

15. Appendix G – Participating Communities' HMPs

1. Chignik
2. Egegik
3. Newhalen
4. Nondalton
6. Pilot Point
7. Port Alsworth
8. Port Heiden

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LAKE AND PENINSULA BOROUGH MULTI-JURISDICTIONAL Hazard Mitigation Plan Update

City of Chignik, Alaska



Chignik 1985 (Photo: City)

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1. Community Description

Section One provides the Chignik location, geography, history, and demographic information.

1.1 Location, Geography and History

The City of Chignik, population 96 (2014 DCCED Commissioner Certified Figure) is located on Anchorage Bay on south shore of the Alaska Peninsula. It lies 450 miles southwest of Anchorage and 260 miles southwest of Kodiak. The community lies at approximately 56.295280° North Latitude and -158.40222° (West) Longitude. (Sec. 07, T045S, R058W, Seward Meridian.) Chignik is located in the Aleutian Islands Recording District. The area encompasses 11.7 sq. miles of land and 4.2 sq. miles of water.



Figure 1 Chignik (Photo: Marv Smith)

Chignik has a maritime climate characterized by cool summers and warm, rainy winters. Cloud cover and heavy winds are prevalent during winter months. Summer temperatures range from 39 to 60 degrees Fahrenheit. Winter temperatures average 20 degrees Fahrenheit. Annual precipitation averages 127 inches, with an average snowfall of 58 inches.

A village called "Kalwak" was originally located here; it was destroyed during the Russian fur boom in the late 1700s. Chignik, meaning "big wind," was established in the late 1800s as a fishing village and cannery. A four-masted sailing ship called the "Star of Alaska" transported workers and supplies between Chignik and San Francisco. Chinese crews from San Francisco traveled to Chignik in early spring to make tin cans for the cannery. Japanese workers followed in mid-June to begin processing.

A post office was established in 1901. Coal mining occurred from 1899 to 1915. Chignik became an incorporated City in 1983. Today, two of the historical canneries are still in operation.

A federally recognized tribe is located in the community -- the Chignik Village Council. The population of the community consists of 60.8% Alaska Native or part Native. The community is presently a mixture of non-Natives and Alutiiq. Subsistence on fish and caribou is important to residents' livelihoods. During the 2010 U.S. Census, total housing units number 105 with 41 of them year round residents, and vacant housing units numbered 64. Vacant housing units used only seasonally numbered 37. U.S. DCRA estimated population for 2014 for Chignik is 92.

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Figure 2 Chignik location in the LPB (2012 LPB Comprehensive Plan).

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As is typical of villages in the region, commercial fishing and subsistence activities are the mainstays of the economy. Sixteen residents hold commercial fishing permits. Two fish processing plants operate in Chignik: Norquest Adak and Trident Seafoods. Salmon, herring roe, halibut, cod and crab are processed here; between 600 to 800 people come to Chignik to fish or work in the plants each summer. Residents depend on subsistence foods, including salmon, trout, crab, clams, caribou and moose.

Water is supplied by Indian Creek, which has a dam and a reservoir. Water is treated and piped into all 60 homes and the school. A well is available for back-up water supply. Funds have been requested for a 200,000-gallon water contact tank and filtration system to bring the water into compliance. Piped sewage is collected in community septic tanks and wastewater is discharged via ocean outfall lines; approximately 45 homes are served. The remainder use individual septic tanks.

All homes are completely plumbed. A new permitted landfill and access road were recently completed. A study is needed to examine the feasibility of hydroelectric generation at Indian Lake.

Chignik Electric provides electricity. There is one school located in the community, attended by 14 students. Local hospitals or health clinics include Chignik Sub Regional Health Clinic (749-2282). The clinic is a qualified Emergency Care Center. Chignik is classified as an isolated town/Sub-Regional Center, it is found in EMS Region 2I in the Bristol Bay Region. Emergency Services have coastal and air access. Volunteers and a health aide provide emergency services. Auxiliary health care is provided by Chignik Fire & Rescue (clinic 749-2282).

2. Planning Process

Section Two provides an overview of the planning process; identifies the Planning Team Members and key stakeholders; documents public outreach efforts; and summarizes the review and incorporation of existing plans, studies, and reports used to develop this MJHMP. Outreach support documents and meeting information regarding the Planning Team and public outreach efforts are provided in the Lake & Peninsula Borough (LPB) Multi-Jurisdictional Hazard Mitigation Plan.

2.1 Planning Process Overview

The State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) provided funding and project oversight to AECOM Corporation to facilitate and guide Planning Team development and MJHMP development.

In summary, the following five-step process took place from November 11, 2014 through May 2015.

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1. 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 hazard mitigation plan.
2. Monitor, evaluate, and update the plan: The Planning Team developed a process to ensure the plan was monitored to ensure it was used as intended while fulfilling community needs. The team then developed a process to evaluate the plan to compare how their decisions affected hazard impacts. They then outlined a method to share their successes with community members to encourage support for mitigation activities and to provide data for incorporating mitigation actions into existing planning mechanisms and to provide data for the plans five-year update.
3. Assess risks: The Planning Team identified the hazards specific to the City and with the assistance of a hazard mitigation planning consultant (AECOM), developed the risk assessment for seven identified hazards. The Planning Team reviewed the risk assessment, including the vulnerability analysis, prior to and during the development of the mitigation strategy.
4. 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.
5. Develop a mitigation strategy: After reviewing the risks posed by each hazard, the Planning Team developed a comprehensive range of potential mitigation goals and actions. Subsequently, the Planning Team identified and prioritized the actions for implementation.

2.2 Planning Teams

The Borough planning team was developed and comprised of Ranya Aboras (Planning Team Leader) and representatives from each of the incorporated cities and Port Alsworth.

Table 1 LPB Planning Team Members

Team Member	Title	Involvement
Ranya Aboras	LPB Community Development Planner	MJHMP Team Leader, data gathering and plan review
LPB Planning Commission	Planning Commissioners	MJHMP plan review
Becky Bottcher	City Clerk/Treasurer	Chignik plan
Don Strand	City Manager	Egegik plan
Greg Anelon	City Manager	Newhalen plan
Carrie Harried	City Manager	Nondalton plan
Barbara Chestler	City Manager	Pilot Point plan
Angela Simpson	City Administrator	Port Heiden plan
Beth Hill	Port Alsworth Improvement Corporation	Port Alsworth plan
Scott Simmons	AECOM, Project Manager	MJHMP update manager, lead writer, and MJHMP project coordination.
Eileen Bechtol	BP&D/Community Planner	MJHMP update, project planner

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Each community organized their own Planning Team; Chignik’s Planning Team is shown on Table 2 below.

Table 2 Chignik Planning Team

Team Member	Title	Involvement
Becky Bottcher	City Clerk	Chignik plan review and data gathering
Richard Sharpe	Mayor	Chignik plan review
Ranya Aboras	LPB Community Development Planner	MJHMP Team Leader, data gathering and plan review
Scott Simmons	AECOM, Project Manager	MJHMP update manager, lead writer, and MJHMP project coordination.
Eileen Bechtol	BP&D/Community Planner	MJHMP update, project planner

2.3 Public Involvement & Opportunity for Interested Parties to participate

AECOM extended an invitation to all individuals and entities identified on the project mailing list described the planning process and announced the upcoming communities’ planning activities. The announcement was emailed to relevant academia, nonprofits, and local, state, and federal agencies on November 20, 2014. The list of the agencies and organization is invited to participate and review the MJHMP.

Table 3 lists the community’s public involvement initiatives focused to encourage participation and insight for the MJHMP effort.

Table 3 Public Involvement Mechanisms

Mechanism	Description
Newsletter #1 Distribution (February 2015)	In February and March 2015, the jurisdiction distributed a newsletter introducing the upcoming planning activity. The newsletter encouraged the community to provide hazard and critical facility information. It was posted at the City offices, bulletin boards, and City website to enable the widest dissemination.
Agency Involvement eMail (November 20, 2014)	Invited agencies to participate in mitigation planning effort and to review applicable newsletters located on the DHS&EM Local/Tribal All Hazard Mitigation Plan Development website at: http://ready.alaska.gov/plans/localhazmitplans.htm
Newsletter #2 Distribution (April 2015)	In April 2015, the jurisdiction distributed a second newsletter describing the MJHMP and the community specific draft plan availability and present potential MJHMP projects for review. The newsletter encouraged the community to provide comments or input. It was posted at the City or community office, and disseminated.
Public Meeting (April 6, 2015 LPB PC Meeting)	Notice of the April 6, 2015 meeting to introduce the MJHMP was posted at City Hall, and distributed using their usual public notice procedures.
Public Meeting (May 11, 2015 LPB PC Meeting)	Notice of the May 11, 2015, meeting was posted at Borough Hall, and distributed using their usual public notice procedures.
Public Meeting (_____, 2015 LPB PC Meeting)	Notice of the_____, 2015, meeting was posted at Borough offices, and distributed to communities using their usual public notice procedures.
Public Meeting (_____, 2015 Chignik City Meeting)	Notice of the_____, 2015, meeting was posted at City Hall, and distributed in the community using their usual public notice procedures.

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2.4 Review and analysis of the Legacy 2009 MJHMP.

The Legacy 2009 Chignik portion of the MJHMP was revised as described below.

- Section 1. **Community Description:** updated and expanded community information, including new census and State data.
- Section 2. **Planning Process:** updated this section to reflect 2015 public process including newsletters, public meetings and 2015 Planning Team.
- Section 3. **Plan Adoption:** 2015 resolutions and dates.
- Section 4. **Hazard Identification & Risk Assessment:** reviewed hazard identification and risk assessment for flooding, ground failure, and tsunami adding 2009 to 2015 descriptions and data.
- Section 5. **Vulnerability Analysis:** added a new section to analyze vulnerability with 2015 critical facilities and infrastructure tables.
- Section 7. **Mitigation Strategy:** reviewed 2009 mitigation goals and actions and added new goals and action for the 2015 Mitigation Action Plan.

The Planning Team did not complete their designated annual HMP reviews or plan maintenance activities. Therefore it became a primary consideration to update the existing 2009 HMP to include hazards that have, or could potentially have, impacted the community during the legacy HMP's 5-year lifecycle.

Planning Team identified HMP components that necessitated information update. The Team determined how community changes, construction and infrastructure conditions, climate change impacts, and population increases or decreases have influenced hazard risks and/or facility vulnerabilities.

The 2015 HMP Update process included inviting new and existing stakeholders to review the existing HMP to determine what was accomplished versus what was intended to accomplish.

2.5 Incorporation of Existing Plans and Other Relevant Information

During the planning process, the Planning Team reviewed and incorporated information from existing plans, studies, reports, and technical reports into the MJHMP.

LPB MJHMP Table 3-3 lists existing plans and other documents that were available regarding the LPB and Chignik and were reviewed and used as references for the jurisdiction information and hazard profiles in the risk assessment of the MJHMP for the Borough and Chignik.

2.6 Plan Maintenance

This section in the MJHMP describes a formal plan maintenance process to ensure that the MJHMP remains an active and applicable document. It includes an explanation of how the Borough's Planning Team intends to organize their efforts to ensure that improvements and revisions to the MJHMP occur in a well-managed, efficient, and coordinated manner.

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The following three process steps are addressed in detail in the Borough Plan:

1. Implementation into existing planning mechanisms
2. Continued public involvement
3. Monitoring, reviewing, evaluating, and updating the MJHMP

The City will follow the same procedure as set forth in the LPB MJHMP.

3. Plan Adoption

Section Three is included to fulfill the City of Chignik MJHMP adoption requirements.

3.1 Adoption by Local Governing Bodies and Supporting Documentation

The requirements for the adoption of this MJHMP by the local governing body, as stipulated in the DMA 2000 and its implementing regulations are described below.

The Borough is represented in this MJHMP and meets the requirements of Section 409 of the Stafford Act and Section 322 of DMA 2000, and 44 CFR §201.6(c)(5).

The LPB Borough Assembly and cities' council's formal adoption resolutions and Port Allworth's letter stating compliance with MJHMP initiatives were submitted with the final draft MJHMP to FEMA for formal approval.

A scanned copy of the Borough's and Cities formal adoption resolutions are included in Appendix C.

4. Hazard Identification and Risk Assessment

Section Four identifies and profiles the hazards that could affect the City of Chignik.

Site visits (in 2008); public meetings, and evaluation of historical information indicate that flooding, ground failure and tsunami are the hazards about which the community is most concerned.

Hazard identification and risk assessment for these three hazards of flooding, ground failure and tsunami are in this section. Earthquake was not considered a risk for Chignik in the Legacy 2009 but was profiled in this update.

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The City is also at risk for the Borough wide hazards of severe weather, volcano and wildfire. Chignik has the same extent, impact and probability for these hazards as analyzed in the LPB MJHMP. The hazards profiled in the LPB MJHMP indicate that the entire City is at risk for each of these hazards.

Hazard **Risk Assessment in LPB MJHMP**

Volcano	Section 5.3.5.3
Weather (Severe)	Section 5.3.6.3
Wildland/Tundra Fire	Section 5.3.7.3

4.1 Earthquake

4.1.1 History

Table 4 lists 25 historical earthquakes over M5 with the largest one (M7.1) occurring on September 4, 1989.

Table 4 Historical Earthquakes in Chignik

Date	Time	Latitude	Longitude	Depth	Magnitude
09/04/89	13:14	55.543	-156.835	11.4	7.1
02/13/79	5:34	55.453	-157.162	33	6.7
05/20/79	8:14	56.647	-156.725	71	6.4
01/02/85	5:32	55.428	-157.835	33.3	6
01/27/04	9:50	56.806	-156.757	75.6	5.6
12/22/00	0:40	56.82	-158.341	105.9	5.6
03/10/12	14:10	55.146	-157.567	10	5.5
01/01/91	15:50	55.167	-158.388	33	5.4
12/19/04	22:39	55.352	-157.996	30	5.3
12/28/85	7:44	56.58	-156.509	58.5	5.3
12/07/13	16:44	55.1872	-157.8329	11.1	5.2
07/04/11	21:01	55.131	-157.8	11.7	5.2
04/19/88	22:05	56.446	-156.378	76.5	5.2
01/07/06	18:55	56.319	-157.396	59.3	5.1
05/05/01	5:48	56.448	-156.609	61.9	5.1
01/25/95	10:27	55.307	-157.561	33	5.1
09/05/94	2:59	55.987	-158.436	61.7	5.1
06/05/84	1:44	56.901	-157.262	94	5.1
11/20/83	8:29	55.317	-157.976	33	5.1
08/15/81	10:30	56.378	-156.776	53	5.1
02/12/79	15:44	55.501	-157.198	33	5.1
12/30/10	19:21	56.748	-156.149	54	5
01/24/01	17:47	55.514	-156.483	41.7	5
02/13/79	11:35	55.419	-157.053	33	5

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Figure 3 depicts seismic activity near Chignik.

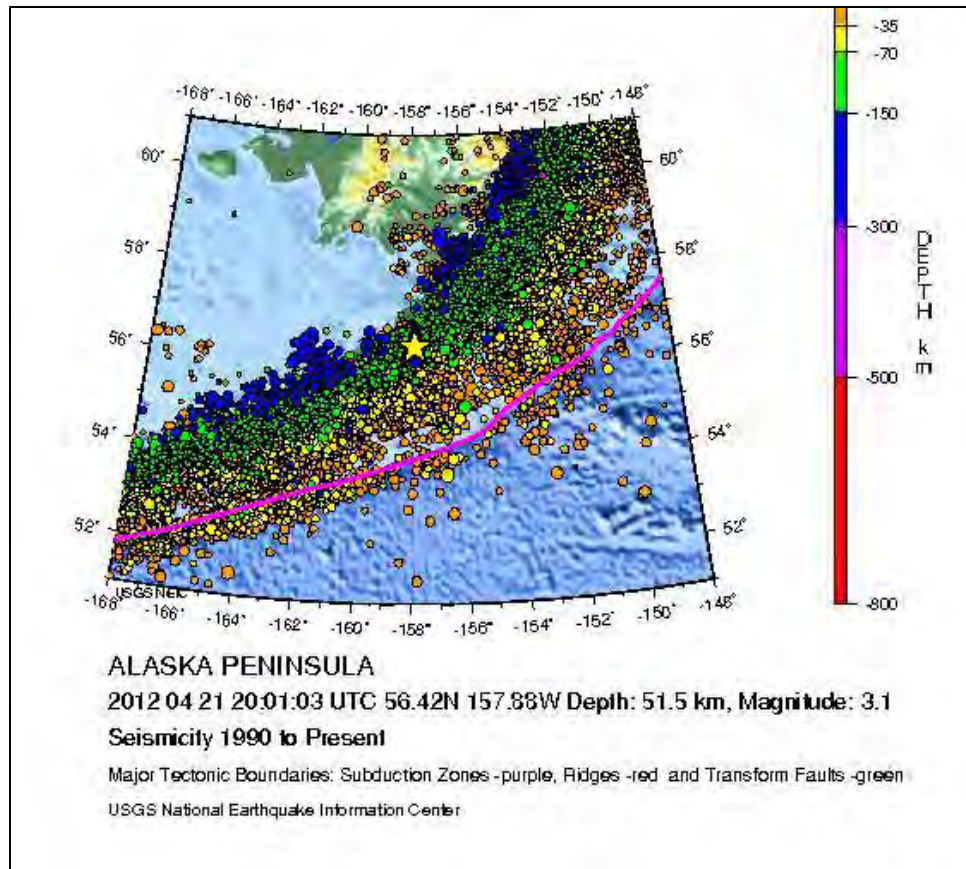


Figure 3 1990 to 2012 Seismicity near Chignik

4.1.2 Location, Extent, Impact and Probability of Future Events

Location

The entire community of Chignik is at risk for earthquake damages.

Extent

Chignik is located in an area of high seismic activity. Based on the criteria identified in hazard magnitude/severity table (LPB MKHMP Section 5.3 Table 5-2) the extent of an earthquake in the community of Chignik is considered “Catastrophic”. A “Catastrophic” event would entail possible deaths, injuries and/or illnesses resulting in permanent disability. The event could cause a complete shutdown of critical facilities for thirty days or more.

Impact

Impacts to the community such as significant ground movement that may result in infrastructure damage is expected. Significant shaking may be seen or felt based on past events. Impacts to future populations, residences, critical facilities, and infrastructure could be severe.

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Probability of Future Events

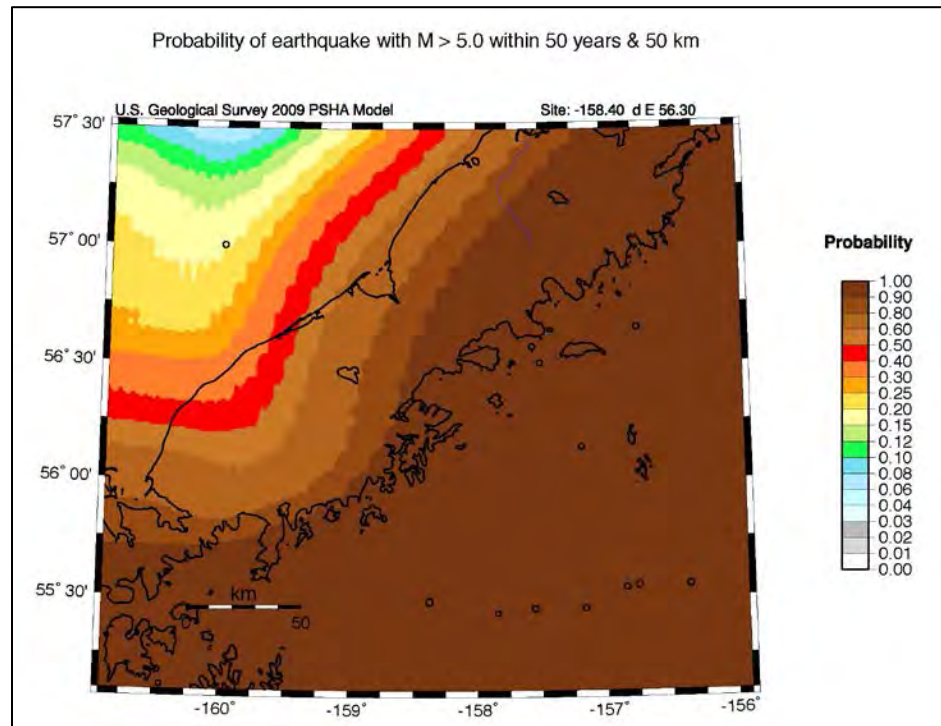


Figure 4 Probability of earthquake in Chignik (USGS 2015)

Based on past events and frequency of earthquake events in Chignik the probability of an event occurring is “Highly Likely”. The event is probable within the calendar year and has up to a 1 to 1 year chance of occurring (1/1=100 percent). History of events is great than 33 percent likely per year. Event is High Likely” to occur.

4.2 Flood

4.2.1 History

Flood and storm surge is a danger every year from December to February. Several recent historical events have involved flooding due to storm surge. During the fall of 2002, the Chignik was included in a Federal Disaster Declaration as a result of flooding in the community. The flooding was caused by continuous rainfall over several days combined with wind driven high tides.

Wind driven high tides also caused significant damages to the community in 1986. The tide covered roads, flooded homes, and scattered debris throughout the community.

There were no floods of record during the Legacy 2009 Plan cycle.

4.2.2 Location, Extent, Impact and Probability of Future Events

Location

Based on previous occurrences, annual fall storms and heavy rain events will continue to pose a threat to the community of Chignik due to the exposed nature of the coastline.

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The entire community of Chignik is particularly vulnerable to flooding caused by storm surges because of its low-lying location and its exposure to a long ocean fetch.

Extent

Floods are described in terms of their extent (including the horizontal area affected and the vertical depth of floodwaters) and the related probability of occurrence.

Erosion due to storm surges and wave action has resulted in visible damages to the community at all waterfront areas. Residents report the loss of approximately 30 feet of oceanfront in recent memory. Heavy storms cause rapid erosion and have created hazards for drivers.

All areas intersecting a body of water are vulnerable to erosion damages. Annual fall storms and heavy rain events will continue to pose a threat to Chignik due to the exposed nature of the coastline.

Impact

Flooding events result in more damage than any other natural hazard in Chignik. In the likely event flooding may occur within the community of Chignik the following impacts may occur.

