this information for the Tribe. (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, public workshops/meetings and radio 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.

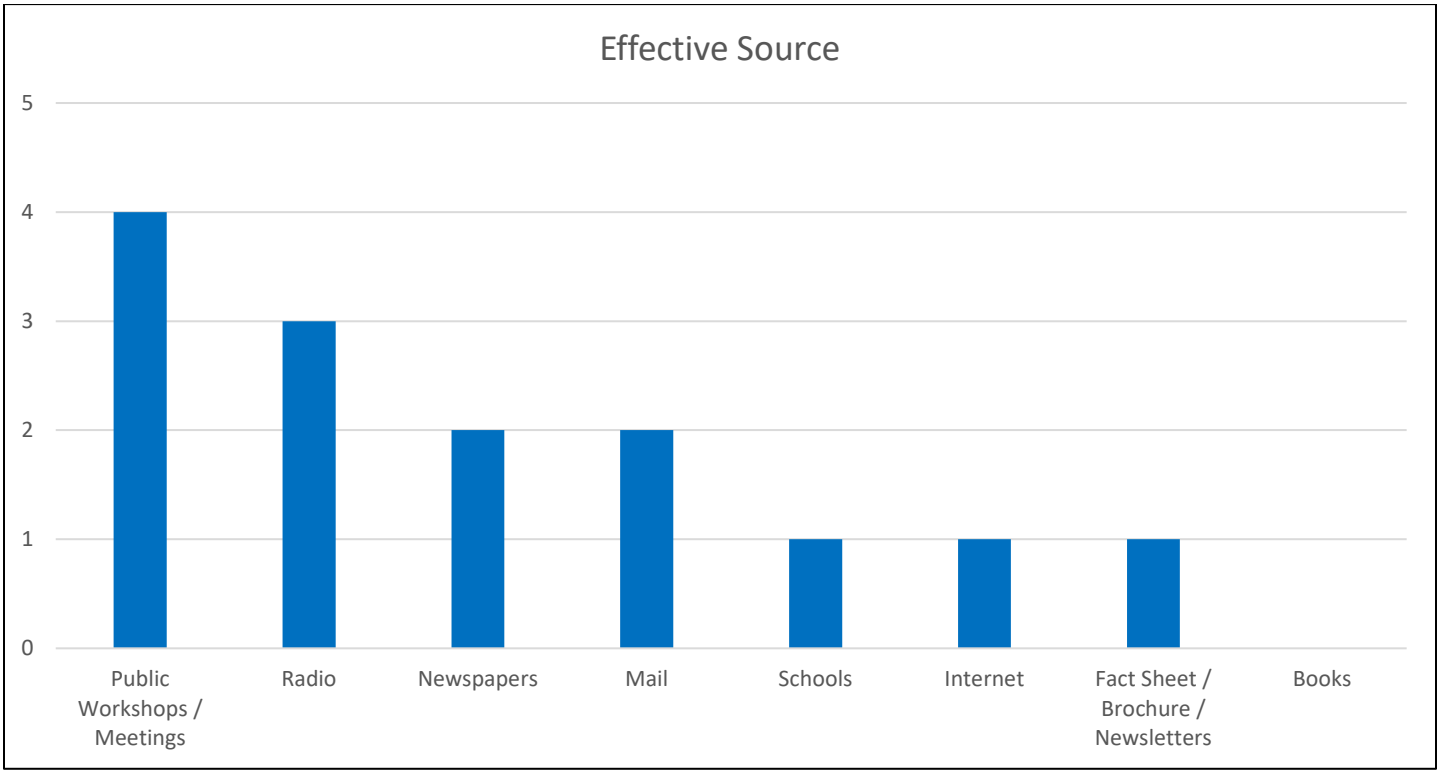


Figure 4: Effective Source (Question #5)

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.

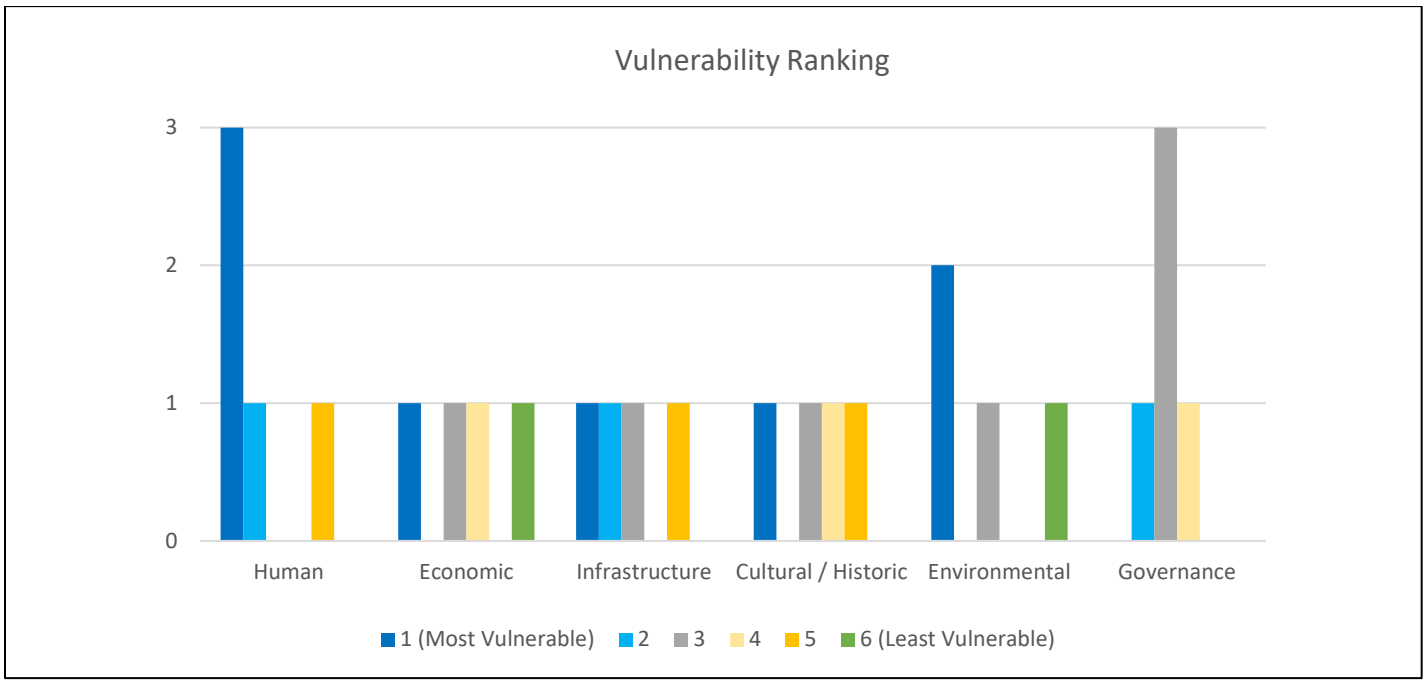


Figure 5: Vulnerability Ranking (Question #6)