- Damage to structures, roads, bridges, culverts and other features from high-velocity flow and from debris carried by floodwaters
- Release of sewage and hazardous or toxic substances as wastewater treatment plants are inundated, storage tanks are damaged, and pipelines are severed.
- Inundation of structures, causing water damage to structural elements and contents
- Erosion of shoreline, stream banks, roadway embankments, foundations, footings for bridge piers, and other features

The list impacts from flooding events could make the community vulnerable to economic losses through closure of businesses and government facilities, disruption in communications and disruption of the provision of utilities such as water and sewer services. Floods result in excessive expenditures for emergency response, and generally disrupt the normal function of a community.

Impacts from erosion include loss of land and any development on the land. Erosion can cause increased sedimentation of harbors and river deltas and hinder channel navigation, affecting marine transport. Other impacts include reduction in water quality due to high sediment loads, loss of native aquatic habitats, damage to public utilities, and economic impacts associated with costs trying to prevent or control erosion sites.

Probability of Future Event

With the increase of intensified fall sea storms taken place yearly, it is “likely” a flood event may occur within the next three years (event has up to 1 in 3 chance of occurring). Based on the probability matrix on the history of the event occurring is more than 20% but less than or equal to 33% in a calendar year. Event is likely to occur.

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4.3 Ground Failure

4.3.1 History

In March of 2000, an avalanche covered the road between the city and the airport. Ten families were evacuated due to avalanche danger, and the school had to be closed for two weeks. Avalanches have also been problematic in recent years. These events will continue to occur and leave the community vulnerable to a loss of airport access.

There were no reports of other ground failure during the Legacy 2009 Plan cycle.

4.3.2 Location, Extent, Impact and Probability of Future Events

Location

Mass wasting in the form of avalanches and landslides occurs regularly in areas of the community that are exposed to the hazard. Residents report that rock fall regularly strikes the road, especially during spring thaw. The entire community is vulnerable to ground failure hazards.

Extent

Large rocks striking the road are commonplace, according to the village VPSO (2008). Based on past avalanche and landslide events and the criteria identified in hazard magnitude/severity table (LPB MKHMP Section 5.3 Table 5-2) the extent of ground failure in the community of Chignik is considered “Critical”. A “Critical” event would entail injuries and/or illnesses resulting in permanent disability. The event could cause a complete shutdown of critical facilities for at least two weeks and property damage of more than 25 percent.

Impact

The impacts of ground failure events could make the community vulnerable to economic losses through closure of businesses and government facilities, disruption in communications, disruption of the provision of utilities such as water and sewer services. Other disruptions that occur during periods of isolation include transportation closures and shortage of food and other supplies.

Probability of Future Events

Based on past events and frequency of ground failure events in Chignik the probability of an event occurring is “Highly Likely”. The event is probable within the calendar year and has up to a 1 to 1 year chance of occurring (1/1=100 percent). History of events is great than 33 percent likely per year. Event is High Likely” to occur.

4.4 Tsunami

4.4.1 History

To date, a damaging tsunami has not occurred in the community, but this does not reduce the community’s vulnerability.

There were no tsunami impacts during the Legacy 2009 Plan cycle.

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4.4.2 Location, Extent, Impact and Probability of Future Events

Location

The entire community is vulnerable to tsunami damages. The city's designated tsunami shelter is at an elevation that is vulnerable to large waves, and as such is ineffective as a shelter.

Additional study of hillsides and tsunami run-up zones is necessary to determine specific areas of vulnerability, but it is reasonable to assume that all low-lying areas of the community (under 100 foot elevation) are vulnerable to distant-source tsunami damages.

Locally generated tsunamis may produce larger waves. It is difficult to predict future tsunamis, but they are likely to occur based on historical records of the Pacific coast and the community is at risk due to low-lying key infrastructure such as the airport and water-

Extent

Notable tsunamis in Alaska include those resulting from the 1964 earthquake, a tsunami resulting from earthquake-induced ground failure in Lituya Bay in 1958, an earthquake-induced tsunami near Unimak Bay which destroyed the Scotch Cap lighthouse in 1946, and major Pacific-wide tsunami generated by an earthquake in the Aleutian trench, which, although significant, did not cause major damages to human settlements in Alaska. A landslide-induced tsunami in Skagway caused one fatality in 1994.

The magnitude and severity of a tsunami will depend on each specific event. Communities that are actually struck by damaging tsunamis can usually count on experiencing an extremely damaging event. A distant-source tsunami that damages one community is very likely to also strike other communities on the same coast.

Based on the devastation of past tsunamis events in the world and the criteria identified in Table 5-2 (LPB MKHMP Section 5.3 Table 5-2) the magnitude and severity of impacts in Chignik are considered "Critical" in that more 25 percent of property could be damaged. Injuries and/or illnesses result in permanent disability and complete shutdown of critical facilities for at least two weeks.

Impact

Tsunami damages are usually related to vulnerable populations, shelter and/or safe areas for population, infrastructure damage and interruptions of services. Chignik could be isolated from a large event.

The City of Chignik supports Alaska and NOAA initiatives to develop local community forecast models that are under development to help Chignik educate residents and visitors of their potential tsunami threat. Early warning could mitigate some of the impacts. However, the devastating Indonesian tsunami of 2004 illustrated how difficult it is to provide advance warning of even active tsunamis. Many communities could not be reached in time to warn them of the wave.

A similar situation exists in rural Alaska; demonstrated by the tsunami warning of 2007, which did not reach targeted communities in time to warn them of a potential tsunami. Luckily, that warning was unnecessary as a tsunami did not actually occur, but Alaskan communities should be aware that advance warning of tsunami waves may not reach them when necessary.

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Therefore it is important for all communities to be watchful for tsunami warning signs, especially when an earthquake or volcanic eruption occurs.

One earthquake can trigger multiple landslides and landslide-generated tsunamis. Low tide is a factor for submarine landslides because low tide leaves part of the water-saturated sediments exposed without the water's support. "Loading" generally causes an area's instability from added weight such as large structures, or added fill material used to reclaim land for future development.

Tsunami events could make the community vulnerable to economic losses through closure of businesses and government facilities, disruption in communications, disruption of the provision of utilities such as water and sewer services

Probability of Future Events

Based on past tsunami events and the criteria identified in the probability matrix, the extent of tsunamis in the community of Chignik is considered "Possible". The event has up to 1 to 5 years chance of occurring (1/5=20 percent). The history of events is great than 10 percent but less than or equal to 20 percent likely per year. Event could "Possibly" occur.

4.5 Weather (Severe)

4.4.1 History

The community experiences severe weather in the form of annual blizzards and high winds. Heavy snow is problematic for the community because the homes are so far apart. It is beyond the community's capability to keep the roads plowed during periods of heavy snow. As a consequence, residents are essentially trapped in their homes and, should power be lost, can be cut off from communications with other residents. These storms have the power to disrupt air and boat travel and power generation in this isolated community with gusts of 140 mph.

4.4.2 Location, Extent, Impact and Probability of Future Events

Location

The entire City of Chignik is at risk of a severe winter event.

Extent

Based on past severe weather events and the criteria identified in LPB MJHMP Table 5-2, the extent of severe weather in the Borough are considered limited where injuries do not result in permanent disability, complete shutdown of critical facilities occurs for more than one week, and more than 10 percent of property is severely damaged.

Impact

The intensity, location, and the land's topography influence a severe weather event's impact within a community. Hurricane force winds, rain, snow, and storm surge can be expected to impact the entire Borough.

Heavy snow can immobilize a community by bringing transportation to a halt. Until the snow can be removed, airports and roadways are impacted, even closed completely, stopping the flow of supplies and disrupting emergency and medical services. Accumulations of snow can cause

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roofs to collapse and knock down trees and power lines. Heavy snow can also damage light aircraft and sink small boats. A quick thaw after a heavy snow can cause substantial flooding. The cost of snow removal, repairing damages, and the loss of business can have severe economic impacts on cities and towns. Injuries and deaths related to heavy snow usually occur as a result of vehicle and or snow machine accidents. Casualties also occur due to overexertion while shoveling snow and hypothermia caused by overexposure to the cold weather.

Extreme cold can also bring transportation to a halt. Aircraft may be grounded due to extreme cold and ice fog conditions, cutting off access as well as the flow of supplies to communities. Long cold spells can cause rivers to freeze, disrupting shipping and increasing the likelihood of ice jams and associated flooding.

Extreme cold also interferes with the proper functioning of a community's infrastructure by causing fuel to congeal in storage tanks and supply lines, stopping electric generation. Without electricity, heaters and furnaces do not work, causing water and sewer pipes to freeze or rupture. If extreme cold conditions are combined with low or no snow cover, the ground's frost depth can increase, disturbing buried pipes. The greatest danger from extreme cold is its effect on people. Prolonged exposure to the cold can cause frostbite or hypothermia and become life threatening. Infants and elderly people are most susceptible. The risk of hypothermia due to exposure greatly increases during episodes of extreme cold, and carbon monoxide poisoning is possible as people use supplemental heating devices.

Probability of Future Events

Based on previous occurrences and the criteria identified in LPB MJHMP Table 5-3, it is likely a severe storm event will occur in the next three years (event has up to 1 in 3 years chance of occurring) as the history of events is greater than 20 percent but less than or equal to 33 percent likely per year. Event is "Likely".

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5. Vulnerability Analysis

Section Five outlines the vulnerability process for determining potential losses for the community from various hazard impacts.

Table 5 lists the Chignik's infrastructures' hazard vulnerability.

Table 5 Chignik's Infrastructures hazard vulnerability.

Hazard	Area's Hazard Vulnerability			
	Percent of Jurisdiction's Geographic Area	Percent of Population	Percent of Building Stock	Percent of Critical Facilities and Utilities
Earthquake	100	100	100	100
Flood	100	100	100	100
Ground Failure	100	100	100	100
Tsunami	100	100	100	100
Volcano*	100	100	100	100
Weather	100	100	100	100
Wildland Fire*	100	100	100	100

*Profiled in the LPB MJHMP

5.1 Existing Critical Facilities in Chignik

A critical facility is defined as a facility that provides essential products and services to the general public, such as preserving the quality of life in the City and fulfilling important public safety, emergency response, and disaster recovery functions. The critical facilities profiled in this plan include the following:

- Government facilities, such as city and tribal administrative offices, departments, or agencies
- Emergency response facilities, including police department and firefighting equipment
- Educational facilities, including K-12
- Care facilities, such as medical clinics, congregate living health, residential and continuing care, and retirement facilities
- Community gathering places, such as community and youth centers
- Utilities, such as electric generation, communications, water and wastewater treatment, sewage lagoons, landfills.

There is limited GIS data available for the City of Chignik. Specific to Chignik the natural hazards of earthquake, flood, ground failure and tsunami are at equal risk to the entire community.

Table 6 contains the City's critical facilities and infrastructure data.

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Table 6 Chignik's Critical Facilities and Infrastructure

Facility Type	Estimated No. of Occupants	Facilities	Address	Latitude	Longitude	Estimated Value	Building Type	Earthquake	Flood	Ground Failure	Tsunami
Government	2	Offices, City Office	125 Tsunami Road	56.29726	-158.40567	\$1,200,000	W1	X	X	X	X
	2	Tribal Office	Anderson Road	56.29528	-158.40222	\$1,200,000	W2	X	X	X	X
Emergency Response	0	Fire Station	125 Tsunami Road	56.29726	-158.40567	\$1,000,000	W1	X	X	X	X
	0	Police Station	125 Tsunami Road	56.29726	-158.40567	\$500,000	W1	X	X	X	X
	0	Emergency Shelter(s) City Office	125 Tsunami Road	56.29726	-158.40567	Included with City Hall	W1	X	X	X	X
Education	15	Chignik Bay School P-12	100 School Road	56.29512	-158.40559	\$2,000,000	S2	X	X	X	X
Medical	3	Clinic	Airport Road	56.29786	-158.4065	\$3,000,000	S2	X	X	X	X
Community		Old Cemetery		56.29576	-158.40584	\$20,000		X	X	X	X
		Cemetery		56.29576	-158.40584	\$20,000		X	X	X	X
	3	Church	Anderson	56.29528	-158.40222	\$200,000	W1	X	X	X	X
	30	Community Hall	Old Cemetery Road	56.29528	-158.40222	\$1,000,000	W1	X	X	X	X
	10	Post Office	Anderson Road	56.29572	-158.40509	\$500,000	W2	X	X	X	X
	2	Teachers Quarters	100 School Road	56.29512	-158.40559	\$1,000,000	S1	X	X	X	X
Bridges	0	Bridge Cannery Road AK000710		56.29167	-158.40833			X	X	X	X
	0	Bridge, IRR:Anderson Road AK000795		56.29916	-158.41309			X	X	X	X
	0	Bridge, IRR:Anderson Road AK000878		56.29745	-158.40987			X	X	X	X
Transportation	0	Airport 2,600 ft. x 60 ft.		56.31204	-158.37216			X	X	X	X
	0	Chignik Bay Seaplane Base 10,000 x 4,000 ft.						X	X	X	X
	0	Harbor/Dock/Port Municipal Small Boat Harbor		56.29528	-158.40222			X	X	X	X
		Harbor/Dock/Port Federal Small Boat Harbor		56.29528	-158.40222			X	X	X	X
	0	Barge Landing						X	X	X	X
Utility	0	Reservoir/Water Supply Chignik Bay		56.3515	-158.4979			X	X	X	X

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Table 6 Chignik's Critical Facilities and Infrastructure

Facility Type	Estimated No. of Occupants	Facilities	Address	Latitude	Longitude	Estimated Value	Building Type	Earthquake	Flood	Ground Failure	Tsunami
	0	Reservoir/Water Supply Chignik Pride Fisheries (Wells A,B,C)2		56.3515	-158.4979			X	X	X	X
	0	Reservoir/Water Supply Chignik Pride Fisheries (Wells A,B,C)3		56.3515	-158.4979			X	X	X	X
	0	Fuel Storage Tanks (>500gal)Chignik Pride Fisheries, Inc.		56.29528	-158.40222			X	X	X	X
	0	Landfill/Incinerator City of Chignik (lagoon) Class III Muni Landfill		56.29528	-158.40222			X	X	X	X
	0	Fuel Storage Tanks (>500gal) City Generator Fuel Storage		56.29528	-158.40222			X	X	X	X
	0	Telephone ACS						X	X	X	X
	0	Satellite ATT						X	X	X	X
	0	Satellite, Internet GCI						X	X	X	X
	0	Potable Water Production and Treatment Facility						X	X	X	X
	0	Fuel Storage Tanks (>500 gallons) Norquest Fisheries Fuel Storage		56.29528	-158.40222			X	X	X	X
	0	Fuel Storage Tanks (>500gal) Remote Generating Site		56.29528	-158.40222			X	X	X	X
	0	Fuel Storage Tanks (>500 gal) Trident Fisheries		56.29528	-158.40222			X	X	X	X
	0	Power Generation Facility		56.29528	-158.40222			X	X	X	X
		Generator, School Backup		56.29528	-158.40222			X	X	X	X
	4	Service/Maintenance Shop City Shop 1	Old Cemetery Road	56.29726	-158.40567	\$1,500,000		X	X	X	X
	0	Service/Maintenance Shop City Shop 2	125 Tsunami Road	56.29726	-158.40567	\$1,500,000		X	X	X	X
	Total Occs 71				Total Potential Damages:	\$12,640,000					

(City of Chignik 2015)

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The summary of Table 6 (all data obtained from the Planning Team teleconferences) includes the following.

- 92 people in 41 residences (approximate value \$18,450,000). Due primarily to shipping costs an average home costs approximately \$450,000.
- 11 people in four government and emergency response facilities (approximate value \$9,900,000)
- 15 people in one educational facility (approximate value \$2,000,000)
- 3 people in one medical facility (approximate value \$3,000,000)
- 30 people in six community facilities (approximate value \$2,720,000)
- NA* people in seven transportation facilities (approximate value \$NA)
- NA people in 16 utility facilities (approximate value \$NA)

The Borough anticipates that impacts to future populations, residential structures, critical facilities, and infrastructure will be at the same historical impact level.

**NA=Data not available at this time.*

5.2 Future and Planned Development in Chignik.

Currently, the Chignik Dock (\$9,000,000) is under construction with a completion date of Spring 2015.

Figure 5 is the area land use map developed by DCCED.



Figure 5 Chignik Public Facilities

5.3 NFIP Participation and Repetitive Loss Properties

The City of Chignik is not a participating community in the NFIP and therefore does not have any repetitive loss properties.

The Borough has participated in the NFIP since an emergency entry date of March 4, 2004 and a regular entry date of February 3, 2010.

The LPB has no repetitive loss properties and no claims for flood insurance.

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6. Chignik Mitigation Strategy

Section Seven outlines the five-step process for preparing a mitigation strategy including:

1. Identifying the City's existing authorities for implementing mitigation action initiatives
2. Developing Mitigation Goals
3. Identifying Mitigation Actions
4. Evaluating Mitigation Actions
5. Implementing the Mitigation Action Plan (MAP)

6.1 Chignik Capability Assessment

The City's capability assessment reviews the technical and fiscal resources available to the community.

This section outlines the resources available to the Borough for mitigation and mitigation related funding and training. Tables 7, 8, and 9 delineate the City's regulatory tools, technical specialists, and financial resource available for project management. Additional funding resources are identified in Appendix A.

Table 7 Chignik Regulatory Tools.

Regulatory Tools (ordinances, codes, plans)	Existing Yes/No?	Comments (Year of most recent update; problems administering it, etc.)
Comprehensive Plan	Yes	As part of the LPB plan, each community has a brief Community Action Plan.
Land Use Plan	Yes	Describes the City's community development goals and initiatives as part of the Comprehensive Plan – Community Action Plan
Tribal Land Use Plan	Yes	Describes the Village's community development goals and initiatives as part of the Comprehensive Plan – Community Action Plan
Emergency Response Plan	Yes	Emergency Operation Plan, 2010 (as part of the Borough Plan)
Wildland Fire Protection Plan	No	
Building code	No	The City can exercise this authority but is not required.
Zoning ordinances	No	The City can exercise this authority but is not required.
Subdivision ordinances or regulations	No	The City can exercise this authority but is not required.
Special purpose ordinances	No	The City can exercise this authority but is not required.

Local Resources

The City relies upon the LPB for most of their planning and land management tools that allow it to implement hazard mitigation activities. The resources available in these areas have been assessed by the hazard mitigation Planning Team, and are summarized below.

Table 8 Technical Specialists for Hazard Mitigation.

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Staff/Personnel Resources	Yes / No	Department/Agency and Position
Development and land management practices	Yes	LPB Community Development Planner
Planner or engineer with an understanding of natural and/or human-caused hazards.	Yes	LPB Community Development Planner
Floodplain Manager	No	Not a NFIP participating community.
Surveyors	Yes	The City hires consultants when they need a surveyor.
Staff with education or expertise to assess the jurisdiction's vulnerability to hazards.	Yes	LPB Community Development Planner
Personnel skilled in Geospatial Information System (GIS) and/or Hazards Us-Multi Hazard (Hazard-MH) software	Yes	LPB Community Development Planner
Scientists familiar with the hazards of the jurisdiction	No	The City works with U.S. Fish & Wildlife Service (USFWS) and Fish & Game (ADF&G), and the Alaska Department of Transportation and Public Facilities
Emergency Manager	Yes	LPB Community Development Planner
Finance (Grant writers)	Yes	LPB Community Development Planner and community representatives
Public Information Officer	Yes	The City Mayor, City Administrator, or Tribal President

Table 9 Chignik Financial Resources

Financial Resource	Accessible or Eligible to Use for Mitigation Activities
General funds	Can exercise this authority with voter approval
Municipal Energy Assistance Program (MEAP)	Provides operating support funding
Community Development Block Grants (CDBG)	Can exercise this authority with voter approval
Capital Improvement Project Funding	Can exercise this authority with voter approval
Authority to levy taxes for specific purposes	Can exercise this authority with voter approval
Incur debt through general obligation bonds	Can exercise this authority with voter approval
Incur debt through special tax and revenue bonds	Can exercise this authority with voter approval
Incur debt through private activity bonds	Can exercise this authority with voter approval
Hazard Mitigation Grant Program (HMGP)	FEMA funding which is available to local communities after a Presidentially-declared disaster. It can be used to fund both pre- and post-disaster mitigation plans and projects.
Pre-Disaster Mitigation (PDM) grant program	FEMA funding which available on an annual basis. This grant can only be used to fund pre-disaster mitigation plans and projects only
Flood Mitigation Assistance (FMA) grant program	No, not a NFIP participating community.
United State Fire Administration (USFA) Grants	The purpose of these grants is to assist state, regional, national or local organizations to address fire prevention and safety. The primary goal is to reach high-risk target groups including children, seniors and firefighters.

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6.2 Mitigation Goals

The Planning Team developed the mitigation goals and potential mitigation actions to address identified potential hazard impacts for the City within Section 4.

The exposure analysis results were used as a basis for developing the mitigation goals and actions. Mitigation goals are defined as general guidelines that describe what a community wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing community-wide visions. As such, seven goals were developed to reduce or avoid long-term vulnerabilities to the identified hazards (Table 6).

Table 10 City of Chignik Mitigation Goals

No.	Goal Description
Multi-Hazards (MH)	
MH 1	Promote recognition and mitigation of all natural and manmade hazards that affect Chignik.
MH 2	Promote cross-referencing mitigation goals and actions with other City planning mechanisms and projects.
MH 3	Reduce possibility of losses from all natural and manmade hazards that affect City.
Natural Hazards	
EQ 1	Reduce structural vulnerability to earthquake (ER) damage.
FL 2	Reduce flood and erosion (FL) damage and loss possibility.
GF 3	Reduce ground failure (GF) damage and loss possibility.
TS 4	Reduce vulnerability, damage, or loss of structures from tsunami or seiche
W(S) 5	Reduce structural vulnerability to severe weather (SW) damage.

6.3 Identifying Mitigation Actions

The Planning Team assessed the potential mitigation actions to carry forward into the mitigation strategy. Mitigation actions are activities, measures, or projects that help achieve the goals of a mitigation plan. Mitigation actions are usually grouped into three broad categories: property protection, public education and awareness, and structural projects.

During the planning process November 2014 through May 2015 the Planning Team selected City natural hazard, mitigation actions for potential Mitigation Action Plan (MAP) implementation during the five-year life cycle of this HMP.

Table 11 breaks out the project criteria as considered, selected, and ongoing. The Planning Team considered projects from a comprehensive list for flooding, ground failure and tsunami hazard type. They identified numerous “ongoing” mitigation actions currently in process or those that were listed in other City planning documents. The Planning Team then selected “newly identified” actions identified through this plan development activity that would most benefit the community.