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

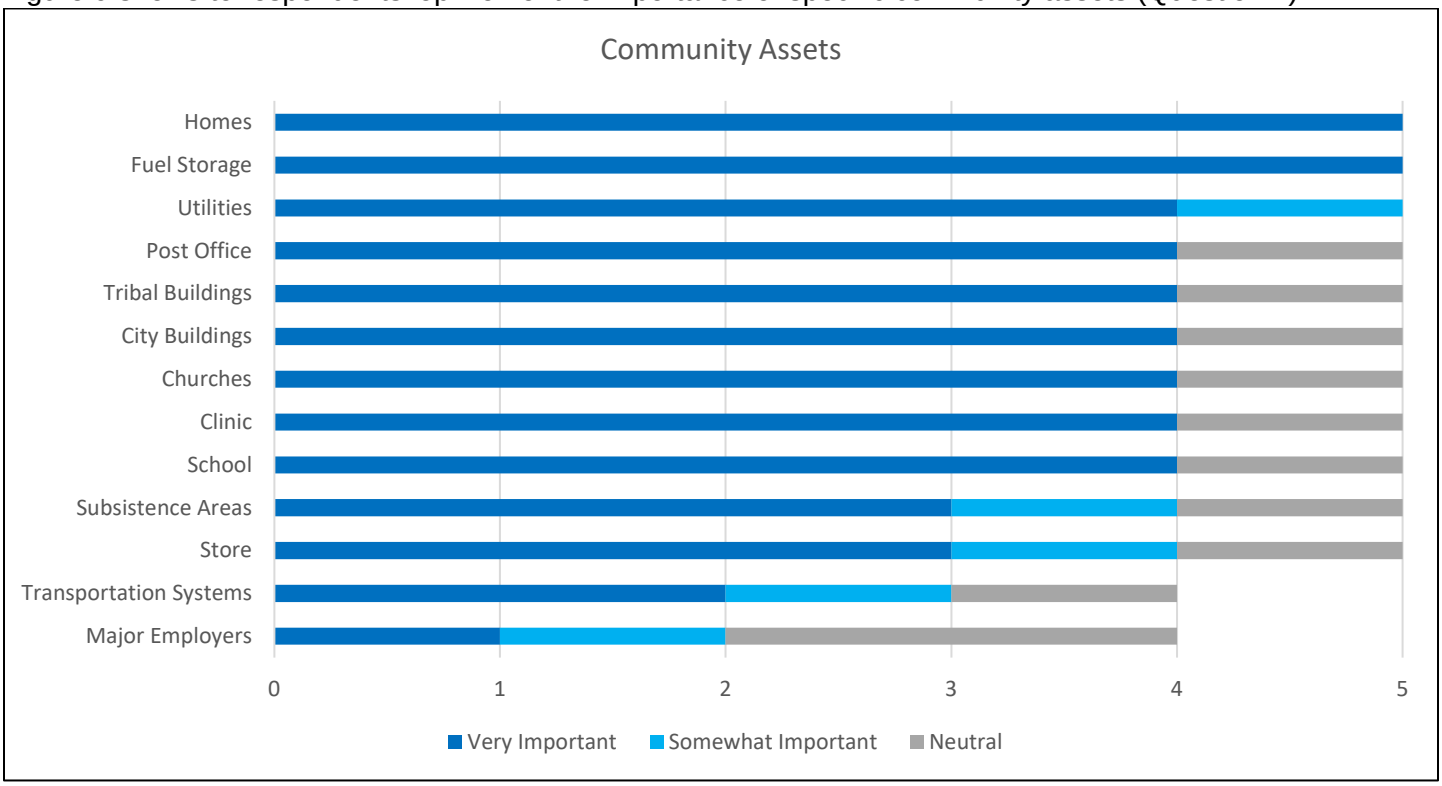


Figure 6: Community Assets (Question #7)

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

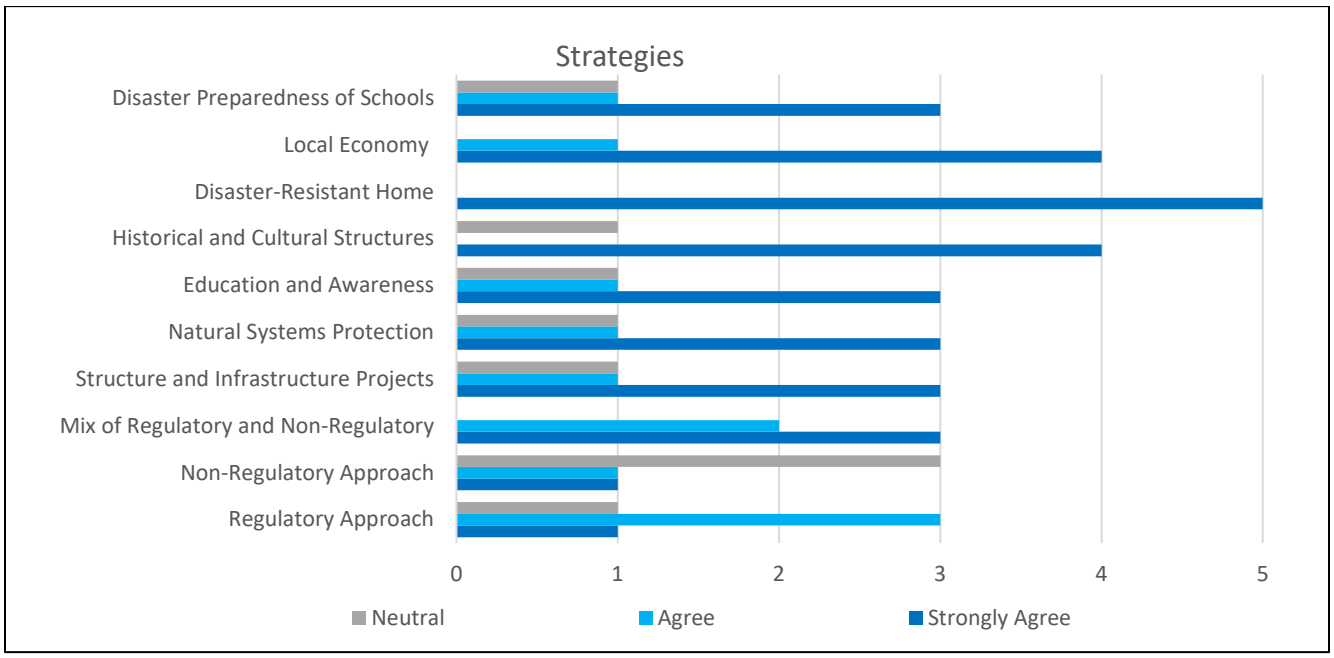


Figure 7: Mitigation Strategies (Question #8)

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

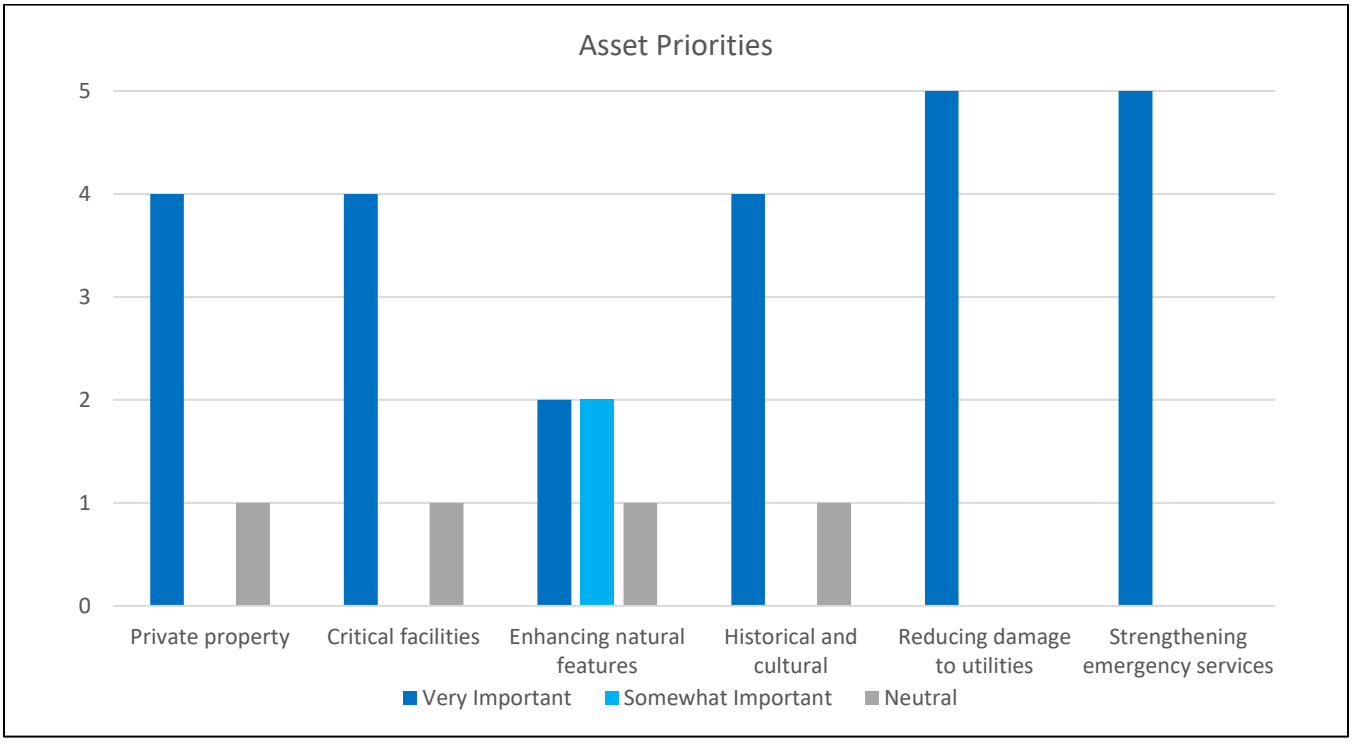


Figure 8: Asset Priorities (Question #9)