Actions for the natural hazards of volcano, (severe) weather and wildland fire are listed in the LPB MJHMP (Section 7.3 Identifying Mitigation Actions, Table 7-5).

Significant data gaps exist for Chignik’s tsunami mitigation activities. Detailed cost estimates

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and cost-benefit analysis must be performed. The need for these mitigation actions is undisputed and efforts should be undertaken to conduct the necessary studies so that the community may progress.

Additionally, as the only community within the Lake and Peninsula Borough to have an avalanche hazard to infrastructure, Chignik must address avalanche mitigation with a ground-up approach. Thorough study and analysis is required to determine the best avalanche mitigation technique for the community.

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Table 11 City of Chignik Mitigation Plan and Potential Actions

Blue text is actions from the 2009 Legacy Plan

Supports Goal No.	Description	Criteria <i>New Actions:</i> <i>Considered</i> <i>Selected</i> <i>Legacy Plan</i> <i>Actions:</i> <i>Ongoing</i> <i>Not Completed</i> <i>Completed</i>	Description
MH 1	Promote recognition and mitigation of all natural and manmade hazards that affect Chignik.	C-S	Train residents in installation of erosion monitoring devices to determine rate of eroding shorelines and riverbanks.
MH 2	Promote cross-referencing mitigation goals and actions with other City planning mechanisms and projects.	C-S	Identify City staff to take responsibility for maintaining situation reports.
MH 3	Reduce possibility of losses from all natural and manmade hazards that affect the City.	C-S	Designate liaison between the City and the Borough to work with mitigation planning; grant applications, and other mitigation-related tasks.
EQ 1	<i>Reduce structural vulnerability to earthquake (ER) damage.</i>	C-S	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.
		C-S	Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions/appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.
FL 2	<i>Reduce vulnerability, damage, or loss of structures from erosion</i>	O-NC	Install breakwater to reduce erosion from wave action. <i>This project has not been started but the community still wants it as a mitigation project.</i>
GF 3	<i>Reduce vulnerability, damage, or loss of structures from ground failure.</i>	O-NC	Relocation of Road. <i>This project has not been started but the community still wants it as a mitigation project.</i>
		O-NC	Structural avalanche control (snow fences, diversion structures, etc.) <i>This project has not been started but the community still wants it as a mitigation project.</i>
		O-NC	Avalanche hazard evaluation and forecasting. <i>This</i>

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Supports Goal No.	Description	Criteria <i><u>New Actions:</u></i> <i><u>Considered</u></i> <i><u>Selected</u></i> <i><u>Legacy Plan</u></i> <i><u>Actions:</u></i> <i><u>Ongoing</u></i> <i><u>Not Completed</u></i> <i><u>Completed</u></i>	Description
			<i>project has not been started but the community still wants it as a mitigation project.</i>
TS 4	Reduce vulnerability, damage, or loss of structures from tsunami or seiche	O-NC	Purchase and installation of an additional tsunami siren and maintenance of early warning system. <i>This project has not been started but the community still wants it as a mitigation project.</i>
		O-NC	Create second tsunami shelter for airport side of community. <i>This project has not been started but the community still wants it as a mitigation project.</i>
SW 5	Reduce structural vulnerability to severe weather (SW) damage.	C-S	Obtain adequate road- clearing equipment <i>The 2009 Legacy Plan did not have any weather actions.</i>
		C-S	Obtain adequate generators for personal residences.
		C-S	Develop emergency communication system for at-risk populations to call for help when needed during severe weather conditions.
		C-S	Develop emergency communication system for at-risk populations to call for help when needed during severe weather conditions.
			Develop alternative energy source.

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6.4 Mitigation Action Plan

Chignik’s Mitigation Action Plan, Table 12, depicts how each mitigation action will be implemented and administered by the City. The MAP delineates each selected mitigation action, its priorities, the responsible entity, the anticipated implementation timeline, and provides a brief explanation as to how the overall benefit/costs and technical feasibility were taken into consideration.

Table 12 City of Chignik Mitigation Action Plan (MAP)

(Note: Weather, volcano and wildfire actions are listed in the LPB MJHMP Table 7-8.)

Goal/ Action ID	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years 2-4 Years 3-5 Years)	Benefit-Costs (BC) / Technical Feasibility (T/F)
MH 1.1	Train residents in installation of erosion monitoring devices to determine rate of eroding shorelines and riverbanks.	High	City Manager LPB – Public Works Dept.	LPB City DHS&EM	1-3 years	B/C: This ongoing activity is essential for the City as there are limited funds available to accomplish effective mitigation actions. T/F: This activity is ongoing demonstrating its feasibility.
MH 2.1	Identify City staff to take responsibility for maintaining situation reports.	Medium	City Manager	LPB City	3-5 years	B/C: This ongoing activity is essential for the City as there are limited funds available to accomplish effective mitigation actions. T/F: This activity is ongoing demonstrating its feasibility.
MH 3.1	Designate liaison between City and Borough to assist Chignik with mitigation planning; grant applications, and other mitigation-related tasks.	Medium	City Manager	City, LPB, Tribes, FEMA HMA programs, AFG, FP&S, and SAFER	2-4 years	B/C: Sustained mitigation outreach programs have minimal cost and will help build and support area-wide capacity. This type activity enables the public to prepare for, respond to, and recover from disasters. T/F: This low cost activity can be combined with recurring community meetings where hazard specific information can be presented in small increments. This activity is ongoing demonstrating its feasibility.
EQ 1.1	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.	High	Public Works Department	City, LPB, HMA, NRCS, ANA, USACE, US USDA, Lindbergh	1-3 years	B/C: This project would ensure threatened infrastructures are available for use – their loss would exacerbate potential damages and further threaten survivability. T/F: This project is feasible using existing staff skills, equipment, and materials.

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Goal/ Action ID	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years 2-4 Years 3-5 Years)	Benefit-Costs (BC) / Technical Feasibility (T/F)
EQ 1.2	Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.	High	Public Works Department	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The City has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
FL 2	Install breakwater to reduce erosion from wave action	High	City Manager LPB Mayor	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The City has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
GF 3.1	Relocation of Road.	Medium	City Manager	City, LPB, HMA, ANA	1-3 years	B/C: This outreach project would decrease damage to facilities if they were sited and used the most appropriate construction practices. T/F: Technically feasible as the community is currently working with UAF and other entities to determine most viable permafrost construction practices.
GF 3.2	Structural avalanche control (snow fences, diversion structures, etc.)	High	City Manager	City, LPB, HMA, ANA	1-3 years	B/C: This outreach project would decrease damage to facilities if they were sited and used the most appropriate construction practices. T/F: Technically feasible as the community is currently working with UAF and other entities to determine most viable permafrost construction practices.

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Goal/ Action ID	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years 2-4 Years 3-5 Years)	Benefit-Costs (BC) / Technical Feasibility (T/F)
GF 3.3	Avalanche hazard evaluation and forecasting.	Medium	City Manager	City, LPB, HMA, ANA	1-3 years	B/C: This outreach project would decrease damage to facilities if they were sited and used the most appropriate construction practices. T/F: Technically feasible as the community is currently working with UAF and other entities to determine most viable permafrost construction practices.
TS 4.1	Purchase and installation of an additional tsunami siren and maintenance of early warning system.	Medium	Port Director	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The City has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
TS 4.2	Create second tsunami shelter for airport side of community.	Medium	Port Director	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The City has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
SW 5.1	Obtain adequate road- clearing equipment	High	City Manager LPB Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	3-5 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.

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Goal/ Action ID	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years 2-4 Years 3-5 Years)	Benefit-Costs (BC) / Technical Feasibility (T/F)
SW 5.2	Obtain adequate generators for personal residences.	High	City Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	3-5 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
SW 5.3	Develop emergency communication system for at-risk populations to call for help when needed during severe weather conditions	High	City Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	3-5 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
SW 5.4	Develop alternative energy source	High	City Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	3-5 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.

7. References

Section seven provides a comprehensive reference list used to develop the MJHMP.

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From: [Eileen Bechtol](#)
To: [Debbie Carlson](#)
Cc: [Simmons, Scott](#)
Subject: Chignik Hazard Mitigation Plan
Date: Saturday, February 14, 2015 11:22:00 AM
Attachments: [ChignikNewsltr 2-11-15.pdf](#)

Hello Ms. Carlson:

I am writing to introduce myself, Eileen R. Bechtol, I am a subcontractor for Scott Simons, AECOM (formerly known as URS Corporation). AECOM contracted by the Division of Homeland Security and Emergency Management (DHS&EM) to develop a Hazard Mitigation Plan Update for ten Alaska jurisdictions. The City of Chignik is one of the selected jurisdictions.

Your name was provided as the community contact in the incorporated cities. If this something I should discuss with someone else please forward this email to that person. Thank you.

It is important to note that the City of Chignik does not have to pay anything for this project. This is an important project funded by FEMA through the DHS&EM. AECOM have worked with rural communities to assist them with their hazard mitigation plan development needs. In fact, URS has been developing HMPs nationwide since 2000. Our Alaska office has completed approximately 90 State, Borough (County) and local community, State reviewed, and FEMA approved Hazard Mitigation Plans to-date. I also have written several Hazard Mitigation Plans in Alaska.

HMP updates require reviewing current plans to identify how conditions have changed since the plan was last approved. For example, the current plan's plan development activities may change such as planning team membership; new plans, reports, and studies reviewed, new hazards identified and newly disaster impacts annotated. These changes could directly change identified planning community vulnerabilities and risks. This requires that the current Mitigation Strategy be reviewed and updated to identify current project's status. Were any projects completed or do they need to be modified, merged with similar initiatives for the same impact or location, deleted because they are no longer deemed the most appropriate mitigation initiative, or changed to reflect new jurisdictional needs?

AECOM's role in this project is to ensure that the Updated HMP meets state and federal requirements -- part of this requirement is to describe the process in which the community was involved. We are at the beginning stages of this project.

Our task is to write the plan while guiding you through the HMP Update process; maximizing your local knowledge. AECOM will write the plan. Your input will assist the process by working with us to identify changes since the 2009 HMP implementation:

- <!--[if !supportLists]--> <!--[endif]-->HMP update participation and plan reviewers,
- <!--[if !supportLists]--> <!--[endif]-->Identify new hazards not formerly addressed,
- <!--[if !supportLists]--> <!--[endif]-->Help us explain your hazard impacts since 2009,
- <!--[if !supportLists]--> <!--[endif]-->Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area,
- <!--[if !supportLists]--> <!--[endif]-->Determine their "estimated" replacement costs,
- <!--[if !supportLists]--> <!--[endif]-->Define the community's population risk and critical facility vulnerabilities,

<!--[if !supportLists]--> <!--[endif]-->Review current and update the existing hazard mitigation goals if applicable,

<!--[if !supportLists]--> <!--[endif]-->Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.

<!--[if !supportLists]--> <!--[endif]-->Update the HMP Maintenance section to reflect how the City completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.

There will be opportunities for the entire community to review the team's work during various public involvement processes because FEMA requires at least two public involvement activities. We will provide planning team meeting minutes and two newsletters for distribution or posting to enable community wide knowledge, providing information during City Council Meetings or other public meetings, and working with us over the phone as we capture needed information.

AECOM will provide two (2) newsletters. The first newsletter (attached) introduces the project and explains the planning process, encourages public involvement; and asks the community to identify known hazards, and to confirm their critical infrastructure as identified by DHS&EM's statewide small community Critical Facility Database. The second will introduce the updated draft HMP and encourage the community to review and provide comments to make the plan better or more usable to mitigate your hazards.

I would like to teleconference with you regarding the tables on Page 2 of the newsletter. Please let me know of a convenient time for me to call, next week if possible. If you want to invite others to participate that would be great. Otherwise, you and I can go over the tables.

I look forward to working with you. Thank you for your time.

Eileen R Bechtol

Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work."

— Daniel Hudson Burnham (1846-1912)

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CITY OF CHIGNIK HAZARD MITIGATION PLAN UPDATE

Newsletter #1

March 2015

This newsletter describes the City of Chignik 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 State of Alaska Division of Homeland Security and Emergency Management Website at <http://ready.alaska.gov/plans/localhazmitplans>.

The State of Alaska, Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management (DHS&EM) was awarded a Pre-Disaster Mitigation Program grant from the Federal Emergency Management Agency (FEMA) to Update your 2009 Hazard Mitigation Plan (HMP).

AECOM was contracted to assist the Lake and Peninsula Borough with preparing a 2015 FEMA approvable HMP update. Each of the incorporated cities in the LPB, including City of Chignik, will also have a HMP developed as part of the update process.

The HMP 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 include relocating or elevating buildings, replacing insufficiently sized culverts, using alternative construction techniques, or developing, implementing, or enforcing building codes, and education.

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. The LPB plans to apply for mitigation funds after our plan is complete.

A FEMA approved and community adopted HMP 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 HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria and other applicable laws and regulations may be found at: <http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to include and document the following topics:

- ❑ New Planning Team membership and processes
- ❑ HMP update participation and plan reviewers,
- ❑ Identify new hazards not formerly addressed,
- ❑ Help us explain your hazard impacts since 2009,
- ❑ Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area,
- ❑ Determine their "estimated" replacement costs,
- ❑ Define the community's population risk and critical facility vulnerabilities,
- ❑ Review current and update the existing hazard mitigation goals if applicable,
- ❑ Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.
- ❑ Update the HMP Maintenance section to reflect how the (City or Borough) completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.
- ❑ Provide a copy of the community's HMP Adoption Resolution

FEMA has prepared Local Planning Review Guide available at:

http://emilms.fema.gov/is318/assets/local_mtgtn_plan_guidance_0708.pdf. It explains how the HMP Update meets each of the DMA2000 requirements.

We are currently in the very beginning stages of preparing the plan update. We will be conducting a Planning Team Meeting to introduce the project and

planning team, to gather comments from community residents update hazards lists, and collect data to refine the vulnerability assessment.

We Need Your Help

Please use the following table to confirm the hazards AND identify new hazards not formerly addressed.

Chignik Hazard Worksheet		
Hazard	2009 Plan	Still Valid Yes/No
Earthquake (EQ)		Yes
Flood (Erosion) (FL)		Yes
Ground Failure (GF) Includes: Avalanche, Landslide, Permafrost, and/or Subsidence		Yes
Severe Weather (SW)		Yes
Tsunami & Seiche (TS)		Yes
Volcano (VO)		Yes
Wildland Fire (WF)		Yes

The 2009 HMP identified critical facilities within LPB, but the list needs to be reviewed and updated and the estimated value and location (latitude/longitude) determined. In addition, the number and value of structures, and the number of people living in each structure will need to be documented. A newsletter will be sent to each of the incorporated cities in the LPB with a table of their critical facilities to review. Once this information is collected we will determine which critical facilities, residences, and populations are vulnerable to specific hazards in the LPB.

Critical Facility	Current Natural Hazards						
	EQ	FL	GF	SW	TS	VO	WF
Offices, City Office	X			X		X	X
Tribal Office	X			X		X	X
Service/Maintenance Shop City Shop 1	X			X		X	X
Service/Maintenance Shop City Shop 2	X			X		X	X
Fire Station	X			X		X	X
Police Station	X			X		X	X
Emergency Shelter(s) City Office	X			X		X	X
Chignik Bay School P-12	X			X		X	X
Teachers Quarters	X			X		X	X
Hospital & ER, Health Clinic	X			X		X	X
G Street Park	X			X		X	X
Old Cemetery	X			X		X	X
Cemetery	X			X		X	X
Church	X			X		X	X
Community Hall	X			X		X	X
Museum	X			X		X	X

Critical Facility	Current Natural Hazards						
	EQ	FL	GF	SW	TS	VO	WF
Post Office	X			X		X	X
Bridge Cannery Road AK000710	X			X		X	X
Bridge, IRR:Anderson Road AK000795	X			X		X	X
Bridge, IRR:Anderson Road AK000878	X			X		X	X
Airport 2,600 ft. x 60 ft.	X			X		X	X
Chignik Bay Seaplane Base 10,000 x 4,000 ft.	X			X		X	X
Harbor/Dock/Port Federal Small Boat Harbor	X			X		X	X
Barge Landing	X			X		X	X
Reservoir/Water Supply Chignik Bay #1 Estimated miles of roads	X			X		X	X
Reservoir/Water Supply Chignik Pride Fisheries (Wells A,B,C)2	X			X		X	X
Reservoir/Water Supply Chignik Pride Fisheries (Wells A,B,C)3	X			X		X	X
Fuel Storage Tanks (>500gal)Chignik Pride Fisheries, Inc.	X			X		X	X
Landfill/Incinerator City of Chignik (lagoon) Class III Muni Landfill	X			X		X	X
Fuel Storage Tanks (>500gal) City Generator Fuel Storage	X			X		X	X
Telephone ACS	X			X		X	X
Satellite ATT	X			X		X	X
Satellite, Internet	X			X		X	X
Potable Water Production and Treatment Facility	X			X		X	X
Fuel Storage Tanks (>500 gallons) Norquest Fisheries Fuel Storage	X			X		X	X
Fuel Storage Tanks (>500gal) Remote Generating Site	X			X		X	X
Fuel Storage Tanks (>500 gal) Trident Fisheries	X			X		X	X
Power Generation Facility	X			X		X	X
Generator, School Backup	X			X		X	X

Planning Team Matters of the Hazard Mitigation Plan will be brought to the Borough Planning Commission through the LPB Community Development Planner, Ranya Aboras. AECOM will be developing materials and leading the planning process with guidance from the Planning Commission and Borough Planner.

Public Participation 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 and to guide the community.

We encourage you to take an active part in preparing the LPB 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. Please contact your Borough Community Development Planner Ranya Aboras; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for information.

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CITY OF CHIGNIK HAZARD MITIGATION PLAN (HMP)

April 2015

Newsletter 2

This newsletter discusses the preparation of the City of Chignik (Chignik) Hazard Mitigation Plan. It has been prepared to inform interested agencies, stakeholders, and the public about the project and to solicit comments. This newsletter can also be viewed on the State of Alaska Division of Homeland Security and Emergency Management Website at: <http://www.ready.alaska.gov/plans/localhazmitplans.htm>.

HMP Development

Chignik was one of 21 communities selected by the State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) for a Hazard Mitigation Planning (HMP) development project. The plan identifies natural hazards that affect the community including earthquake, erosion, flood, ground failure, severe weather, and tundra/wildland fire. The HMP also identifies the people and facilities potentially at risk and potential actions to mitigate community hazards. The public participation and planning process is documented as part of the project.

What is Hazard Mitigation?

Across the United States, natural disasters have increasingly caused injury, death, property damage, and business and government service interruptions. The toll on individuals, families, and businesses can be very high. The time, money, and emotional effort required to respond to and recover from these disasters take public resources and attention away from other important programs and problems.

People and property throughout Alaska are at risk from a variety of hazards that have the potential for causing human injury, property damage, or environmental harm.

The purpose of hazard mitigation is to implement projects that reduce the risk severity of hazards on people and property. Mitigation programs may include short-term and long-term activities to reduce hazard impacts or exposure to hazards. Mitigation could include education, construction or planning projects. Hazard mitigation activity examples include relocating buildings, developing or strengthening building codes, and educating residents and building owners.

Why Do We Need A Hazard Mitigation Plan?

A community is only eligible to receive grant money for mitigation programs by preparing and adopting a hazard mitigation plan. Communities must have an approved mitigation plan to receive grant funding from the Federal Emergency Management Agency (FEMA) for eligible mitigation projects.

The Planning Process

There are very specific federal requirements that must be met when preparing a HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria may be found on the Internet at: <http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to document the following topics:

- ☐ Planning process
- ☐ Community Involvement and HMP review
- ☐ Hazard identification
- ☐ Risk assessment
- ☐ Mitigation Goals
- ☐ Mitigation programs, actions, and projects
- ☐ A resolution from the community adopting the plan

FEMA has prepared a Local Planning Review Guide) and (available at:

<http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=4859>). It explains how the HMP meets each of the DMA2000 requirements. FEMA has prepared and “Mitigation Planning Guidance” and “How to Guides” (available at: <http://www.fema.gov/hazard-mitigation-planning-resources>). Chignik’s Hazard Mitigation Plan will follow those guidelines.

The planning process kicked-off on February 14, 2015 by establishing a local planning team, distributing Newsletter #1 and holding a planning team meeting. The planning team examined the full spectrum of hazards listed in the State Hazard Mitigation Plan and identified natural hazards the HMP would address.

Chignik staff, AECOM and the public began identifying critical facilities, compiling the hazard profiles, assessing capabilities, and conducting the risk assessment for the identified hazards. Critical facilities are facilities that are critical to the recovery of a community in the event of a disaster. After collection of this information, AECOM helped to determine which critical facilities and estimated populations are vulnerable to the identified hazards in Chignik.

A mitigation strategy was the next component of the plan to be developed. Understanding the community's local capabilities and using information gathered from the public and the local planning committee and the expertise of the consultants and agency staff, a mitigation strategy was developed. The mitigation strategy is based on an evaluation of the hazards, and the assets at risk from those hazards. Mitigation goals and a list of potential actions/projects were developed as the foundation of the mitigation strategy.

Mitigation goals are defined as general guidelines that explain what a community wants to achieve in terms of hazard and loss prevention. Goals are positively stated future situations that are typically long-range, policy-oriented statements representing community-wide visions. Mitigation actions and projects are undertaken in order to achieve your stated objectives.

The planning team identified projects and/or actions for each hazard that focus on six categories: prevention, property protection, public education and awareness,

natural resource protection, emergency services, and structural projects. The mitigation actions identified by the planning team are explained in more detail in the plan.

The selected projects and/or actions will potentially be implemented over the next five years as funding becomes available. A maintenance plan was also been developed for the hazard mitigation plan. It outlines how the community will monitor progress on achieving the projects and actions that will help meet the stated goals and objectives, as well as an outline for continued public involvement.

The draft plan is available in the City offices for public review and comment. Comments should be made via email or phone to Eileen Bechtol (contact information listed below) and be received no later than June 15, 2015. The plan will be provided to DHS&EM and FEMA for their preliminary approval and returned to the Chignik City Council for formal adoption.

Sample of the City of Chignik's Mitigation Actions. Review the draft HMP for a complete list.

Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.	Avalanche hazard evaluation and forecasting	Purchase and installation of an additional tsunami siren and maintenance of early warning system.
Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.	Install breakwater to reduce erosion from wave action	Create second tsunami shelter for airport side of community.
Structural avalanche control (snow fences, diversion structures, etc.)	Relocation of Road.	Avalanche hazard evaluation and forecasting.

We encourage you to take an active part in the Egegik 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. Please contact your Borough Community Development Planner Ranya Aboras; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for information.