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)

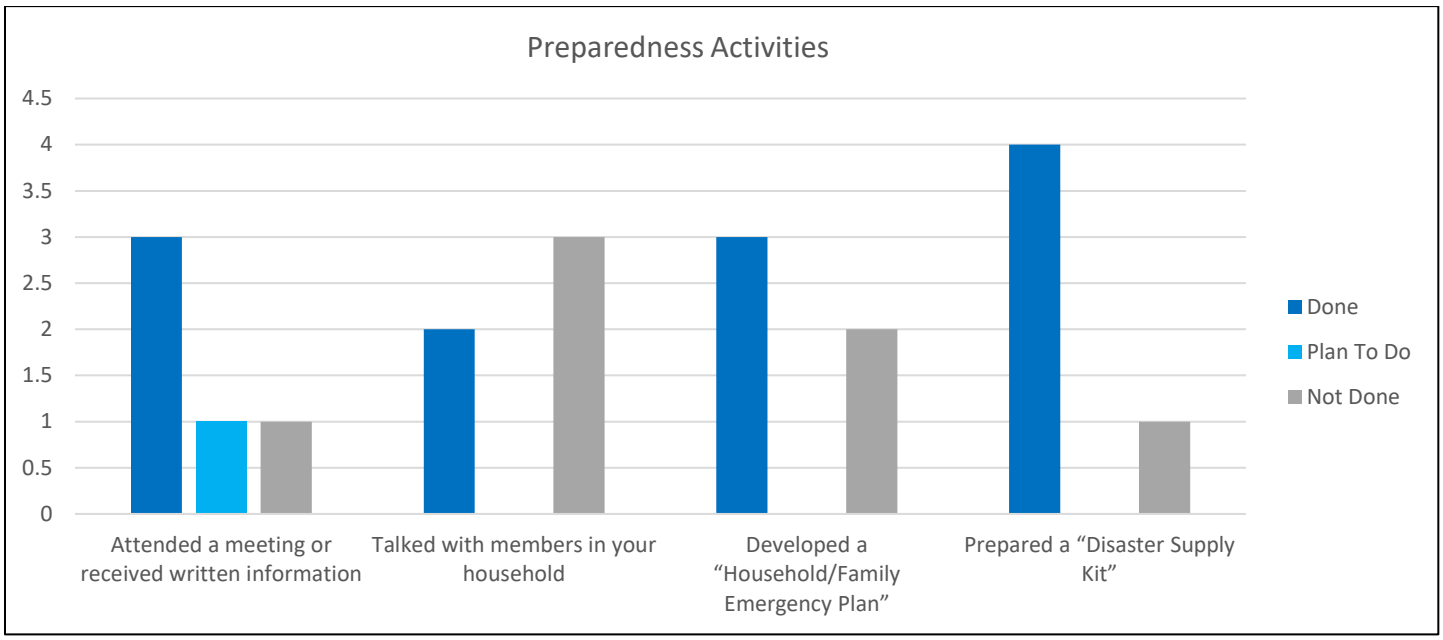


Figure 9: Preparedness Activities (Question #10)

GENERAL COMMENTS

The following is a comment made by one of the respondents.