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**LAKE AND PENINSULA BOROUGH
MULTI-JURISDICTIONAL Hazard Mitigation Plan Update**

City of Egegik, Alaska Hazard Mitigation Plan



City of Egegik, Alaska (Photo: Marv Smith)

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City of Egegik Hazard Mitigation Plan Update

1. Community Description

Section One provides the Egegik location, geography, history, and demographic information.

1.1 Location, Geography and History

Egegik is located on the south bank of the Egegik River on the Alaska Peninsula, 100 miles southwest of Dillingham and 326 air miles southwest of Anchorage. It lies at approximately 58.215560° North Latitude and -157.37583° West Longitude. (Sec. 01, T023S, R050W, Seward Meridian.) Egegik is located in the Kvichak Recording District. The area encompasses 32.8 sq. miles of land and 101.2 sq. miles of water.

Egegik's maritime climate is characterized by cool, humid and windy weather. Average summer temperatures range from 41 to 60; average winter temperatures range from 20 to 37. Low cloud cover and fog frequently limit travel. Precipitation averages 19 inches per year, with 38 inches of snowfall.

According to anthropologists, settlement of the Bristol Bay region first occurred over 6,000 years ago. Yup'ik Eskimos and Athabascan Indians jointly occupied the area. Aleuts arrived in later years.

The first recorded contact by non-Natives was with Russian fur traders between 1818 and 1867. The village was reported by Russians as a fish camp called "Igagik" (meaning "throat") in 1876. Local people would travel each year from Kanatak on the Gulf coast through a portage pass to Becharof Lake, and hiked or kayaked on to the Egegik Bay area for summer fish camp. In 1895, an Alaska Packers Association salmon saltery was established at the mouth of Egegik River, and a town developed around the former fish camp. During the influenza outbreaks beginning in 1918, Natives from other villages moved to Egegik in an attempt to isolate them from the disease.

During World War II, men from Egegik were enlisted to help build the King Salmon airport, with many subsequently serving in Dutch Harbor and elsewhere. Egegik later grew into a major salmon production port. Egegik incorporated as a second-class city in 1995.

The economy is based on subsistence harvest, commercial fishing and fish processing. During the commercial fishing season, the population swells by 1,000 to 2,000 fishermen and cannery workers.

Five residents hold commercial fishing permits. Five on-shore processors are located on the Egegik River, three on the north shore and two on the south shore, including Icicle and Alaska General Seafoods. Numerous floating processors participate in the Egegik fishery. Subsistence hunting and fishing activities are an important part of the lifestyle and local diet. Seal, beluga, salmon, trout, smelt, grayling, clams, moose, bear, caribou, porcupine, waterfowl and ptarmigan are utilized. Locals also gather berries and wild greens each season.

Egegik's water is supplied by two wells and is treated with fluoride. Four tanks are used, with a total water storage capacity of 122,500 gallons. All homes are plumbed with water and sewage. Many of the homes, the school, clinic and City offices, are connected to a piped water and sewer system constructed in 1989. An additional 13 homes are connected only to the piped sewage system. Several residents use septic tanks or seepage pits, and sewage pumping services are

City of Egegik Hazard Mitigation Plan Update

available. The canneries derive water from School Lake and Grandma's Lake. The community has a 7-acre landfill south of the community, with a batch oxidation incinerator.

The community is accessible by air and water. A City-owned 5,600' long by 100' wide lighted gravel runway with crosswind airstrip is located approximately 2 miles South of Egegik. Scheduled and charter flights are available. The Bartlett's also maintain a private 2,800' airstrip across from Coffee Point. A boat haul-out is available. The City has a deep water dock that was constructed in the last 10 years. Barge services are provided from Anchorage and Seattle. Two privately-owned docks and marine storage are also available. Motorized Vehicles includes automobiles, trucks, skiffs, ATVs and snow machines are the primary means of local transportation.

City of Egegik Hazard Mitigation Plan Update



Figure 1 Egegik location in the LPB (LPBCP 2012).

City of Egegik Hazard Mitigation Plan Update

2. Planning Process

Section Two provides an overview of the planning process; identifies the Planning Team Members and key stakeholders; documents public outreach efforts; and summarizes the review and incorporation of existing plans, studies, and reports used to develop this MJHMP. Outreach support documents and meeting information regarding the Planning Team and public outreach efforts are provided in the Lake & Peninsula Borough (LPB) Multi-Jurisdictional Hazard Mitigation Plan.

2.1 Planning Process Overview

The State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) provided funding and project oversight to AECOM Corporation to facilitate and guide Planning Team development and MJHMP development.

In summary, the following five-step process took place from November 11, 2014 through May 2015.

1. 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 hazard mitigation plan.
2. Monitor, evaluate, and update the plan: The Planning Team developed a process to ensure the plan was monitored to ensure it was used as intended while fulfilling community needs. The team then developed a process to evaluate the plan to compare how their decisions affected hazard impacts. They then outlined a method to share their successes with community members to encourage support for mitigation activities and to provide data for incorporating mitigation actions into existing planning mechanisms and to provide data for the plans five-year update.
3. Assess risks: The Planning Team identified the hazards specific to the Borough and with the assistance of a hazard mitigation planning consultant (AECOM), developed the risk assessment for seven identified hazards. The Planning Team reviewed the risk assessment, including the vulnerability analysis, prior to and during the development of the mitigation strategy.
4. 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.
5. Develop a mitigation strategy: After reviewing the risks posed by each hazard, the Planning Team developed a comprehensive range of potential mitigation goals and actions. Subsequently, the Planning Team identified and prioritized the actions for implementation.

2.2 Planning Teams

The Borough planning team was developed and comprised of Ranya Aboras (Planning Team Leader) and representatives from each of the incorporated cities and Port Alsworth.

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Table 1 LPB Planning Team Members

Team Member	Title	Involvement
Ranya Aboras	LPB Community Development Planner	MJHMP Team Leader, data gathering and plan review
LPB Planning Commission	Planning Commissioners	MJHMP plan review
Becky Bottcher	City Clerk/Treasurer	Egegik plan
Don Strand	City Manager	Egegik plan
Greg Anelon	City Manager	Newhalen plan
Carrie Harried	City Manager	Nondalton plan
Barbara Chestler	City Manager	Pilot Point plan
Angela Simpson	City Administrator	Port Heiden plan
Beth Hill	Port Alsworth Improvement Corporation	Port Alsworth plan
Scott Simmons	AECOM, Project Manager	MJHMP update manager, lead writer, and MJHMP project coordination.
Eileen Bechtol	BP&D/Community Planner	MJHMP update, project planner

Each community organized their own Planning Team; Egegik's Planning Team is shown on Table 2 below.

Table 2 Egegik Planning Team

Team Member	Title	Involvement
Don Strand, City Manager	City Manager	Egegik Plan review and data gathering
Henry Olsen	Mayor	Egegik Plan review
Ranya Aboras	LPB Community Development Planner	MJHMP Team Leader, data gathering and plan review
Scott Simmons	AECOM, Project Manager	MJHMP update manager, lead writer, and MJHMP project coordination.
Eileen Bechtol	BP&D/Community Planner	MJHMP update, project planner

2.3 Public Involvement & Opportunity for Interested Parties to participate

AECOM extended an invitation to all individuals and entities identified on the project mailing list described the planning process and announced the upcoming communities' planning activities. The announcement was emailed to relevant academia, nonprofits, and local, state, and federal agencies on November 20, 2014. The list of the agencies and organization is invited to participate and review the MJHMP.

Table 3 lists the community's public involvement initiatives focused to encourage participation and insight for the MJHMP effort.

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Table 3 Public Involvement Mechanisms	
Mechanism	Description
Newsletter #1 Distribution (February 2015)	In February and March 2015, the jurisdiction distributed a newsletter introducing the upcoming planning activity. The newsletter encouraged the community to provide hazard and critical facility information. It was posted at the City offices, bulletin boards, and Borough website to enable the widest dissemination.
Agency Involvement eMail (November 20, 2014)	Invited agencies to participate in mitigation planning effort and to review applicable newsletters located on the DHS&EM Local/Tribal All Hazard Mitigation Plan Development website at: http://ready.alaska.gov/plans/localhazmitplans.htm
Planning Team Meeting (March 9, 2015)	Finalized infrastructure table and reviewed mitigation plans.
Newsletter #2 Distribution (April 2015)	In April 2015, the jurisdiction distributed a second newsletter describing the MJHMP and the community specific draft plan availability and present potential MJHMP projects for review. The newsletter encouraged the community to provide comments or input. It was posted at the City or community office, and disseminated.
Public Meeting (April 6, 2015 LPB PC Meeting)	Notice of the April 6, 2015 meeting to introduce the MJHMP was posted at Borough Hall, and distributed to communities using their usual public notice procedures.
Public Meeting (May 11, 2015 LPB PC Meeting)	Notice of the May 11, 2015, meeting was posted at Borough Hall, and distributed to communities using their usual public notice procedures.

2.4 Review and analysis of the Legacy 2009 MJHMP.

The Legacy 2009 Egegik portion of the MJHMP was revised as described below.

- Section 1. **Community Description:** reviewed and updated community information.
- Section 2. **Planning Process:** updated this section to reflect 2015 public process including newsletters, public meetings and 2015 Planning Team.
- Section 3. **Plan Adoption:** 2015 resolutions and dates.
- Section 4. **Hazard Identification & Risk Assessment:** reviewed hazard identification and risk assessment adding 2009 to 2015 descriptions and data.
- Section 5. **Vulnerability Analysis:** added a new section to analyze vulnerability with 2015 critical facilities and infrastructure tables.
- Section 7. **Mitigation Strategy:** reviewed 2009 mitigation goals and actions and added new goals and action for the 2015 Mitigation Action Plan.

The Planning Team did not complete their designated annual HMP reviews or plan maintenance activities. Therefore it became a primary consideration to update the existing 2009 HMP to include hazards that have, or could potentially have, impacted the community during the legacy HMP's 5-year lifecycle.

Planning Team identified HMP components that necessitated information update. The Team determined how community changes, construction and infrastructure conditions, climate change impacts, and population increases or decreases have influenced hazard risks and/or facility vulnerabilities.

The 2015 HMP Update process included inviting new and existing stakeholders to review the existing HMP to determine what was accomplished versus what was intended to accomplish.

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2.5 Incorporation of Existing Plans and Other Relevant Information

During the planning process, the Planning Team reviewed and incorporated information from existing plans, studies, reports, and technical reports into the MJHMP.

LPB MJHMP Table 3-3 lists existing plans and other documents that were available regarding the LPB and Egegik and were reviewed and used as references for the jurisdiction information and hazard profiles in the risk assessment of the MJHMP for the Borough and Egegik.

2.6 Plan Maintenance

This section in the MJHMP describes a formal plan maintenance process to ensure that the MJHMP remains an active and applicable document. It includes an explanation of how the Borough's Planning Team intends to organize their efforts to ensure that improvements and revisions to the MJHMP occur in a well-managed, efficient, and coordinated manner.

The following three process steps are addressed in detail in the Borough Plan:

1. Implementation into existing planning mechanisms
2. Continued public involvement
3. Monitoring, reviewing, evaluating, and updating the MJHMP

The City will follow the same procedure as set forth in the LPB MJHMP.

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3. Plan Adoption

Section Three is included to fulfill the City of Egegik MJHMP adoption requirements.

3.1 Adoption by Local Governing Bodies and Supporting Documentation

The requirements for the adoption of this MJHMP by the local governing body, as stipulated in the DMA 2000 and its implementing regulations are described below.

The Borough is represented in this MJHMP and meets the requirements of Section 409 of the Stafford Act and Section 322 of DMA 2000, and 44 CFR §201.6(c)(5).

The LPB Borough Assembly and cities' council's formal adoption resolutions and Port Allworth's letter stating compliance with MJHMP initiatives were submitted with the final draft MJHMP to FEMA for formal approval.

A scanned copy of the Borough's and Cities formal adoption resolutions are included in Appendix C of the LPB MJHMP.

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4. Hazard Identification and Risk Assessment

Section Four identifies and profiles the hazards that could affect the City of Egegik.

Site visits (in 2008); public meetings, and evaluation of historical information indicate that earthquake, flooding (particularly erosion), volcano, weather (severe) and wildland fire natural hazards are present in the community of Egegik.

Hazard identification and risk assessment for these natural hazards are contained in this section, specific to Egegik. The City does not have a risk of ground failure or tsunami.

The hazards profiled in the LPB MJHMP and the Egegik HMP indicates that the entire City is at risk for each of the profiled hazards.

4.1 Earthquake

4.1.1 History

Table 4, lists two historical earthquakes over M4 with the largest one (M4.4) occurring on March 13,

Table 4 Egegik's Historical Earthquakes

Date	Time	Latitude	Longitude	Depth	Magnitude
03/14/15	17:33:10	58.3139	-156.4059	158.9	2.8
03/13/15	19:38:34	57.2615	-155.7094	60.7	4.4

(USGS 2015)

The City does not have any recorded instances of earthquake impacts in Egegik during the Legacy 2009 HMP implementation cycle.

4.1.2 Location, Extent, Impact and Recurrence Probability

Location

The entire community of Egegik is at risk for potential earthquake damages.

Extent

Based on historic earthquake events and the criteria identified in the LPB MJHMP Table 5-2, the magnitude and severity of earthquake impacts in the Borough are considered “Limited” with potential injuries and/or illnesses that do not result in permanent disability; critical facilities could expect to be shut-down for more than two weeks; and more than 10 percent of property severely damaged with limited long-term damage to transportation, infrastructure, or the economy.

Impact

Impacts to the community such as significant ground movement that may result in infrastructure damage are not expected. Minor shaking may be seen or felt based on past events. Impacts to

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future populations, residences, critical facilities, and infrastructure are anticipated to remain the same. Damage could be caused to homes and the City infrastructure such as the City water plant or the City Dock, which could halt the use of the dock and supply of resources during summer months.

Recurrence Probability

Probability of earthquake with M > 5.0 within 1978 years & 50 km

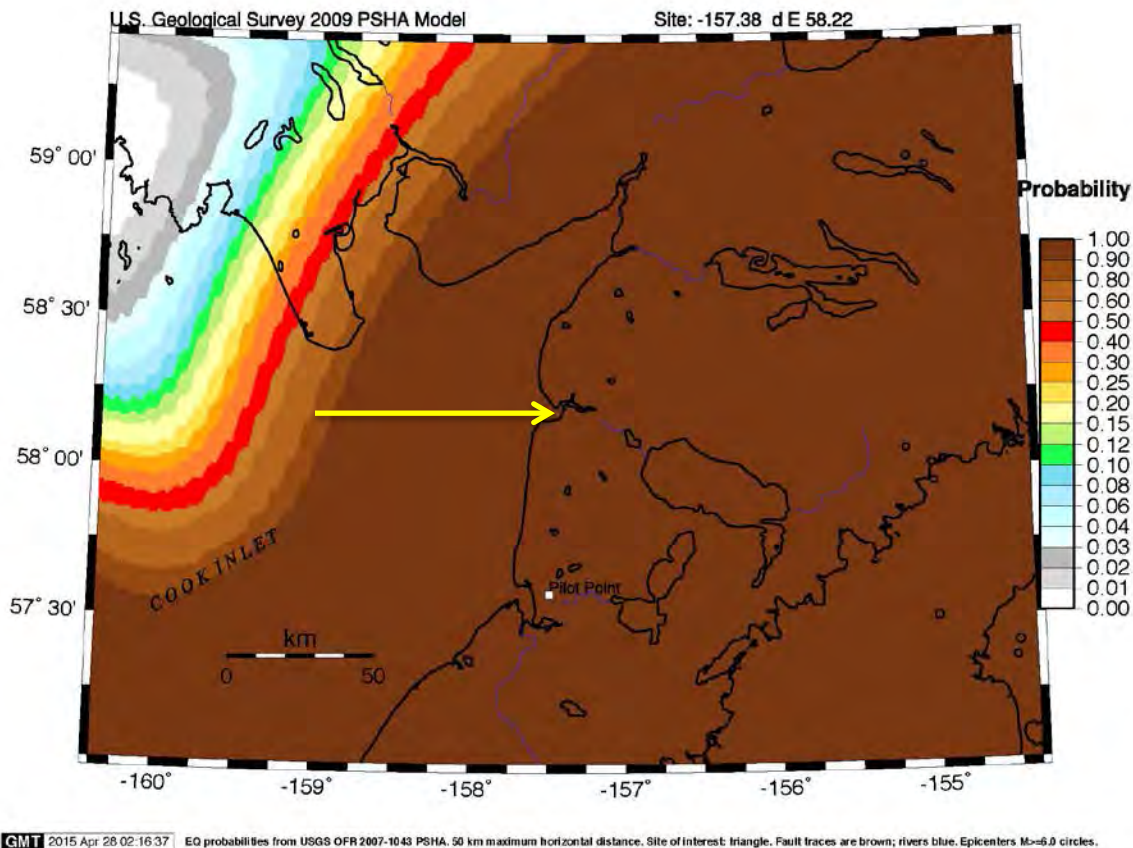


Figure 2 Probability of earthquake in Egegik (USGS 2015)

Based on past on the USGS Shake Map above, the recurrence probability is “Highly Likely”. The event is probable within the calendar year and has up to a 1 to 1 year chance of occurring (1/1=100 percent). History of events is great than 33 percent likely per year. Event is Highly Likely” to occur.

4.2 Flood

4.2.1 History

Wave action from Bristol Bay is causing the shoreline at Egegik to recede, threatening infrastructure in the community. Egegik River erosion is jeopardizing 20 structures. High wind driven tides from Bristol Bay crash over the spit into the Egegik Bay. In 2009 erosion threatened the seawall near the cannery. The City Dock is threatened by erosion as the bank next to the

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dock loses several feet each year. Every year the bank becomes more and more undercut and land falls into the river in big chunks. 2005 and 2006 brought big fall storms along with storm surges, causing an increase in erosion rate. The storm surge topped 28 feet above mean sea level. Erosion is an immediate hazard to this community.

There were no floods of record during the Legacy 2009 Plan cycle.



Figure 3 Egegik Seawall next to City Dock (Photo: Marv Smith)

4.2.2 Location, Extent, Impact and Recurrence Probability

Location

Based on previous occurrences, annual fall storms and heavy rain events will continue to pose a threat to the community of Egegik due to the exposed nature of the coastline. The entire community of Egegik is particularly vulnerable to flooding caused by storm surges because of its low-lying location and its exposure to Bristol Bay.

Extent

Erosion due to storm surges and wave action has resulted in visible damages to the community at all waterfront areas. Residents report more loss of oceanfront than in recent memory. Heavy storms cause rapid erosion and have created hazards for drivers.

All areas intersecting a body of water are vulnerable to erosion damages. Annual fall storms and

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heavy rain events will continue to pose a threat to Egegik due to the exposed nature of the coastline.

Based on past winter storm flooding from the Bristol Bay, high water flow event history and the criteria identified in Table 5-2, the extent of flooding and resultant damages to infrastructure and their protective embankments in the Borough are considered “Limited” where critical facilities would shut-down for more than one week or less with more than 10 percent of property severely damaged.

Impact

Impacts from erosion include loss of land and any development on the land. Erosion can cause increased sedimentation of harbors and river deltas and hinder channel navigation, affecting marine transport. Other impacts include reduction in water quality due to high sediment loads, loss of native aquatic habitats, damage to public utilities, and economic impacts associated with costs trying to prevent or control erosion sites.

Recurrence Probability

With the increase of intensified fall sea storms taken place yearly, it is “Likely” a flood event may occur within the next three years where an event has up to 1 in 3 years ($1/3=33$ percent) chance of occurring. Where the history of the events occurring is more than 20% but less than or equal to 33% in a calendar year.

4.3 Volcano

4.3.1 History

Residents indicate that the proximity to active volcanoes is the hazard they are most concerned about. The massive 1912 eruption of Novarupta and other active volcanoes in Katmai National Park along with the 1977 Ukinrek Maars activity emphasis the ongoing risk posed by volcanoes to Egegik.

4.3.2 Location, Extent, Impact and Recurrence Probability

Location

The entire City of Egegik is at risk of impacts from volcanic ash fall out.

Extent

Based on the devastation of past volcanic events in the world and the criteria identified in Table 5-2, the magnitude and severity of impacts in the Borough are considered critical in that more 25 percent of property could be damaged. Injuries and/or illnesses result in permanent disability and complete shutdown of critical facilities for at least two weeks.

Impact

Not only can secondary effects such as ash fall cause temporary aviation access delays, but the ash fall could cause harm to the king salmon fishery near the village. Egegik’s isolated location places the community at risk by disrupting travel should any eruption take place. The impacts of a volcanic event could make the community vulnerable to economic losses through closure of businesses and government facilities, disruption in communications, disruption of the provision of utilities such as water and sewer services.

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Recurrence Probability

Volcanoes can erupt at any time, but the AVO monitors all active volcanoes sufficiently to allow enough warning time for communities to be prepared.

Volcanic eruptions can occur at any time and, because of the existence of so many active volcanoes within the Borough, can be considered a certainty.

Based on the history of volcanoes in the Borough area and applying the criteria identified in Table 5-3, it is “Possible” a tsunami event could occur within in the next five years. The event has up to 1 in 5 years (1/5=20 percent) chance of occurring were the history of events is equal to or greater than 10 percent but less than or equal to 20 percent likely each year.

4.4 Severe Weather

4.4.1 History

Severe weather strikes Egegik in the form of cyclonic windstorms out of the west and Southwest. Each winter windstorms cause considerable damage to the community. During the winter of 2000-2001 winds of up to 100 mph have been recorded, with gusts of 140. The community is concerned over the loss of electrical power as the local power generation plant (Egegik Light & Power) is privately owned and the community would like to get different power source and pursue alternative energy.

4.4.2 Location, Extent, Impact and Recurrence Probability

Location

The entire City of Egegik is at risk of a severe winter event.

Extent

Based on past severe weather events and the criteria identified in LPB MJHMP Table 5-2, the extent of severe weather in the Borough are considered limited where injuries do not result in permanent disability, complete shutdown of critical facilities occurs for more than one week, and more than 10 percent of property is severely damaged.

Impact

The intensity, location, and the land’s topography influence a severe weather event’s impact within a community. Hurricane force winds, rain, snow, and storm surge can be expected to impact the entire Borough.

Heavy snow can immobilize a community by bringing transportation to a halt. Until the snow can be removed, airports and roadways are impacted, even closed completely, stopping the flow of supplies and disrupting emergency and medical services. Accumulations of snow can cause roofs to collapse and knock down trees and power lines. Heavy snow can also damage light aircraft and sink small boats. A quick thaw after a heavy snow can cause substantial flooding. The cost of snow removal, repairing damages, and the loss of business can have severe economic impacts on cities and towns.

Injuries and deaths related to heavy snow usually occur as a result of vehicle and or snow machine accidents. Casualties also occur due to overexertion while shoveling snow and hypothermia caused by overexposure to the cold weather.

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Extreme cold can also bring transportation to a halt. Aircraft may be grounded due to extreme cold and ice fog conditions, cutting off access as well as the flow of supplies to communities. Long cold spells can cause rivers to freeze, disrupting shipping and increasing the likelihood of ice jams and associated flooding.

Extreme cold also interferes with the proper functioning of a community's infrastructure by causing fuel to congeal in storage tanks and supply lines, stopping electric generation. Without electricity, heaters and furnaces do not work, causing water and sewer pipes to freeze or rupture. If extreme cold conditions are combined with low or no snow cover, the ground's frost depth can increase, disturbing buried pipes. The greatest danger from extreme cold is its effect on people. Prolonged exposure to the cold can cause frostbite or hypothermia and become life threatening. Infants and elderly people are most susceptible. The risk of hypothermia due to exposure greatly increases during episodes of extreme cold, and carbon monoxide poisoning is possible as people use supplemental heating devices.

Recurrence Probability

Based on previous occurrences and the criteria identified in LPB MJHMP Table 5-3, it is “Likely” a severe storm event will occur in the next three years. An event has up to 1 in 3 years ($1/3=33$ percent) chance of occurring as the history of events is greater than 20 percent but less than or equal to 33 percent likely per year.

4.5 Wildland Fire

4.5.1 History

The community is not heavily forested and is relatively safe from forest fires, but citizens are still concerned about tundra fire probability making this a serious concern. Residents are concerned because of increasing dry vegetation. Dry grasses and brush produce very fast-moving fires. They report that more fires are occurring, and they are concerned that a high winds driven wildfire could endanger the community.

4.5.2 Location, Extent, Impact and Recurrence Probability

Location

Wildfires have not been documented within the boundaries of Egegik; however there is always the possibility that a fire from burning trash could spark a brushfire, aided by strong winds that could quickly consume the whole village. Under certain conditions wildland fires may occur in any area with fuel surrounding the community of Egegik. Since fuels data is not readily available, for the purposes of the plan, all areas outside the community are considered to be vulnerable to wildland tundra fire impacts.

Extent

Based on the number of past wildland fire events and the criteria identified in LPB MJHMP Table 5-2 and the magnitude and severity of impacts in the City are considered critical in that more 10 percent of property could be damaged.

Impact

Impacts of a wildland fire that interfaces with the population center of Egegik could grow into an emergency or disaster if not properly controlled. A small fire can threaten lives and resources and destroy property. In addition to impacting people, wildland fires may severely impact

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livestock and pets. Such events may require emergency watering and feeding, evacuation, and alternative shelter.

Indirect impacts of wildland fires can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soil erodes quickly and enhances siltation of rivers and stream, thus increasing flood potential, harming aquatic life, and degrading water quality. The impacts of a wildland tundra fire event could make the community vulnerable to economic losses through closure of businesses and government facilities, disruption in communications, disruption of the provision of utilities such as water and sewer services.

Recurrence Probability

Important issues related to the wildland or tundra fire probability are increased development along the community's perimeter, accumulation of hazardous wildfire fuels, and the uncertainty of weather patterns that may accompany climate change. These three combined elements are reason for concern and heightened mitigation management of each community's wildland interface areas, natural areas, and open spaces.

Based on the history of wildland fires in the Borough area and applying the criteria identified in LPB MJHMP Table 5-3, it is "Possible" a wildland or tundra fire event could occur within the next three years. The event has up to 1 in 3 years ($1/3=33$ percent) with the history of events being equal to or greater than 20 percent but less than or equal to 33 percent chance of occurring each year. Climate change and flammable vegetation species are prolific throughout Alaska's forests and tundra locations. Fire frequency may increase in the future as a result.

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5. Vulnerability Analysis

Section Five outlines the vulnerability process for determining potential losses for the community from various hazard impacts.

Table 5 lists the Egegik's infrastructures' hazard vulnerability.

Table 5 Egegik's Infrastructures hazard vulnerability.

Hazard	Area's Hazard Vulnerability			
	Percent of Jurisdiction's Geographic Area	Percent of Population	Percent of Building Stock	Percent of Critical Facilities and Utilities
Earthquake	100	100	100	100
Flood	100	100	100	100
Ground Failure*	100	100	100	100
Tsunami*	100	100	100	100
Volcano	100	100	100	100
Weather	100	100	100	100
Wildland Fire	100	100	100	100

*Profiled in the LPB MJHMP

5.1 Existing Critical Facilities in Egegik

A critical facility is defined as a facility that provides essential products and services to the general public, such as preserving the quality of life in the City and fulfilling important public safety, emergency response, and disaster recovery functions. The critical facilities profiled in this plan include the following:

- Government facilities, such as city and tribal administrative offices, departments, or agencies
- Emergency response facilities, including police department and firefighting equipment
- Educational facilities, including K-12
- Care facilities, such as medical clinics, congregate living health, residential and continuing care, and retirement facilities
- Community gathering places, such as community and youth centers
- Utilities, such as electric generation, communications, water and wastewater treatment, sewage lagoons, landfills.

There is limited GIS data available for the City of Egegik. Specific to Egegik the natural hazards of earthquake, flood, volcano, weather and wildland fire are at equal risk to the entire community.

Table 6 contains the City's critical facilities and infrastructure data this information was obtained from the Planning Team during a teleconference.

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Table 6 Egegik's Critical Facilities and Infrastructure

Facility Type	Estimated No. of Occupants	Facilities	Address	Latitude	Longitude	Estimated Value	Building Type	Earthquake	Flood	Volcano	Weather	Wildland Fire
Government		Offices, City Office	Central Street	58.21556	-157.37583	\$500,000	W2	X	X	X	X	X
	1	Old Tribal Office and Library	Central Street	58.21556	-157.37583	\$750,000	W1	X	X	X	X	X
	6	Tribal Office	Airport Road	NA	NA	\$1,500,000	W2	X	X	X	X	X
Emergency	1	Fire Station and Water Plant	Central Street	58.21556	-157.37583	\$5,000,000	S2	X	X	X	X	X
Education	14	Egegik School	School Road	58.21281	-158.21281	\$6,000,000	W2	X	X	X	X	X
Medical	4	Egegik Health Clinic	Central Street	58.21393	-157.37521	\$1,500,000	W1	X	X	X	X	X
Community	0	Egegik Bible Church	Central Street	58.21114	-157.37399	\$200,000	W1	X	X	X	X	X
	0	Community Bible Cemetery	Central Street	58.2109	-157.37435	\$20,000		X	X	X	X	X
	2	Teacher Quarters	NA	58.21281	-157.37363	\$400,000	W1	X	X	X	X	X
	1	Egegik Trading Company Store	NA	58.2156	-157.37334	NA		X	X	X	X	X
	4	Community Hall	Central Street	58.21556	-157.37583	\$2,000,000	W1	X	X	X	X	X
	1	Post Office	School Road	58.21329	-157.3733	\$500,000	W1	X	X	X	X	X
Transportation	0	Airport	1.5 miles south of community	58.21437	-157.35341	\$10,000,000	S2	X	X	X	X	X
	0	City Dock	Easy Street	58.21556	-157.37583	\$10,000,000	S2	X	X	X	X	X
Utilities	3	City Service/Maintenance Shop	Central Street	58.21556	-157.37583	\$3,500,000	S2	X	X	X	X	X
	0	City Tank Farm Six oil tanks. Two tanks = 10,000 gallons Four tanks = 17,000 to 21,000 gallons	River Road	58.21556	-157.37583	\$2,000,000	OTF	X	X	X	X	X

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Table 6 Egegik's Critical Facilities and Infrastructure

Facility Type	Estimated No. of Occupants	Facilities	Address	Latitude	Longitude	Estimated Value	Building Type	Earthquake	Flood	Volcano	Weather	Wildland Fire
	0	Egegik Lass III Municipal Landfill/Incinerator	Four miles east of community	58.24966	-157.50052	\$100,000	LF	X	X	X	X	X
	0	Water tank, 100,000 gallons	Central Street	NA	NA	\$2,000,000	PSTC	X	X	X	X	X
	300	Icicle Seafood Fish Plant Facilities (Seasonal)	River/Central Street	NA	NA	12 Buildings Private Enterprise Value Unknown		X	X	X	X	X
	12	Alaska General Seafood	Southwest of Icicle			8 Buildings Private Enterprise Value Unknown		X	X	X	X	X
	71	Total Estimated Occupants			Total Damages:	45,970,000						

(City of Egegik 2015)

The summary of Table 6 includes the following.

- 109 people in 29 residences (approximate value \$8,700,000) The average cost per household is \$300,000 which was provided by the Planning Team. Freight costs per one home was estimated to be approximately \$40,000.
- 9 people in three government and emergency response facilities (approximate value \$2,750,000)
- 14 people in one educational facility (approximate value \$6,000,000)
- 4 people in one medical facilities (approximate value \$6,500,000)
- 8 people in six community facilities (approximate value \$3,120,000)
- 0 people in two transportation facilities (approximate value \$20,000,000)
- 16 year round people in 6 utility facilities (approximate value \$7,600,000)

The Borough anticipates that impacts to future populations, residential structures, critical facilities, and infrastructure will be at the same historical impact level.

5.2 Future and Planned Development in Egegik.

The Planning Team had no future or planned development for the City of Egegik to report. Maintaining their current infrastructure and residential housing units for the next five years is the goal.

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Figure 4 illustrates the current public facilities in the City.



Figure 4 Egegik Public Facilities

5.3 NFIP Participation and Repetitive Loss Properties

The City of Egegik is not a participating community in the NFIP and therefore does not have any repetitive loss properties.

The Borough has participated in the NFIP since an emergency entry date of March 4, 2004 and a regular entry date of February 3, 2010.

The LPB has no repetitive loss properties and no claims for flood insurance.

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6. Egegik Mitigation Strategy

Section Six outlines the five-step process for preparing a mitigation strategy including:

1. Identifying the City's existing authorities for implementing mitigation action initiatives
2. Developing Mitigation Goals
3. Identifying Mitigation Actions
4. Evaluating Mitigation Actions
5. Implementing the Mitigation Action Plan (MAP)

6.1 Egegik Capability Assessment

The City's capability assessment reviews the technical and fiscal resources available to the community.

This section outlines the resources available to the Borough for mitigation and mitigation related funding and training. Tables 7, 8, and 9 delineate the City's regulatory tools, technical specialists, and financial resource available for project management. Additional funding resources are identified in Appendix A.

Table 7 Egegik Regulatory Tools.

Regulatory Tools (ordinances, codes, plans)	Existing Yes/No?	Comments (Year of most recent update; problems administering it, etc.)
Comprehensive Plan	Yes	As part of the LPB plan, each community has a brief Community Action Plan.
Land Use Plan	Yes	Describes the City's community development goals and initiatives as part of the Comprehensive Plan – Community Action Plan
Tribal Land Use Plan	Yes	Describes the Village's community development goals and initiatives as part of the Comprehensive Plan – Community Action Plan
Emergency Response Plan	Yes	Emergency Operation Plan, 2010 (as part of the Borough Plan)
Wildland Fire Protection Plan	No	
Building code	No	The City can exercise this authority but is not required.
Zoning ordinances	No	The City can exercise this authority but is not required.
Subdivision ordinances or regulations	No	The City can exercise this authority but is not required.
Special purpose ordinances	No	The City can exercise this authority but is not required.

Local Resources

The City relies upon the LPB for most of their planning and land management tools that allow it to implement hazard mitigation activities. The resources available in these areas have been assessed by the hazard mitigation Planning Team, and are summarized below.

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Table 8 Technical Specialists for Hazard Mitigation.

Staff/Personnel Resources	Yes / No	Department/Agency and Position
Development and land management practices	Yes	LPB Community Development Planner
Planner or engineer with an understanding of natural and/or human-caused hazards.	Yes	LPB Community Development Planner
Floodplain Manager	No	Not a NFIP participating community.
Surveyors	Yes	The City hires consultants when they need a surveyor.
Staff with education or expertise to assess the jurisdiction's vulnerability to hazards.	Yes	LPB Community Development Planner
Personnel skilled in Geospatial Information System (GIS) and/or Hazards Us-Multi Hazard (Hazard-MH) software	Yes	LPB Community Development Planner
Scientists familiar with the hazards of the jurisdiction	No	The City works with U.S. Fish & Wildlife Service (USFWS) and Fish & Game (ADF&G), and the Alaska Department of Transportation and Public Facilities
Emergency Manager	Yes	LPB Community Development Planner
Finance (Grant writers)	Yes	LPB Community Development Planner and community representatives
Public Information Officer	Yes	The City Mayor, City Administrator, or Tribal President

Table 9 Egegik Financial Resources

Financial Resource	Accessible or Eligible to Use for Mitigation Activities
General funds	Can exercise this authority with voter approval
Municipal Energy Assistance Program (MEAP)	Provides operating support funding
Community Development Block Grants (CDBG)	Can exercise this authority with voter approval
Capital Improvement Project Funding	Can exercise this authority with voter approval
Authority to levy taxes for specific purposes	Can exercise this authority with voter approval
Incur debt through general obligation bonds	Can exercise this authority with voter approval
Incur debt through special tax and revenue bonds	Can exercise this authority with voter approval
Incur debt through private activity bonds	Can exercise this authority with voter approval
Hazard Mitigation Grant Program (HMGP)	FEMA funding which is available to local communities after a Presidentially-declared disaster. It can be used to fund both pre- and post-disaster mitigation plans and projects.
Pre-Disaster Mitigation (PDM) grant program	FEMA funding which available on an annual basis. This grant can only be used to fund pre-disaster mitigation plans and projects only
Flood Mitigation Assistance (FMA) grant program	No, not a NFIP participating community.
United State Fire Administration (USFA) Grants	The purpose of these grants is to assist state, regional, national or local organizations to address fire prevention and safety. The primary goal is to reach high-risk target groups including children, seniors and firefighters.

City of Egegik Hazard Mitigation Plan Update

6.2 Mitigation Goals

The Planning Team developed the mitigation goals and potential mitigation actions to address identified potential hazard impacts for the City within Section 4.

The exposure analysis results were used as a basis for developing the mitigation goals and actions. Mitigation goals are defined as general guidelines that describe what a community wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing community-wide visions. As such, eight goals were developed to reduce or avoid long-term vulnerabilities to the identified hazards (Table 6).

Table 10 City of Egegik Mitigation Goals

No.	Goal Description
Multi-Hazards (MH)	
MH 1	Promote recognition and mitigation of all natural and manmade hazards that affect Egegik.
MH 2	Promote cross-referencing mitigation goals and actions with other City planning mechanisms and projects.
MH 3	Reduce possibility of losses from all natural and manmade hazards that affect City.
Natural Hazards	
EQ 1	Reduce structural vulnerability to earthquake (ER) damage.
FL 2	Reduce flood and erosion (FL) damage and loss possibility.
VO 3	Reduce vulnerability, damage, or loss of structures from volcanic debris impacts
W(S) 4	Reduce structural vulnerability to severe weather (SW) damage.
WF 5	Reduce structural vulnerability to Tundra/Wildland Fire (WF) damage.

6.3 Identifying Mitigation Actions

The Planning Team assessed the potential mitigation actions to carry forward into the mitigation strategy. Mitigation actions are activities, measures, or projects that help achieve the goals of a mitigation plan. Mitigation actions are usually grouped into three broad categories: property protection, public education and awareness, and structural projects.

During the planning process November 2014 through May 2015 the Planning Team selected Borough natural hazard, mitigation actions for potential Mitigation Action Plan (MAP) implementation during the five-year life cycle of this MJHMP. The Planning Team placed particular emphasis on projects and programs that reduce the effects of hazards on both new and existing buildings and infrastructure as well as facilities located in potential flood zones to comply with NFIP requirements.

Legacy HMP Actions Carried Forward

Borough staff decided to carry over the entire legacy HMP's goals and actions because they were unable to make forward progress due to unavailable funding and staff capacity. Therefore all legacy HMP actions are ongoing.

The Table 11 breaks out City project criteria as considered, selected, ongoing, or revised/reworded to better reflect Borough needs. The Planning Team considered additional projects from a comprehensive list for each hazard type. They identified numerous "ongoing" mitigation actions currently in-process or those that were listed in other Borough planning

City of Egegik Hazard Mitigation Plan Update

documents. The Planning Team did not delete any of the Legacy 2008 MJHMP actions, but reworded or clarified the actions, as deemed appropriate.

** **Note:** All Legacy Actions were carried forward due to limited funding or resource capacity.*

Table 11 City of Egegik Mitigation Plan and Potential Actions

Supports Goal No.	Description	Criteria <i><u>New Actions:</u></i> <i><u>Considered</u></i> <i><u>Selected</u></i> <i><u>Legacy Plan</u></i> <i><u>Actions:</u></i> <i><u>Ongoing</u></i> <i><u>Not Completed</u></i> <i><u>Completed</u></i>	Description
MH 1	Promote recognition and mitigation of all natural and manmade hazards that affect Egegik.	S	Train residents in installation of erosion monitoring devices to determine rate of eroding shorelines and riverbanks.
MH 2	Promote cross-referencing mitigation goals and actions with other City planning mechanisms and projects.	S	Identify City staff to take responsibility for maintaining situation reports.
MH 3	Reduce possibility of losses from all natural and manmade hazards that affect the City.	S	Designate liaison between the City and the Borough to work with mitigation planning; grant applications, and other mitigation-related tasks.
EQ 1	<i>Reduce structural vulnerability to earthquake (ER) damage.</i>	S	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.
		S	Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.
FL 2	<i>Reduce vulnerability, damage, or loss of structures from erosion</i>	<i>O</i>	<i>Install riprap/concrete paving stone erosion protection on shoreline and riverbank as stopgap measure.</i>
		<i>O</i>	<i>Conduct thorough erosion study to determine best mitigation action.</i>
		<i>O</i>	<i>Follow through on best mitigation action as determined by study.</i>

City of Egegik Hazard Mitigation Plan Update

Table 11 City of Egegik Mitigation Plan and Potential Actions

Supports Goal No.	Description	Criteria <u>New Actions:</u> <u>Considered</u> <u>Selected</u> <u>Legacy Plan</u> <u>Actions:</u> <u>Ongoing</u> <u>Not Completed</u> <u>Completed</u>	Description
		<i>0</i>	<i>Relocate affected structures.</i>
VO 3	Reduce vulnerability, damage, or loss of structures from volcanic debris impacts	<i>s</i>	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.
SW 4	Reduce structural vulnerability to severe weather (SW) damage.	<i>0</i>	<i>Develop alternative energy source</i>
WF 5	Reduce structural vulnerability to Tundra/Wildland Fire (WF) damage.	<i>0</i>	<i>Build firebreak around community.</i>
		<i>0</i>	<i>Removal of dead/dry fuels.</i>

6.4 Mitigation Action Plan

Egegik's Mitigation Action Plan, Table 12, depicts how each mitigation action will be implemented and administered by the City. The MAP delineates each selected mitigation action, its priorities, the responsible entity, the anticipated implementation timeline, and provides a brief explanation as to how the overall benefit/costs and technical feasibility were taken into consideration.

Table 12 City of Egegik Mitigation Action Plan (MAP)

Goal/ Action ID	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years, 2-4 Years, 3-5 Years)	Benefit-Costs (BC) /Technical Feasibility (T/F)
MH 1.1	Train residents in installation of erosion monitoring devices to determine rate of eroding shorelines and riverbanks.	High	City Manager LPB – Public Works Dept.	LPB City DHS&EM	1-3 years	B/C: This ongoing activity is essential for the City as there are limited funds available to accomplish effective mitigation actions. T/F: This activity is ongoing demonstrating its feasibility.

City of Egegik Hazard Mitigation Plan Update

Table 12 City of Egegik Mitigation Action Plan (MAP)

Goal/ Action ID	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years, 2-4 Years, 3-5 Years)	Benefit-Costs (BC) /Technical Feasibility (T/F)
MH 2.1	Identify City staff to take responsibility for maintaining situation reports.	Medium	City Manager	LPB City	3-5 years	B/C: This ongoing activity is essential for the City as there are limited funds available to accomplish effective mitigation actions. T/F: This activity is ongoing demonstrating its feasibility.
MH 3.1	Designate liaison between City and Borough to assist Egegik with mitigation planning; grant applications, and other mitigation-related tasks.	Medium	City Manager	City, LPB, Tribes, FEMA HMA programs, AFG, FP&S, and SAFER	2-4 years	B/C: Sustained mitigation outreach programs have minimal cost and will help build and support area-wide capacity. This type activity enables the public to prepare for, respond to, and recover from disasters. T/F: This low cost activity can be combined with recurring community meetings where hazard specific information can be presented in small increments. This activity is ongoing demonstrating its feasibility.
EQ 1.1	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.	High	Public Works Department	City, LPB, HMA, NRCS, ANA, USACE, US USDA, Lindbergh	1-3 years	B/C: This project would ensure threatened infrastructures are available for use – their loss would exacerbate potential damages and further threaten survivability. T/F: This project is feasible using existing staff skills, equipment, and materials.
EQ 1.2	Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.	High	Public Works Department	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The City has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.