- Prepare and protect what needs to be done before disaster. What's damaged. Help other people that need help ASAP.
- Emergency lights in homes when lights go 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**

****
*** TX REPORT ***
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FILE NAME		
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	819078452217	chignik lake vc
TRANSACTION OK	88422081	Aleknagik Trad. Council
ERROR	819072664327	Chignik Bay Tribal Counc — need to resend *

BRISTOL BAY NATIVE ASSOCIATION

PO BOX 310 DILLINGHAM ALASKA 99576
PHONE:(907) 842-5257
TOLL FREE 1-800-478-5257 FAX: (907) 842-5932

FAX TRANSMISSION COVER SHEET

DATE: August 20, 2018

TO: Vlg Admin

FAX:

SENDER: Annie Fritze

RE: Please Post and Share w/in your community - I will email and follow up with a phone call - Quyana - AF

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

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

___HARD COPY WILL FOLLOW IN THE MAIL ON THIS DATE email 8/20/2018
___HARD COPY WILL NOT FOLLOW.

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*** FAX MULTI TX REPORT ***
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TRANSACTION OK	-----
ERROR	819077492423ppppp702925
	819077492423ppppp702925

Chignik Bay

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*** FAX MULTI TX REPORT ***
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	819072891235ppppp702925
	819076933179ppppp702925
	819072942271ppppp702925
	819077972258ppppp702925
	819078372297ppppp702925
	819072771104ppppp702925
	819075254822ppppp702925
ERROR Chignik Lake	819078452217ppppp702925
	819072361428ppppp702925
	819078502221ppppp72925
	819078532230ppppp702925
	819074935005ppppp702925

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FAX TRANSMISSION COVER SHEET

DATE: August 20, 2018

TO: Vlg Admin

FAX:

SENDER: Annie Fritze

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

Quyana -

Dance, Danielle

From: Annie Fritze <afritze@bbna.com>
Sent: Tuesday, April 9, 2019 1:43 PM
To: borloff@alaskapeninsula.gov; jmetrokin@bbnc.net; tmase@lpsd.com; kluke@lpsd.com; fashbook@aol.com; bakelkok@bbha.org; rclark@bbahc.org; Gayla Hoseth; bschraffenberger@bbahc.org; tkalmakoff@bbahc.org; kateconley@lakeandpen.com; manager@lakeandpen.com; Carla Akelkok; Kristina Andrew; wwods@gci.com; norm@bbedc.com; Program Managers; Senator.Lyman.Hoffman@akleg.gov; Representative.Bryce.Edgmon@akleg.gov
Cc: Dance, Danielle; Dan Breeden; Pearson, Isaac
Attachments: Bristol Bay Native Association FEMA Newsletter2 Final A newsletter for BBNA Port Heiden.docx

Port Heiden Community Stakeholders:

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

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

We are excited to announce that the draft THMP for the Tribal Council of Port Heiden will be made available to the Tribal offices for public review and comment April 9-18, 2019
This plan is available on BBNA's web page for public comment at:
https://www.bbna.com/wp-content/uploads/DRAFT-FEMA-THMP-Port-Heiden-April-2019.pdf

The goal is to receive comments, identify key issues or concerns, and improve ideas for mitigation. When the draft plan is complete, the results will be presented to the community before submitting to FEMA for their preliminary approval and returned back to the Tribal Council for formal adoption.

Public comments should be received no later than April 18, 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. If no comments

are received by the end of the comment period it will be assumed that there were no comments on the draft.

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

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

Bristol Bay Native Association
Transportation and Infrastructure Development

March 2019 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 Tribal Council of Manokotak is available at the Tribal office for public review and comment, March 20-29, 2019. This plan is also available on BBNA's web page at https://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 **March 29, 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

BRISTOL BAY NATIVE ASSOCIATION
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DILLINGHAM, ALASKA 99576
PHONE (907) 842-5257

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

January 9, 2019

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

RE: Introducing BBNA's Tribal Hazard Mitigation Planning Project

Dear Representative Edgmon:

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

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

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.

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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

Manokotak Village Council

Resolution No. _____
Tribal Hazard Mitigation Plan Adoption Resolution

WHEREAS, the Manokotak Village hereafter "Tribe" is a federally recognized tribe; and

WHEREAS, the Manokotak Village Council is the governing body of the Tribe; and

WHEREAS, the Tribe recognizes the threat that natural hazards pose to people and property; and

WHEREAS, the Tribe has prepared a tribal hazard mitigation plan, hereby known as Manokotak Village Tribal Hazard Mitigation Plan [2019 – 2024] hereafter "Plan", dated [DATE] in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS, the Plan identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Manokotak from the impacts of future hazards and disasters; and

WHEREAS adoption by the Tribe demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Plan.