City of Egegik Hazard Mitigation Plan Update

Table 12 City of Egegik Mitigation Action Plan (MAP)

Goal/ Action ID	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years, 2-4 Years, 3-5 Years)	Benefit-Costs (BC) /Technical Feasibility (T/F)
FL 2.1	Install breakwater to reduce erosion from wave action	High	City Manager LPB Mayor	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The City has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
FL 2.2	<i>Conduct thorough erosion study to determine best mitigation actions</i>	<i>High</i>	<i>City Manager LPB Mayor</i>	<i>City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP</i>	<i>Ongoing</i>	<i>B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The City has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.</i>
FL 2.3	<i>Follow through on best mitigation action as determined by study.</i>	<i>Medium</i>	<i>City Manager LPB Mayor</i>	<i>City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP</i>	<i>Ongoing</i>	<i>B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The City has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.</i>
FLD 2.4	<i>Relocate affected structures.</i>	<i>Medium</i>	<i>City Manager</i>	<i>City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP</i>	<i>Ongoing</i>	<i>B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The City has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the</i>

City of Egegik Hazard Mitigation Plan Update

Table 12 City of Egegik Mitigation Action Plan (MAP)

Goal/ Action ID	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years, 2-4 Years, 3-5 Years)	Benefit-Costs (BC) /Technical Feasibility (T/F)
						<i>method selected.</i>
VO 3.1	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.	Medium	City Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
SW 4.1	<i>Develop alternative energy source</i>	<i>High</i>	<i>City Manager</i>	<i>City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP</i>	<i>Ongoing</i>	<i>B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.</i>
WF 5.1	<i>Build firebreak around community.</i>	<i>High</i>	<i>City Manager</i>	<i>City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP</i>	<i>Ongoing</i>	<i>B/C: This action has a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.</i>
WF 5.2	<i>Removal of dead/dry fuels.</i>	<i>High</i>	<i>City Manager</i>	<i>City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP</i>	<i>Ongoing</i>	<i>B/C: This action has a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.</i>

City of Egegik Hazard Mitigation Plan Update

7. References

Section Eight provides a comprehensive reference list used to develop the MJHMP.

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<!--[if !supportLists]--> <!--[endif]-->Review current and update the existing hazard mitigation goals if applicable,

<!--[if !supportLists]--> <!--[endif]-->Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.

<!--[if !supportLists]--> <!--[endif]-->Update the HMP Maintenance section to reflect how the City completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.

There will be opportunities for the entire community to review the team's work during various public involvement processes because FEMA requires at least two public involvement activities. We will provide planning team meeting minutes and two newsletters for distribution or posting to enable community wide knowledge, providing information during City Council Meetings or other public meetings, and working with us over the phone as we capture needed information.

AECOM will provide two (2) newsletters. The first newsletter (attached) introduces the project and explains the planning process, encourages public involvement; and asks the community to identify known hazards, and to confirm their critical infrastructure as identified by DHS&EM's statewide small community Critical Facility Database. The second will introduce the updated draft HMP and encourage the community to review and provide comments to make the plan better or more usable to mitigate your hazards.

We will mail six copies of the newsletter via snail mail, please post wherever you think best.

I would like to teleconference with you regarding the tables on Page 2 of the newsletter. Please let me know of a convenient time for me to call, this upcoming week, if possible. If you want to invite others to participate that would be great. Otherwise, you and I can go over the tables.

I look forward to working with you. Thank you for your time.

Eileen Bechtol

Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work."

— Daniel Hudson Burnham (1846-1912)

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CITY OF EGEGIK HAZARD MITIGATION PLAN UPDATE

Newsletter #1

February 2015

This newsletter describes the City of Egegik 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 State of Alaska Division of Homeland Security and Emergency Management Website at <http://ready.alaska.gov/plans/localhazmitplans>.

The State of Alaska, Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management (DHS&EM) was awarded a Pre-Disaster Mitigation Program grant from the Federal Emergency Management Agency (FEMA) to Update your 2009 Hazard Mitigation Plan (HMP).

AECOM was contracted to assist the Lake and Peninsula Borough with preparing a 2015 FEMA approvable HMP update. Each of the incorporated cities in the LPB, including City of Egegik, will also have a HMP developed as part of the update process.

The HMP 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 include relocating or elevating buildings, replacing insufficiently sized culverts, using alternative construction techniques, or developing, implementing, or enforcing building codes, and education.

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. The LPB plans to apply for mitigation funds after our plan is complete.

A FEMA approved and community adopted HMP 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 HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria and other applicable laws and regulations may be found at: <http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to include and document the following topics:

- ❑ New Planning Team membership and processes
- ❑ HMP update participation and plan reviewers,
- ❑ Identify new hazards not formerly addressed,
- ❑ Help us explain your hazard impacts since 2009,
- ❑ Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area,
- ❑ Determine their "estimated" replacement costs,
- ❑ Define the community's population risk and critical facility vulnerabilities,
- ❑ Review current and update the existing hazard mitigation goals if applicable,
- ❑ Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.
- ❑ Update the HMP Maintenance section to reflect how the (City or Borough) completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.
- ❑ Provide a copy of the community's HMP Adoption Resolution

FEMA has prepared Local Planning Review Guide available at:

http://emilms.fema.gov/is318/assets/local_mtgtn_plan_guidance_0708.pdf. It explains how the HMP Update meets each of the DMA2000 requirements.

We are currently in the very beginning stages of preparing the plan update. We will be conducting a Planning Team Meeting to introduce the project and

planning team, to gather comments from community residents update hazards lists, and collect data to refine the vulnerability assessment.

We Need Your Help

Please use the following table to confirm the hazards AND identify new hazards not formerly addressed.

Egegik Hazard Worksheet		
Hazard	2009 Plan	Still Valid Yes/No
Earthquake (EQ)	Yes	
Flood (Erosion) (FL)	Yes	
Ground Failure (GF) Includes: Avalanche, Landslide, Permafrost, and/or Subsidence	No	
Severe Weather (SW)	Yes	
Tsunami & Seiche (TS)	No	
Volcano (VO)	Yes	
Wildland Fire (WF)	Yes	

The 2009 HMP identified critical facilities within LPB, but the list needs to be reviewed and updated and the estimated value and location (latitude/longitude) determined. In addition, the number and value of structures, and the number of people living in each structure will need to be documented. A newsletter will be sent to each of the incorporated cities in the LPB with a table of their critical facilities to review. Once this information is collected we will determine which critical facilities, residences, and populations are vulnerable to specific hazards in the LPB.

Critical Facility	Current Natural Hazards				
	EQ	FL	SW	VO	WF
City Offices	X		X		X
City Service/Maintenance Shop	X		X		X
Egegik Tribal Council Office	X		X		X
Bartlett's Airport	X		X		X
City Harbor/Dock/Port	X		X		X
Fire Station	X		X		X
Police Station	X		X		X
Egegik School	X		X		X
Egegik Hospital/Clinic/ER	X		X		X
Church (Closed Russian Orthodox)	X		X		X
Recreation/Youth Center	X		X		X
Community Bible Cemetery	X		X		X

Critical Facility	Current Natural Hazards				
	EQ	FL	SW	VO	WF
Community Bible Church	X		X		X
Egegik Trading Company Store	X		X		X
Fisherman's Community Hall	X		X		X
Library	X		X		X
Post Office	X		X		X
Teachers Quarters	X		X		X
Washeteria	X		X		X
Cemetery	X		X		X
Telephone, ATT	X		X		X
Satellite, ATT	X		X		X
City Generator #1	X		X		X
City Generator #2	X		X		X
City Reservoir/Water Supply: #1	X		X		X
City Reservoir/Water Supply: #2	X		X		X
City Fuel Storage Tanks (>500gal)	X		X		X
Egegik Class III Muni Landfill/Incinerator	X		X		X
Landfill/Incinerator - International Seafoods - Class III	X		X		X
Egegik Landfill/Incinerator (Closed)	X		X		X
Egegik Light and Power Fuel Storage Tanks (>500gal)	X		X		X
Egegik Light and Power Generator Facility	X		X		X
Satellite, GCI	X		X		X
Fuel Storage Tanks (>500gal)					
Potable Water Production and Treatment Facility	X		X		X
Sewage Lagoon	X		X		X

Planning Team The LPB Planning Team will be led by Ranya Aboras, Borough Planner with assistance from AECOM (contracted by DHS&EM). Matters of the Hazard Mitigation Plan will be brought to the Borough Planning Commission through the LPB Community Development Planner, Ranya Aboras. AECOM will be developing materials and leading the planning process with guidance from the Planning Commission and Borough Planner.

Public Participation 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 and to guide the community.

We encourage you to take an active part in preparing the LPB 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. Please contact your Borough Community Development Planner Ranya Aboras; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for information.

Lake and Peninsula Borough Community Development Planner

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CITY OF EGEGIK HAZARD MITIGATION PLAN (HMP)

April 2015

Newsletter 2

This newsletter discusses the preparation of the City of Egegik (Egegik) Hazard Mitigation Plan. It has been prepared to inform interested agencies, stakeholders, and the public about the project and to solicit comments. This newsletter can also be viewed on the State of Alaska Division of Homeland Security and Emergency Management Website at: <http://www.ready.alaska.gov/plans/localhazmitplans.htm>.

HMP Development

Egegik was one of 21 communities selected by the State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) for a Hazard Mitigation Planning (HMP) development project. The plan identifies natural hazards that affect the community including earthquake, erosion, flood, ground failure, severe weather, and tundra/wildland fire. The HMP also identifies the people and facilities potentially at risk and potential actions to mitigate community hazards. The public participation and planning process is documented as part of the project.

What is Hazard Mitigation?

Across the United States, natural disasters have increasingly caused injury, death, property damage, and business and government service interruptions. The toll on individuals, families, and businesses can be very high. The time, money, and emotional effort required to respond to and recover from these disasters take public resources and attention away from other important programs and problems.

People and property throughout Alaska are at risk from a variety of hazards that have the potential for causing human injury, property damage, or environmental harm.

The purpose of hazard mitigation is to implement projects that reduce the risk severity of hazards on people and property. Mitigation programs may include short-term and long-term activities to reduce hazard impacts or exposure to hazards. Mitigation could include education, construction or planning projects. Hazard mitigation activity examples include relocating buildings, developing or strengthening building codes, and educating residents and building owners.

Why Do We Need A Hazard Mitigation Plan?

A community is only eligible to receive grant money for mitigation programs by preparing and adopting a hazard mitigation plan. Communities must have an approved mitigation plan to receive grant funding from the Federal Emergency Management Agency (FEMA) for eligible mitigation projects.

The Planning Process

There are very specific federal requirements that must be met when preparing a HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria may be found on the Internet at: <http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to document the following topics:

- ☐ Planning process
- ☐ Community Involvement and HMP review
- ☐ Hazard identification
- ☐ Risk assessment
- ☐ Mitigation Goals
- ☐ Mitigation programs, actions, and projects
- ☐ A resolution from the community adopting the plan

FEMA has prepared a Local Planning Review Guide) and (available at: <http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=4859>). It explains how the HMP meets each of the DMA2000 requirements. FEMA has prepared and “Mitigation Planning Guidance” and “How to Guides” (available at: <http://www.fema.gov/hazard-mitigation-planning-resources>). The City’s Hazard Mitigation Plan will follow those guidelines.

The planning process kicked-off on February 14, 2015 by establishing a local planning team and reviewing the 2009 Egegik Plan. The planning team examined the full spectrum of hazards listed in the State Hazard Mitigation Plan and identified natural hazards the HMP would address.

Egegik staff, AECOM and the public began identifying critical facilities, compiling the hazard profiles, assessing capabilities, and conducting the risk assessment for the identified hazards. Critical facilities are facilities that are critical to the recovery of a community in the event of a disaster. After collection of this information, AECOM helped to determine which critical facilities and estimated populations are vulnerable to the identified hazards in Egegik.

A mitigation strategy was the next component of the plan to be developed. Understanding the community’s local

capabilities and using information gathered from the public and the local planning team and the expertise of the consultants and agency staff, a mitigation strategy was developed. The mitigation strategy is based on an evaluation of the hazards, and the assets at risk from those hazards. Mitigation goals and a list of potential actions/projects were developed as the foundation of the mitigation strategy.

Mitigation goals are defined as general guidelines that explain what a community wants to achieve in terms of hazard and loss prevention. Goals are positively stated future situations that are typically long-range, policy-oriented statements representing community-wide visions. Mitigation actions and projects are undertaken in order to achieve your stated objectives.

The planning team identified projects and/or actions for each hazard that focus on six categories: prevention, property protection, public education and awareness, natural resource protection, emergency services, and structural projects. The mitigation actions identified by the planning team are explained in more detail in the plan.

The selected projects and/or actions will potentially be implemented over the next five years as funding becomes available. A maintenance plan was also been developed for the hazard mitigation plan. It outlines how the community will monitor progress on achieving the projects and actions that will help meet the stated goals and objectives, as well as an outline for continued public involvement.

The draft plan is available in the city office for public review and comment. Comments should be made via email or phone to Eileen Bechtol (contact information listed below) and be received no later than June 15, 2015. The plan will be provided to DHS&EM and FEMA for their preliminary approval and returned to Egegik's city council for formal adoption.

Sample of the City of Egegik's Mitigation Actions. Review the draft HMP for a complete list.		
Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.	Removal of dead/dry fuels.
Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.	Develop alternative energy source	Install riprap/concrete paving stone erosion protection on shoreline and riverbank as stopgap measure.

We encourage you to take an active part in the Egegik 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. Please contact your Borough Community Development Planner Ranya Aboras; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for information.

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LAKE AND PENINSULA BOROUGH MULTI-JURISDICTIONAL Hazard Mitigation Plan Update

City of Newhalen, Alaska Hazard Mitigation Plan



City of Newhalen, Alaska (Photo: Marv Smith)

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City of Newhalen Hazard Mitigation Plan Update

1. Community Description

Section One provides the Newhalen location, geography, history, and demographic information.

1.1 Location, Geography and History

Newhalen, population 207 (DCRA 2014 estimate) is located on the north shore of Iliamna Lake at the mouth of Newhalen River, five miles south of Iliamna and 320 miles southwest of Anchorage. It lies at approximately 59.7200° North Latitude and -154.89722° West Longitude. (Sec. 28, T005S, R033W, Seward Meridian.) Newhalen is located in the Iliamna Recording District. The area encompasses 6.1 sq. miles of land and 2.3 sq. miles of water.

Newhalen lies in the transitional climatic zone. Average summer temperatures range from 42 to 62; winter temperatures average 6 to 30. The record high is 91; the record low, -47. Annual precipitation is 26 inches, including 64 inches of snow.

Newhalen includes Yup'ik Eskimos, Alutiiq and Athabascans. Most practice a subsistence and fishing lifestyle. Newhalen and Iliamna share a post office and school. Seven residents hold commercial fishing permits. Most of the employment is seasonal; many work in Bristol Bay fisheries or in Iliamna. Thousands of sport fishermen visit the area each summer for trophy rainbow trout fishing on the lake. Residents rely heavily on subsistence activities, and most families travel to fish camps during the summer. Salmon, trout, grayling, moose, caribou, rabbit, porcupine and seal are utilized.

Eleven residents hold commercial fishing permits. Most of the employment is seasonal; many work in Bristol Bay fisheries or in Iliamna. Thousands of sport fishermen visit the area each summer for trophy rainbow trout fishing on the lake. Residents rely heavily on subsistence activities, and most families travel to fish camps during the summer. Salmon, trout, grayling, moose, caribou, rabbit, porcupine and seal are utilized.

Water is derived from a well and is treated at the washeteria. A piped water and sewer system serves all 51 homes. Most residences are fully plumbed. The City provides septic pumping services. The Village Council operates a washeteria. Newhalen has requested funding to relocate the landfill; it is nearing capacity, and there is heavy tourist use during summer months. The school recycles aluminum and newspapers. The INN Electric Cooperative owns a diesel plant in Newhalen and 50 miles of distribution line to connect the three communities. The Tazimina Hydroelectric Project has recently been completed, and powers Iliamna, Newhalen and Nondalton.

The community is serviced by the Iliamna Airport, which is State owned and operated has two paved runways, one measures 5,080' long by 100' wide, the other is 4,800' long by 150' wide. Scheduled and charter air services are available. A gravel road connects these communities and the airport. A local priority is the construction of a road between Iliamna and Nondalton, with a bridge over the Newhalen River. Barges deliver bulk goods via the Kvichak River, which are lightered to shore.

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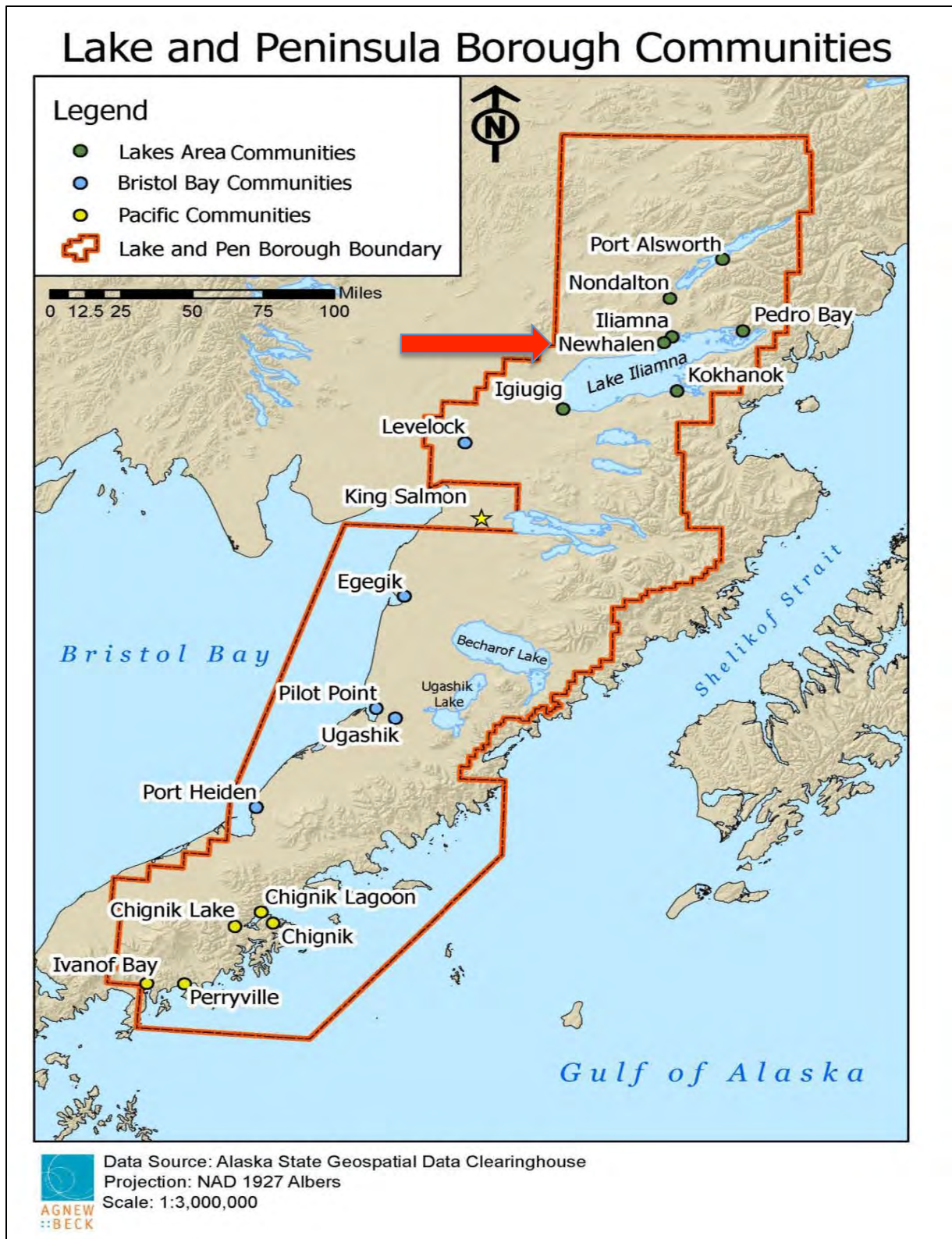


Figure 1 Newhalen location in the LPB (2012 LPB Comprehensive Plan).

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2. Planning Process

Section Two provides an overview of the planning process; identifies the Planning Team Members and key stakeholders; documents public outreach efforts; and summarizes the review and incorporation of existing plans, studies, and reports used to develop this MJHMP. Outreach support documents and meeting information regarding the Planning Team and public outreach efforts are provided in in the Lake & Peninsula Borough (LPB) Multi-Jurisdictional Hazard Mitigation Plan.

2.1 Planning Process Overview

The State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) provided funding and project oversight to AECOM Corporation to facilitate and guide Planning Team development and MJHMP development.

In summary, the following five-step process took place from November 11, 2014 through May 2015.

1. 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 hazard mitigation plan.
2. Monitor, evaluate, and update the plan: The Planning Team developed a process to ensure the plan was monitored to ensure it was used as intended while fulfilling community needs. The team then developed a process to evaluate the plan to compare how their decisions affected hazard impacts. They then outlined a method to share their successes with community members to encourage support for mitigation activities and to provide data for incorporating mitigation actions into existing planning mechanisms and to provide data for the plans five-year update.
3. Assess risks: The Planning Team identified the hazards specific to the Borough and with the assistance of a hazard mitigation planning consultant (AECOM), developed the risk assessment for seven identified hazards. The Planning Team reviewed the risk assessment, including the vulnerability analysis, prior to and during the development of the mitigation strategy.
4. 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.
5. Develop a mitigation strategy: After reviewing the risks posed by each hazard, the Planning Team developed a comprehensive range of potential mitigation goals and actions. Subsequently, the Planning Team identified and prioritized the actions for implementation.

2.2 Planning Teams

The Borough planning team was developed and comprised of Ranya Aboras (Planning Team Leader) and representatives from each of the incorporated cities and Port Alsworth.

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Table 1 LPB Planning Team Members

Team Member	Title	Involvement
Ranya Aboras	LPB Community Development Planner	MJHMP Team Leader, data gathering and plan review
LPB Planning Commission	Planning Commissioners	MJHMP plan review
Becky Bottcher	City Clerk/Treasurer	Newhalen plan
Don Strand	City Manager	Newhalen plan
Greg Anelon	City Manager	Newhalen plan
Carrie Harried	City Manager	Nondalton plan
Barbara Chestler	City Manager	Pilot Point plan
Angela Simpson	City Administrator	Port Heiden plan
Beth Hill	Port Alsworth Improvement Corporation	Port Alsworth plan
Scott Simmons	AECOM, Project Manager	MJHMP update manager, lead writer, and MJHMP project coordination.
Eileen Bechtol	BP&D/Community Planner	MJHMP update, project planner

Each community organized their own Planning Team; Newhalen's Planning Team is shown on Table 2 below.

Table 2 Newhalen Planning Team

Team Member	Title	Involvement
Greg Anelon, City Manager	City Manager	Planning Team Leader
Fedosia Balluta	Mayor	Plan review
Ranya Aboras	LPB Community Development Planner	MJHMP Team Leader, data gathering and plan review
Scott Simmons	AECOM, Project Manager	MJHMP update manager, lead writer, and MJHMP project coordination.
Eileen Bechtol	BP&D/Community Planner	MJHMP update, project planner

2.3 Public Involvement & Opportunity for Interested Parties to participate

AECOM extended an invitation to all individuals and entities identified on the project mailing list described the planning process and announced the upcoming communities' planning activities. The announcement was emailed to relevant academia, nonprofits, and local, state, and federal agencies on November 20, 2014. The list of the agencies and organization is invited to participate and review the MJHMP.

Table 3 lists the community's public involvement initiatives focused to encourage participation and insight for the MJHMP effort.

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Table 3 Public Involvement Mechanisms

Mechanism	Description
Newsletter #1 Distribution (February 2015)	In February and March 2015, the jurisdiction distributed a newsletter introducing the upcoming planning activity. The newsletter encouraged the community to provide hazard and critical facility information. It was posted at the City offices, bulletin boards, and Borough website to enable the widest dissemination.
Agency Involvement eMail (November 20, 2014)	Invited agencies to participate in mitigation planning effort and to review applicable newsletters located on the DHS&EM Local/Tribal All Hazard Mitigation Plan Development website at: http://ready.alaska.gov/plans/localhazmitplans.htm
Planning Team Meeting (April 2, 2015)	Finalized infrastructure table and reviewed mitigation plans.
Newsletter #2 Distribution (April 2015)	In April 2015, the jurisdiction distributed a second newsletter describing the MJHMP and the community specific draft plan availability and present potential MJHMP projects for review. The newsletter encouraged the community to provide comments or input. It was posted at the City or community office, and disseminated.
Public Meeting (April 6, 2015 LPB PC Meeting)	Notice of the April 6, 2015 meeting to introduce the MJHMP was posted at Borough Hall, and distributed to communities using their usual public notice procedures.
Public Meeting (May 11, 2015 LPB PC Meeting)	Notice of the May 11, 2015, meeting was posted at Borough Hall, and distributed to communities using their usual public notice procedures.
City Council Meeting (May 15, 2015)	Notice of the May 15, 2015 was noticed using their usual public notice procedures.
Newhalen City Council Approval of HMP	Notice of the _____, 2015 meeting to approve the Newhalen HMP as posted at City Hall and distributed in the community.

2.4 Review and analysis of the Legacy 2009 MJHMP.

The Legacy 2009 Newhalen portion of the MJHMP was revised as described below.

- Section 1. **Community Description:** reviewed and updated community information.
- Section 2. **Planning Process:** updated this section to reflect 2015 public process including newsletters, public meetings and 2015 Planning Team.
- Section 3. **Plan Adoption:** 2015 resolutions and dates.
- Section 4. **Hazard Identification & Risk Assessment:** reviewed hazard identification and risk assessment adding 2009 to 2015 descriptions and data. The Legacy 2009 HMP did not identify volcanic ash as a hazard, so was added to the 2015 HMP.
- Section 5. **Vulnerability Analysis:** added a new section to analyze vulnerability with 2015 critical facilities and infrastructure tables.
- Section 7. **Mitigation Strategy:** reviewed 2009 mitigation goals and actions and added new goals and action for the 2015 Mitigation Action Plan.

The Planning Team did not complete their designated annual HMP reviews or plan maintenance activities. Therefore it became a primary consideration to update the existing 2009 HMP to include hazards that have, or could potentially have, impacted the community during the legacy HMP's 5-year lifecycle.

Planning Team identified HMP components that necessitated information update. The Team determined how community changes, construction and infrastructure conditions, climate change impacts, and population increases or decreases have influenced hazard risks and/or facility

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vulnerabilities.

The 2015 HMP Update process included inviting new and existing stakeholders to review the existing HMP to determine what was accomplished versus what was intended to accomplish.

2.5 Incorporation of Existing Plans and Other Relevant Information

During the planning process, the Planning Team reviewed and incorporated information from existing plans, studies, reports, and technical reports into the MJHMP.

LPB MJHMP Table 3-3 lists existing plans and other documents that were available regarding the LPB and Newhalen and were reviewed and used as references for the jurisdiction information and hazard profiles in the risk assessment of the MJHMP for the Borough and Newhalen.

2.6 Plan Maintenance

This section in the MJHMP describes a formal plan maintenance process to ensure that the MJHMP remains an active and applicable document. It includes an explanation of how the Borough's Planning Team intends to organize their efforts to ensure that improvements and revisions to the MJHMP occur in a well-managed, efficient, and coordinated manner.

The following three process steps are addressed in detail in the Borough Plan:

1. Implementation into existing planning mechanisms
2. Continued public involvement
3. Monitoring, reviewing, evaluating, and updating the MJHMP

The City will follow the same procedure as set forth in the LPB MJHMP.

3. Plan Adoption

Section Three is included to fulfill the City of Newhalen MJHMP adoption requirements.

3.1 Adoption by Local Governing Bodies and Supporting Documentation

The requirements for the adoption of this MJHMP by the local governing body, as stipulated in the DMA 2000 and its implementing regulations are described below.

The Borough is represented in this MJHMP and meets the requirements of Section 409 of the Stafford Act and Section 322 of DMA 2000, and 44 CFR §201.6(c)(5).

The LPB Borough Assembly and cities' council's formal adoption resolutions and Port Allworth's letter stating compliance with MJHMP initiatives were submitted with the final draft MJHMP to FEMA for formal approval.

A scanned copy of the Borough's and Cities formal adoption resolutions are included in Appendix C of the LPB MJHMP.

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4. Hazard Identification and Risk Assessment

Section Four identifies and profiles the hazards that could affect the City of Newhalen.

Site visits, public meetings, and evaluation of historical information indicate that earthquake, flooding (particularly erosion), volcano, weather (severe) and wildland fire natural hazards are present in the community of Newhalen.

Hazard identification and risk assessment for these natural hazards are contained in this section, specific to Newhalen. The City does not have a risk of ground failure or tsunami.

The hazards profiled in the LPB MJHMP and the Newhalen HMP indicates that the entire City is at risk for each of the profiled hazards.

4.1 Earthquake

4.1.1 History

The following Table 4 lists 37 historical earthquakes over M5 with the largest one (M6.8) occurring on July 28, 2001. Source: USGS *NEIC Historic Earthquake Search*

Table 4 1978 to 2015 Historical Earthquakes in Newhalen

Date	Time	Latitude	Longitude	Depth	Magnitude
07/28/01	7:32:43	59.025	-155.116	131.3	6.8
05/01/90	16:12:21	58.84	-156.858	211	6.6
02/07/88	8:46:59	60.296	-152.972	137.5	6.5
07/09/98	19:39:44	60.53	-153.219	144.8	6.2
05/19/00	20:34:26	59.204	-153.139	79.5	5.9
11/20/93	19:24:54	60.025	-153.003	116.3	5.9
01/24/09	18:09:51	59.43	-152.887	97.9	5.8
02/12/95	20:13:37	59.436	-153.127	110.5	5.6
05/12/92	3:39:31	59.691	-153.482	138.8	5.6
07/25/87	1:11:49	60.155	-153.771	166.6	5.6
03/23/84	8:38:06	58.978	-154.153	118.7	5.6
05/19/05	1:12:30	60.018	-152.693	95.5	5.5
01/25/01	5:29:38	60.114	-152.363	86.9	5.5
10/17/96	15:38:21	60.113	-152.953	117.1	5.5
01/25/79	19:30:06	60.131	-153.121	105	5.5
03/20/89	1:06:33	59.883	-153.692	126.5	5.4
08/06/83	16:33:58	60.529	-153.129	137.9	5.4
08/18/78	18:52:28	59.885	-153.532	123	5.4
02/12/78	8:56:39	59.448	-152.622	72	5.4
10/27/85	19:03:40	58.49	-154.319	82.5	5.3
03/10/13	17:11:04	59.3147	-154.2182	8.3	5.2

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Date	Time	Latitude	Longitude	Depth	Magnitude
09/10/02	9:42:04	59.997	-152.882	117.2	5.2
03/19/93	12:20:51	59.539	-152.874	104.1	5.2
08/01/81	1:42:16	60.136	-153.185	114	5.2
12/18/09	3:33:14	59.044	-153.401	80.7	5.1
04/19/91	18:19:25	59.99	-153.34	134.2	5.1
05/23/86	23:18:42	58.906	-153.377	79.5	5.1
01/13/13	12:44:08	60.528	-152.885	135	5
01/06/12	23:37:45	59.852	-153.232	136.1	5
09/15/10	16:06:42	59.861	-153.176	121	5
01/25/10	17:04:08	58.604	-153.474	89.7	5
02/23/09	0:04:27	58.916	-153.626	87.8	5
11/09/08	23:36:58	59.997	-153.019	127.1	5
03/17/89	17:26:21	58.598	-155.69	150	5
07/14/82	12:15:48	60.514	-153.67	157	5
03/21/81	23:01:37	58.97	-154.697	136	5
08/12/80	14:44:28	59.98	-152.845	110	5

4.1.2 Location, Extent, Impact and Probability of Future Events

Location

The entire community of Newhalen is at risk for earthquake damages.

Extent

Based on historic earthquake events and the criteria identified in the LPB MJHMP Table 5-2, the magnitude and severity of earthquake impacts in the Borough are considered “Limited” with potential injuries and/or illnesses that do not result in permanent disability; critical facilities could expect to be shut-down for more than two weeks; and more than 10 percent of property severely damaged with limited long-term damage to transportation, infrastructure, or the economy.

Impact

Impacts to the community such as significant ground movement that may result in infrastructure damage are not expected. Minor shaking may be seen or felt based on past events. Impacts to future populations, residences, critical facilities, and infrastructure are anticipated to remain the same. Damage could be caused to homes and the City infrastructure such as the City water plant or the City Dock, which could halt the use of the dock and supply of resources during summer months.

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Probability of Future Events

Probability of earthquake with $M > 5.0$ within 50 years & 50 km

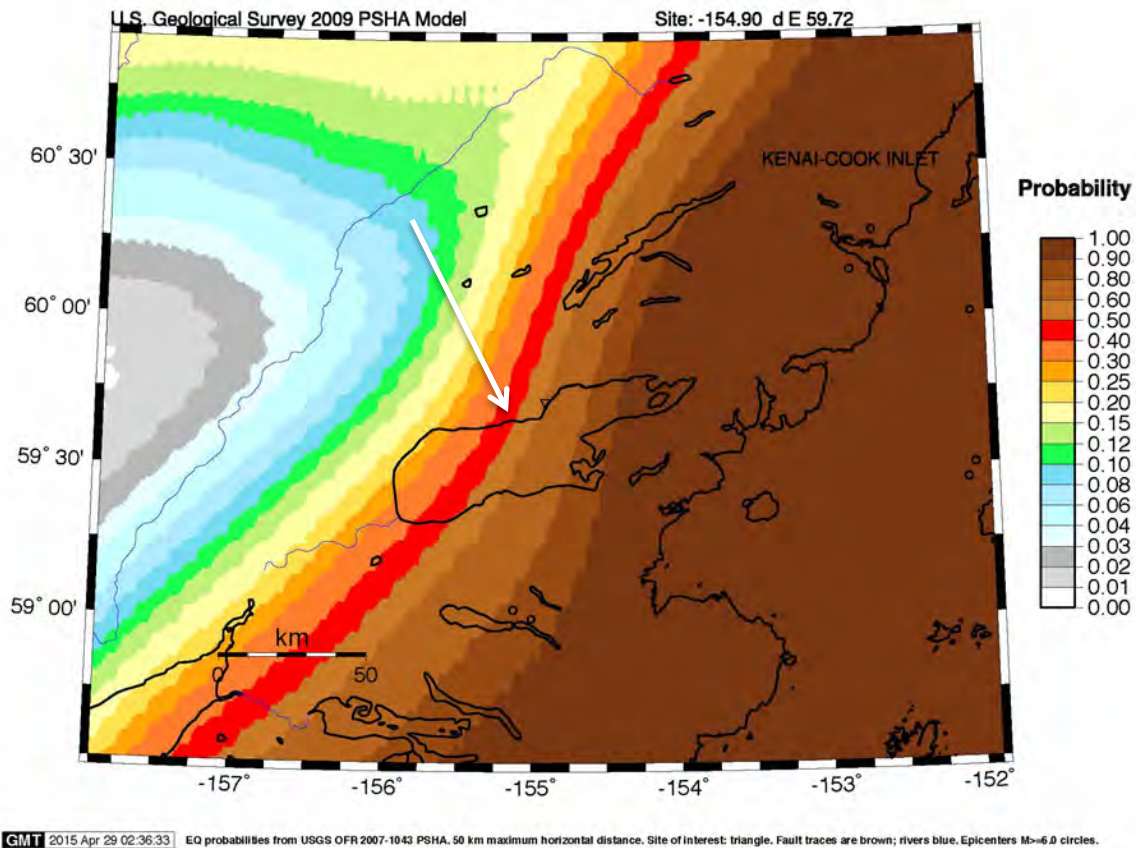


Figure 2 Probability of earthquake in Newhalen (USGS 2015)

Based on past events and the USGS Shake Map above, the probability of an event occurring is “Highly Likely”. The event is probable within the calendar year and has up to a 1 to 1 year chance of occurring ($1/1=100$ percent). History of events is great than 33 percent likely per year. Event is “Highly Likely” to occur.

4.2 Flood

4.2.1 History

Residents’ report that the community experiences flooding from ice jams and ice overflows. The city tried to divert the flooding out to the lake by using sandbags, but this method was somewhat ineffective. The sewage lagoon is also threatened by the flooding. Historically, several homes are subject to flooding, and last flooded in 1982.

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4.2.2 Location, Extent, Impact and Probability of Future Events

Location

The entire community of Newhalen is at risk of flooding.

Extent

Newhalen could experience lake flooding and moderate high water flow flood erosion impacts. Therefore, based on past high water flow event history and the criteria identified in LPB MJHMP Table 5-2, the extent of flooding and resultant damages to infrastructure and their protective embankments in the City are considered “Limited” where critical facilities would shut-down for more than one week or less with more than 10 percent of property severely damaged.

Impact

Floods also result in economic losses through business and government facility closure, communications, utility (such as water and sewer), and transportation services disruptions. Floods result in excessive expenditures for emergency response, and generally disrupt the normal function of a community.

Probability of Future Event

Based on criteria established on Table 5-3 in the LPB MJHMP is probable a flood event may occur within the next five years (event has up to 1 in 5 chance of occurring). Based on the probability matrix on the history of the event occurring is more than 10% but less than or equal to 20% in a calendar year. Event could “Possibly” occur.

4.3 Volcano

4.3.1 History

Residents indicate that the proximity to active volcanoes is the hazard they are most concerned about. The massive 1912 eruption of Novarupta and other active volcanoes in Katmai National Park along with the 1977 Ukinrek Maars activity emphasis the ongoing risk posed by volcanoes to Newhalen.

4.3.2 Location, Extent, Impact and Probability of Future Events

Location

The entire City of Newhalen is at risk of impacts from volcanic ash fall out.

Extent

Based on the devastation of past volcanic events in the world and the criteria identified in Table 5-2, the magnitude and severity of impacts in the Borough are considered critical in that more 25 percent of property could be damaged. Injuries and/or illnesses result in permanent disability and complete shutdown of critical facilities for at least two weeks.

Impact

Not only can secondary effects such as ash fall cause temporary aviation access delays, but the ash fall could cause harm to the king salmon fishery near the village. Newhalen’s isolated location places the community at risk by disrupting travel should any eruption take place. The impacts of a volcanic event could make the community vulnerable to economic losses through

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closure of businesses and government facilities, disruption in communications, disruption of the provision of utilities such as water and sewer services.

Probability of Future Events

Volcanoes can erupt at any time, but the AVO monitors all active volcanoes sufficiently to allow enough warning time for communities to be prepared.

Volcanic eruptions can occur at any time and, because of the existence of so many active volcanoes within the Borough, can be considered a certainty.

Based on the history of volcanoes in the Borough area and applying the criteria identified in Table 5-3, it is possible a ash fall event will occur within in the next five years. The event has up to 1 in 5 years chance of occurring (1/5=20 percent) and the history of events is equal to or over 10 percent but less than or equal to 20 percent likely each year. Event is “Possible”.

4.4 Weather (Severe)

4.4.1 History

Severe weather impacts the community of Newhalen in the form of damages to electrical supply infrastructure. Severe weather in the form of high winds impacts the community approximately twice a year. Residents have noted that 70 to 100 mph high winds occur often enough that most structures in the must be built to withstand the winds.

Flying debris has also been reported as a hazard during such storms. The community has ongoing problems with blackouts and brownouts, which can be a serious problem during severe weather or extreme cold, because most homes do not have alternate heat or power. Without electrical power, water and sewer systems are also compromised.

Frost heaves and freezing ground cause buckling and can sever or corrode the electrical lines. Should this happen during subzero temperatures, it can be very dangerous for residents. The community suspects that the electrical lines may not be installed correctly. Investigation is needed to determine whether the system can be improved.

4.4.2 Location, Extent, Impact and Probability of Future Events

Location

The entire City of Newhalen is at risk of a severe winter event.

Extent

Based on past severe weather events and the criteria identified in LPB MJHMP Table 5-2, the extent of severe weather in the Borough are considered limited where injuries do not result in permanent disability, complete shutdown of critical facilities occurs for more than one week, and more than 10 percent of property is severely damaged.

Impact

The intensity, location, and the land’s topography influence a severe weather event’s impact within a community. Hurricane force winds, rain, snow, and storm surge can be expected to impact the entire Borough.

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Heavy snow can immobilize a community by bringing transportation to a halt. Until the snow can be removed, airports and roadways are impacted, even closed completely, stopping the flow of supplies and disrupting emergency and medical services. Accumulations of snow can cause roofs to collapse and knock down trees and power lines. Heavy snow can also damage light aircraft and sink small boats. A quick thaw after a heavy snow can cause substantial flooding. The cost of snow removal, repairing damages, and the loss of business can have severe economic impacts on cities and towns.

Injuries and deaths related to heavy snow usually occur as a result of vehicle and or snow machine accidents. Casualties also occur due to overexertion while shoveling snow and hypothermia caused by overexposure to the cold weather.

Extreme cold can also bring transportation to a halt. Aircraft may be grounded due to extreme cold and ice fog conditions, cutting off access as well as the flow of supplies to communities. Long cold spells can cause rivers to freeze, disrupting shipping and increasing the likelihood of ice jams and associated flooding.

Extreme cold also interferes with the proper functioning of a community's infrastructure by causing fuel to congeal in storage tanks and supply lines, stopping electric generation. Without electricity, heaters and furnaces do not work, causing water and sewer pipes to freeze or rupture. If extreme cold conditions are combined with low or no snow cover, the ground's frost depth can increase, disturbing buried pipes. The greatest danger from extreme cold is its effect on people. Prolonged exposure to the cold can cause frostbite or hypothermia and become life threatening. Infants and elderly people are most susceptible. The risk of hypothermia due to exposure greatly increases during episodes of extreme cold, and carbon monoxide poisoning is possible as people use supplemental heating devices.

Probability of Future Events

Based on previous occurrences and the criteria identified in LPB MJHMP Table 5-3, it is likely a severe storm event will occur in the next three years (event has up to 1 in 3 years chance of occurring) as the history of events is greater than 20 percent but less than or equal to 33 percent likely per year. Event is "Likely".

4.5 Wildland Fire

4.5.1 History

Newhalen is very close to Iliamna and both communities have the same threat from wildfire. A large fire near Iliamna burned several thousand acres in recent years. The community experiences high fire danger all year round due to the lack of firefighting capability.

Heavy vegetation, dry brush, and tall grasses leave the community vulnerable to wildfire fanned by winds. A continual outbreak of fires threatens the community as the source fuel builds and an effective means of firefighting remains lacking, thus leaving the community exposed to a major fire event.

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4.5.2 Location, Extent, Impact and Probability of Future Events

Location

Under certain conditions wildland fires may occur in any area with fuel surrounding the community of Newhalen. Since fuels data is not readily available, for the purposes of the plan, all areas surrounding the community are considered to be vulnerable to wildland fire impacts.

Extent

Based on the number of past wildland fire events and the criteria identified in LPB MJHMP Table 5-2 and the magnitude and severity of impacts in the City are considered critical in that more 10 percent of property could be damaged.

Impact

Impacts of a wildland fire that interfaces with the population center of Newhalen could grow into an emergency or disaster if not properly controlled. A small fire can threaten lives and resources and destroy property. In addition to impacting people, wildland fires may severely impact livestock and pets. Such events may require emergency watering and feeding, evacuation, and alternative shelter. Indirect impacts of wildland fires can be catastrophic.

In addition to stripping the land of vegetation and destroying forest resources, large intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and enhance siltation of rivers and stream, thus increasing flood potential, harming aquatic life, and degrading water quality.

The impacts of a wildfire event could make the community vulnerable to economic losses through closure of businesses and government facilities, disruption in communications, disruption of the provision of utilities such as water and sewer services.

Future Event Probability

Based on previous occurrences and applying the criteria identified in the probability matrix, it is a high chance that wildland fire will occur in the next three years (event has up to 1 in 3 years chance of occurring) as the high chance of the event occurring and the history of the event will be greater than 33% in a calendar year

Climate change and flammable vegetation species are prolific throughout Alaska's forests and tundra locations. Fire frequency may increase in the future as a result. Event is "Likely".

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5. Vulnerability Analysis

Section Five outlines the vulnerability process for determining potential losses for the community from various hazard impacts.

Table 5 lists the Newhalen's infrastructures' hazard vulnerability.

Table 5 Newhalen's Infrastructures hazard vulnerability.

Hazard	Area's Hazard Vulnerability			
	Percent of Jurisdiction's Geographic Area	Percent of Population	Percent of Building Stock	Percent of Critical Facilities and Utilities
Earthquake	100	100	100	100
Flood	100	100	100	100
Ground Failure*	100	100	100	100
Tsunami*	100	100	100	100
Volcano	100	100	100	100
Weather	100	100	100	100
Wildland Fire	100	100	100	100

*Profiled in the LPB MJHMP

5.1 Existing Critical Facilities in Newhalen

A critical facility is defined as a facility that provides essential products and services to the general public, such as preserving the quality of life in the City and fulfilling important public safety, emergency response, and disaster recovery functions. The critical facilities profiled in this plan include the following:

- Government facilities, such as city and tribal administrative offices, departments, or agencies
- Emergency response facilities, including police department and firefighting equipment
- Educational facilities, including K-12
- Care facilities, such as medical clinics, congregate living health, residential and continuing care, and retirement facilities
- Community gathering places, such as community and youth centers
- Utilities, such as electric generation, communications, water and wastewater treatment, sewage lagoons, landfills.

There is limited GIS data available for the City of Newhalen. Specific to Newhalen the natural hazards of earthquake, flood, volcano, weather and wildland fire are at equal risk to the entire community.