NOW, THEREFORE, BE IT RESOLVED, that the Tribe, hereby adopts the Plan as an official plan.

CERTIFICATION

The Manokotak Village Council has adopted this resolution during a meeting held on _____, 2019, in _____, Alaska, with a quorum present.

For ____ Against ____ Abstain ____ Present____ Absent ____

_____ _____
Signature Date

_____
Print Name / Title

_____ _____
Signature Date

_____
Print Name / Title

APPENDIX G

FEMA Approval & THMP Plan Review Tool

FEMA Region 10 Tribal Mitigation Plan Review Tool

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: *Manokotak Village*	**Title of Plan:** *Manokotak Village* *Tribal Hazard Mitigation Plan* *[2019 – 2024]*	**Date of Plan:** *August 2019*
Tribal Point of Contact: *Andrewski Toyukak*	**Address:** *Manokotak Tribal Council* *PO Box 169* *Manokotak, AK 99628*	
Title: *Transportation Planner*		
Agency: *Manokotak Tribal Council*		
Phone Number: *907-289-1249*	**Email:** *Kmo_trnsptsnplnr@hotmail.com*	

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

FEMA Reviewer:	**Title:**	**Date:**
Date Received in FEMA Region 10		
Plan Not Approved		
Plan Approvable Pending Adoption		
Plan Approved		

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		
A2. Does the plan document an opportunity for public comment during the drafting stage and prior to plan approval, including a description of how the tribal government defined "public"? [44 CFR § 201.7(c)(1)(i)]	Section 3.3		
A3. Does the plan document, as appropriate, an opportunity for neighboring communities, tribal and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? [44 CFR § 201.7(c)(1)(ii)]	Section 3.3.1		
A4. Does the plan describe the review and incorporation of existing plans, studies, and reports? [44 CFR § 201.7(c)(1)(iii)]	Section 3.4		
A5. Does the plan include a discussion on how the planning process was integrated to the extent possible with other ongoing tribal planning efforts as well as other FEMA programs and initiatives? [44 CFR § 201.7(c)(1)(iv)]	Section 3.5		
A6. Does the plan include a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within the plan update cycle)? [44 CFR § 201.7(c)(4)(i)]	Section 4.0 – 4.3		
A7. Does the plan include a discussion of how the tribal government will continue public participation in the plan maintenance process? [44 CFR § 201.7(c)(4)(iv)]	Section 4.1		
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		
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		

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		
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		
C2. Does the plan include a discussion of tribal funding sources for hazard mitigation projects and identify current and potential sources of Federal, tribal, or private funding to implement mitigation activities? [44 CFR §§ 201.7(c)(3)(iv) and 201.7(c)(3)(v)]	Section 6.2		
C3. Does the Mitigation Strategy include goals to reduce or avoid long-term vulnerabilities to the identified hazards? [44 CFR § 201.7(c)(3)(i)]	Section 6.3		
C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with emphasis on new and existing buildings and infrastructure? [44 CFR § 201.7(c)(3)(ii)]	Section 6.4		
C5. Does the plan contain an action plan that describes how the actions identified will be prioritized, implemented, and administered by the tribal government? [44 CFR § 201.7(c)(3)(iii)]	Section 6.5		
C6. Does the plan describe a process by which the tribal government will incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate? [44 CFR § 201.7(c)(4)(iii)]	Section 6.6		
C7. Does the plan describe a system for reviewing progress on achieving goals as well as activities and projects identified in the mitigation strategy, including monitoring implementation of mitigation measures and project closeouts? [44 CFR §§ 201.7(c)(4)(ii) and 201.7(c)(4)(v)]	Section 6.7		
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.

Describe the mitigation plan strengths areas for future improvements, including areas that may exceed minimum requirements.

- Planning process
- *Hazard identification and risk assessment*
- *Mitigation strategy (including Mitigation Capabilities)*
- *Plan updates*
- *Adoption and assurances*
- *Enhanced Plan - Integrated planning*
- *Enhanced Plan - Tribal government mitigation capabilities (commitment to a comprehensive mitigation program)*
- *Enhanced Plan - HMA grants management performance*