Table 6 contains the City's critical facilities and infrastructure data this information was obtained from the Planning Team during a teleconference.

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Table 6 Newhalen's Critical Facilities and Infrastructure

Facility Type	Estimated No. of Occupants	Facilities	Street Address	Latitude	Longitude	Estimated Value	Building Type	Earthquake	Flood	Volcanic	Weather (Severe)	Wildland Fire
Government	2	City Hall/Fire Station/Store	Fire Lane	59.72*	-154.89722*	\$650,000	S2	X	X	X	X	X
Transportation		Transportation Facilities Data Not Available										
Emergency Response		No Emergency Response Facilities Data										
Education	70	School	School Street			\$4,000,000	W 2	X	X	X	X	X
Medical Care	2	Newhalen Health Clinic	Power Line Street			\$300,000	W 1	X	X	X	X	X
Community	2	Church (Up to 160 people at times)	Church Lane			\$250,000	W!	X	X	X	X	X
	40	Community Hall	Mountain View Drive			\$350,000	W 1	X	X	X	X	X
		Store inside City hall										
Roads		Road Information Not Available										
Bridges		No Bridges										
Utilities	1	Landfill Class III	State Road outside of City			\$15,000		X	X	X	X	X
	2	Potable Water Production and Treatment Facility	Pumphouse Road			\$1,100,000	P W S O	X	X	X	X	X
	0	Sewage Lagoon				\$100,000	W W PE	X	X	X	X	X
		LPB School District Fuel Storage Tanks (>500gal)	School Street			\$15,000	O TF	X	X	X	X	X
		I-N-N Electric Power Generation Facility	Powerland Street			\$6,000,000	S1	X	X	X	X	X
		LPB School District Reservoir/Water Supply (Well)	School Street			60,000	P W E	X	X	X	X	X
		Fuel Storage Tanks (>500gal)	Four tanks=500 gallons One tank=1,000 gallons			\$75,000	O TF	X	X	X	X	X
					Total Damages	\$12,915,000						

(Data: City of Newhalen) *Latitude and Longitude specific information not available, DCED used the city center

The summary of Table 6 includes the following.

- 207 people in 52 residences (approximate value \$13,000,000). The average cost per household is \$250,000, which was provided by the Planning Team. Freight costs are a significant part of costs to build in community.

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- Two people in one government facility (approximate value \$650,000)
- 70 people in one educational facility (approximate value \$4,000,000)
- 2 people in medical facilities (approximate value \$300,000)
- 42 people in two community facilities (approximate value \$600,000)
- NA* people in two transportation facilities (approximate value NA*)
- 3 people in 7 utility facilities (approximate value \$7,365,000)

The Borough anticipates that impacts to future populations, residential structures, critical facilities, and infrastructure will be at the same historical impact level.

5.2 Future and Planned Development in Newhalen.

The Planning Team had no future or planned development for the City of Newhalen to report. Maintaining their current infrastructure and residential housing units for the next five years is the goal.



Figure 3 Newhalen (LPB website Photo by Mark Emery)

Figure 4 illustrates the current public facilities in the City.

Figure 4 Newhalen Public Facilities

5.3 NFIP Participation and Repetitive Loss Properties

The City of Newhalen is not a participating community in the NFIP and therefore does not have any repetitive loss properties.

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The Borough has participated in the NFIP since an emergency entry date of March 4, 2004 and a regular entry date of February 3, 2010.

The LPB has no repetitive loss properties and no claims for flood insurance.

6. Newhalen Mitigation Strategy

Section Seven outlines the five-step process for preparing a mitigation strategy including:

1. Identifying the City's existing authorities for implementing mitigation action initiatives
2. Developing Mitigation Goals
3. Identifying Mitigation Actions
4. Evaluating Mitigation Actions
5. Implementing the Mitigation Action Plan (MAP)

6.1 Newhalen Capability Assessment

The City's capability assessment reviews the technical and fiscal resources available to the community.

This section outlines the resources available to the Borough for mitigation and mitigation related funding and training. Tables 7, 8, and 9 delineate the City's regulatory tools, technical specialists, and financial resource available for project management. Additional funding resources are identified in Appendix A.

Table 7 Newhalen Regulatory Tools.

Regulatory Tools (ordinances, codes, plans)	Existing Yes/No?	Comments (Year of most recent update; problems administering it, etc.)
Comprehensive Plan	Yes	As part of the LPB plan, each community has a brief Community Action Plan.
Land Use Plan	Yes	Describes the City's community development goals and initiatives as part of the Comprehensive Plan – Community Action Plan
Tribal Land Use Plan	Yes	Describes the Village's community development goals and initiatives as part of the Comprehensive Plan – Community Action Plan
Emergency Response Plan	Yes	Emergency Operation Plan, 2010 (as part of the Borough Plan)
Wildland Fire Protection Plan	No	
Building code	No	The City can exercise this authority but is not required.
Zoning ordinances	No	The City can exercise this authority but is not required.
Subdivision ordinances or regulations	No	The City can exercise this authority but is not required.
Special purpose ordinances	No	The City can exercise this authority but is not required.

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Local Resources

The City relies upon the LPB for most of their planning and land management tools that allow it to implement hazard mitigation activities. The resources available in these areas have been assessed by the hazard mitigation Planning Team, and are summarized below.

Table 8 Technical Specialists for Hazard Mitigation.

Staff/Personnel Resources	Yes / No	Department/Agency and Position
Development and land management practices	Yes	LPB Community Development Planner
Planner or engineer with an understanding of natural and/or human-caused hazards.	Yes	LPB Community Development Planner
Floodplain Manager	No	Not a NFIP participating community.
Surveyors	Yes	The City hires consultants when they need a surveyor.
Staff with education or expertise to assess the jurisdiction's vulnerability to hazards.	Yes	LPB Community Development Planner
Personnel skilled in Geospatial Information System (GIS) and/or Hazards Us-Multi Hazard (Hazard-MH) software	Yes	LPB Community Development Planner
Scientists familiar with the hazards of the jurisdiction	No	The City works with U.S. Fish & Wildlife Service (USFWS) and Fish & Game (ADF&G), and the Alaska Department of Transportation and Public Facilities
Emergency Manager	Yes	LPB Community Development Planner
Finance (Grant writers)	Yes	LPB Community Development Planner and community representatives
Public Information Officer	Yes	The City Mayor, City Administrator, or Tribal President

Table 9 Newhalen Financial Resources

Financial Resource	Accessible or Eligible to Use for Mitigation Activities
General funds	Can exercise this authority with voter approval
Municipal Energy Assistance Program (MEAP)	Provides operating support funding
Community Development Block Grants (CDBG)	Can exercise this authority with voter approval
Capital Improvement Project Funding	Can exercise this authority with voter approval
Authority to levy taxes for specific purposes	Can exercise this authority with voter approval
Incur debt through general obligation bonds	Can exercise this authority with voter approval
Incur debt through special tax and revenue bonds	Can exercise this authority with voter approval
Incur debt through private activity bonds	Can exercise this authority with voter approval
Financial Resource	Accessible or Eligible to Use for Mitigation Activities
Hazard Mitigation Grant Program (HMGP)	FEMA funding which is available to local communities after a Presidentially-declared disaster. It can be used to

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	fund both pre- and post-disaster mitigation plans and projects.
Pre-Disaster Mitigation (PDM) grant program	FEMA funding which available on an annual basis. This grant can only be used to fund pre-disaster mitigation plans and projects only
Flood Mitigation Assistance (FMA) grant program	No, not a NFIP participating community.
United State Fire Administration (USFA) Grants	The purpose of these grants is to assist state, regional, national or local organizations to address fire prevention and safety. The primary goal is to reach high-risk target groups including children, seniors and firefighters.

6.2 Mitigation Goals

The Planning Team developed the mitigation goals and potential mitigation actions to address identified potential hazard impacts for the City within Section 4.

The exposure analysis results were used as a basis for developing the mitigation goals and actions. Mitigation goals are defined as general guidelines that describe what a community wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing community-wide visions. As such, eight goals were developed to reduce or avoid long-term vulnerabilities to the identified hazards (Table 6).

Table 10 City of Newhalen Mitigation Goals

No.	Goal Description
Multi-Hazards (MH)	
MH 1	Promote recognition and mitigation of all natural and manmade hazards that affect Newhalen.
MH 2	Promote cross-referencing mitigation goals and actions with other City planning mechanisms and projects.
MH 3	Reduce possibility of losses from all natural and manmade hazards that affect City.
Natural Hazards	
EQ 1	Reduce structural vulnerability to earthquake (ER) damage.
FL 2	Reduce flood and erosion (FL) damage and loss possibility.
VO 3	Reduce vulnerability, damage, or loss of structures from volcanic debris impacts
W(S) 4	Reduce structural vulnerability to severe weather (SW) damage.
WF 5	Reduce structural vulnerability to Tundra/Wildland Fire (WF) damage.

6.3 Identifying Mitigation Actions

The Planning Team assessed the potential mitigation actions to carry forward into the mitigation strategy. Mitigation actions are activities, measures, or projects that help achieve the goals of a mitigation plan. Mitigation actions are usually grouped into three broad categories: property protection, public education and awareness, and structural projects.

During the planning process November 2014 through May 2015 the Planning Team selected City natural hazard, mitigation actions for potential Mitigation Action Plan (MAP) implementation during the five-year life cycle of this HMP. The Planning Team placed particular emphasis on projects and programs that reduce the effects of hazards on both new and existing buildings and

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infrastructure as well as facilities located in potential flood zones to comply with NFIP requirements.

Table 11 breaks out the project criteria as considered, selected, and ongoing. The Planning Team considered projects from a comprehensive list for earthquake, flood, volcano, weather (severe) and wildfire. They identified numerous “ongoing” mitigation actions currently in process or those that were listed in other City planning documents. The Planning Team then selected “newly identified” actions identified through this plan development activity that would most benefit the community.

Table 11 City of Newhalen Mitigation Plan and Potential Actions

Supports Goal No.	Description	Criteria <i>New Actions:</i> <i>Considered</i> <i>Selected</i> <i>Legacy Plan</i> <i>Actions:</i> <i>Ongoing</i> <i>Not Completed</i> <i>Completed</i> <i>Delete</i>	Description
MH 1	Promote recognition and mitigation of all natural and manmade hazards that affect Newhalen.	C-S	Train residents in installation of erosion monitoring devises to determine rate of eroding shorelines and riverbanks.
MH 2	Promote cross-referencing mitigation goals and actions with other City planning mechanisms and projects.	C-S	Identify City staff to take responsibility for maintaining situation reports.
MH 3	Reduce possibility of losses from all natural and manmade hazards that affect the City.	C-S	Designate liaison between the City and the Borough to work with mitigation planning; grant applications, and other mitigation-related tasks.
EQ 1	<i>Reduce structural vulnerability to earthquake (ER) damage.</i>	C-S	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.
		C-S	Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.
FL 2	<i>Reduce vulnerability,</i>	D	Installation of permanent flood control/diversion – <i>Community decided that this action was not needed.</i>

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Supports Goal No.	Description	Criteria <u>New Actions:</u> <u>Considered</u> <u>Selected</u> <u>Legacy Plan</u> <u>Actions:</u> <u>Ongoing</u> <u>Not Completed</u> <u>Completed</u> <u>Delete</u>	Description
	<i>damage, or loss of structures from erosion</i>	O-NC	Installation of bigger pumps for lift station. <i>This action has not been accomplished; the community still wants this a potential project.</i>
VO 3	Reduce vulnerability, damage, or loss of structures from volcanic debris impacts	C-S	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.
SW 4	Reduce structural vulnerability to severe weather (SW) damage.	O-NC	Obtain emergency generator for community. <i>This action has not been accomplished; the community still wants this as a potential project.</i>
		O-NC	Reduce vulnerability of electrical supply infrastructure. <i>This action has not been accomplished; the community still wants this as a potential project.</i>
WF 5	Reduce structural vulnerability to Tundra/Wildland Fire (WF) damage.	O-NC	Improve fire response capability. <i>This action has not been accomplished; the community still wants this as a potential project.</i>
		O-C	Build firebreak around community, remove dead/dry fuels. <i>This is an annual ongoing project.</i>

6.4 Mitigation Action Plan

Newhalen's Mitigation Action Plan, Table 12, depicts how each mitigation action will be implemented and administered by the City. The MAP delineates each selected mitigation action, its priorities, the responsible entity, the anticipated implementation timeline, and provides a brief explanation as to how the overall benefit/costs and technical feasibility were taken into consideration.

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Table 12 City of Newhalen Mitigation Action Plan (MAP)

Goal/ Action ID	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years 2-4 Years 3-5 Years)	Benefit-Costs (BC) / Technical Feasibility (T/F)
MH 1.1	Train residents in installation of erosion monitoring devises to determine rate of eroding shorelines and riverbanks.	High	City Manager LPB – Public Works Dept.	LPB City DHS&EM	1-3 years	B/C: This ongoing activity is essential for the City as there are limited funds available to accomplish effective mitigation actions. T/F: This activity is ongoing demonstrating its feasibility.
MH 2.1	Identify City staff to take responsibility for maintaining situation reports.	Medium	City Manager	LPB City	3-5 years	B/C: This ongoing activity is essential for the City as there are limited funds available to accomplish effective mitigation actions. T/F: This activity is ongoing demonstrating its feasibility.
MH 3.1	Designate liaison between City and Borough to assist Newhalen with mitigation planning; grant applications, and other mitigation-related tasks.	Medium	City Manager	LPB, Tribes, FEMA HMA programs, AFG, FP&S, and SAFER	2-4 years	B/C: Sustained mitigation outreach programs have minimal cost and will help build and support area-wide capacity. This type activity enables the public to prepare for, respond to, and recover from disasters. T/F: This low cost activity can be combined with recurring community meetings where hazard specific information can be presented in small increments. This activity is ongoing demonstrating its feasibility.
EQ 1.1	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.	High	Public Works Department	LPB, HMA, NRCS, ANA, USACE, US USDA, Lindbergh	1-3 years	B/C: This project would ensure threatened infrastructures are available for use – their loss would exacerbate potential damages and further threaten survivability. T/F: This project is feasible using existing staff skills, equipment, and materials.
EQ 1.2	Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children,	High	Public Works Department	LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The City has the skill to implement this action. Specialized skills may need

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	elderly, and pets.					to be contracted-out with materials and equipment barged in depending on the method selected.
FL 2.1	Installation of bigger pumps for lift station.	High	City Manager LPB Mayor	LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The City has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
VO 3.1	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.	Medium	City Manager	LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
SW 4.1	Obtain emergency generator for community	High	City Manager	LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	3-5 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
SW 4.2	Reduce vulnerability of electrical supply	Medium	City Manager	LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	3-5 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
WF 5.1	Improve fire response capability	High	City Manager	LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: This action has a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need

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						to be contracted-out with materials and equipment barged in depending on the method selected.
WF 5.2	Build firebreak around community Removal of dead/dry fuels.	High	City Manager	LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: This action has a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.

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Section Eight provides a comprehensive reference list used to develop the MJHMP.

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From: [Eileen Bechtol](#)
To: [Greg Anelon](#)
Cc: [Simmons, Scott](#)
Subject: Newhalen Hazard Mitigation Plan
Date: Saturday, February 14, 2015 10:58:15 AM
Attachments: [2-11-15 Newhalen Newsletter.pdf](#)

Hello Mr. Anelon:

I am writing to introduce myself, Eileen R. Bechtol, I am a subcontractor for Scott Simons, AECOM (formerly known as URS Corporation). AECOM contracted by the Division of Homeland Security and Emergency Management (DHS&EM) to develop a Hazard Mitigation Plan Update for ten Alaska jurisdictions. The City of Newhalen is one of the selected jurisdictions.

Your name was provided as the community contact in the incorporated cities. If this something I should discuss with someone else please forward this email to that person. Thank you.

It is important to note that the City of Newhalen does not have to pay anything for this project. This is an important project funded by FEMA through the DHS&EM. AECOM have worked with rural communities to assist them with their hazard mitigation plan development needs. In fact, URS has been developing HMPs nationwide since 2000. Our Alaska office has completed approximately 90 State, Borough (County) and local community, State reviewed, and FEMA approved Hazard Mitigation Plans to-date. I also have written several Hazard Mitigation Plans in Alaska.

HMP updates require reviewing current plans to identify how conditions have changed since the plan was last approved. For example, the current plan's plan development activities may change such as planning team membership; new plans, reports, and studies reviewed, new hazards identified and newly disaster impacts annotated. These changes could directly change identified planning community vulnerabilities and risks. This requires that the current Mitigation Strategy be reviewed and updated to identify current project's status. Were any projects completed or do they need to be modified, merged with similar initiatives for the same impact or location, deleted because they are no longer deemed the most appropriate mitigation initiative, or changed to reflect new jurisdictional needs?

AECOM's role in this project is to ensure that the Updated HMP meets state and federal requirements -- part of this requirement is to describe the process in which the community was involved. We are at the beginning stages of this project.

Our task is to write the plan while guiding you through the HMP Update process; maximizing your local knowledge. AECOM will write the plan. Your input will assist the process by working with us to identify changes since the 2009 HMP implementation:

- <!--[if !supportLists]--> <!--[endif]-->HMP update participation and plan reviewers,
- <!--[if !supportLists]--> <!--[endif]-->Identify new hazards not formerly addressed,
- <!--[if !supportLists]--> <!--[endif]-->Help us explain your hazard impacts since 2009,
- <!--[if !supportLists]--> <!--[endif]-->Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area,
- <!--[if !supportLists]--> <!--[endif]-->Determine their "estimated" replacement costs,
- <!--[if !supportLists]--> <!--[endif]-->Define the community's population risk and critical facility vulnerabilities,

<!--[if !supportLists]-->· <!--[endif]-->Review current and update the existing hazard mitigation goals if applicable,

<!--[if !supportLists]-->· <!--[endif]-->Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.

<!--[if !supportLists]-->· <!--[endif]-->Update the HMP Maintenance section to reflect how the City completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.

There will be opportunities for the entire community to review the team's work during various public involvement processes because FEMA requires at least two public involvement activities. We will provide planning team meeting minutes and two newsletters for distribution or posting to enable community wide knowledge, providing information during City Council Meetings or other public meetings, and working with us over the phone as we capture needed information.

AECOM will provide two (2) newsletters. The first newsletter (attached) introduces the project and explains the planning process, encourages public involvement; and asks the community to identify known hazards, and to confirm their critical infrastructure as identified by DHS&EM's statewide small community Critical Facility Database. The second will introduce the updated draft HMP and encourage the community to review and provide comments to make the plan better or more usable to mitigate your hazards.

We will send six copies of the newsletter via snail mail. Please post around town wherever you think best.

I would like to teleconference with you regarding the tables on Page 2 of the newsletter. Please let me know of a convenient time for me to call, this upcoming week, if possible. If you want to invite others to participate that would be great. Otherwise, you and I can go over the tables.

I look forward to working with you. Thank you for your time.

Eileen Bechtol

Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work."

— Daniel Hudson Burnham (1846-1912)

Bechtol Planning & Development

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NEWHALEN HAZARD MITIGATION PLAN UPDATE

Newsletter #1

March 2015

This newsletter describes the City of Newhalen 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 State of Alaska Division of Homeland Security and Emergency Management Website at <http://ready.alaska.gov/plans/localhazmitplans>.

The State of Alaska, Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management (DHS&EM) was awarded a Pre-Disaster Mitigation Program grant from the Federal Emergency Management Agency (FEMA) to update your 2009 Hazard Mitigation Plan (HMP).

AECOM was contracted to assist the Lake and Peninsula Borough with preparing a 2015 FEMA approvable HMP update. Each of the incorporated cities in the LPB, including City of Newhalen will also have a HMP developed as part of the update process.

The HMP 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 include relocating or elevating buildings, replacing insufficiently sized culverts, using alternative construction techniques, or developing, implementing, or enforcing building codes, and education.

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. The LPB plans to apply for mitigation funds after our plan is complete.

A FEMA approved and community adopted HMP 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 HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria and other applicable laws and regulations may be found at:

<http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to include and document the following topics:

- ❑ New Planning Team membership and processes
- ❑ HMP update participation and plan reviewers,
- ❑ Identify new hazards not formerly addressed,
- ❑ Help us explain your hazard impacts since 2009,
- ❑ Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area,
- ❑ Determine their "estimated" replacement costs,
- ❑ Define the community's population risk and critical facility vulnerabilities,
- ❑ Review current and update the existing hazard mitigation goals if applicable,
- ❑ Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.
- ❑ Update the HMP Maintenance section to reflect how the (City or Borough) completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.
- ❑ Provide a copy of the community's HMP Adoption Resolution

FEMA has prepared Local Planning Review Guide available at:

http://emilms.fema.gov/is318/assets/local_mtgtn_plan_guidance_0708.pdf. It explains how the HMP Update meets each of the DMA2000 requirements.

We are currently in the very beginning stages of preparing the plan update. We will be conducting a Planning Team Meeting to introduce the project and

planning team, to gather comments from community residents update hazards lists, and collect data to refine the vulnerability assessment.

We Need Your Help

Please use the following table to confirm the hazards AND identify new hazards not formerly addressed.

Newhalen Hazard Worksheet		
Hazard	2009 Plan	Still Valid Yes/No
Earthquake (EQ)	Yes	
Flood (Erosion) (FL)	Yes	
Ground Failure (GF) Includes: Avalanche, Landslide, Permafrost, and/or Subsidence	No	
Severe Weather (SW)	Yes	
Tsunami & Seiche (TS)	No	
Volcano (VO)	Yes	
Wildland Fire (WF)	Yes	

The 2009 HMP identified critical facilities within LPB, but the list needs to be reviewed and updated and the estimated value and location (latitude/longitude) determined.

In addition, the number and value of residences, and the number of people living in each home will need to be documented. Once this information is collected we will determine which critical facilities, residences, and populations are vulnerable to specific hazards in the Newhalen area.

Critical Facility	Current Natural Hazards				
	EQ	FL	SW	VO	WF
City Hall	X		X		X
School	X		X		X
Fire Station	X		X		X
Police Station	X		X		X

Planning Team

Critical Facility	Current Natural Hazards				
	EQ	FL	SW	VO	WF
Church	X		X		X
Community Hall	X		X		X
Store	X		X		X
Washeteria	X		X		X
Potable Water Production and Treatment Facility	X		X		X
Sewage Lagoon	X		X		X
LPB School District Fuel Storage Tanks (>500gal)	X		X		X
I-N-N Electric Power Generation Facility	X		X		X
LPB School District Reservoir/Water Supply	X		X		X
LPB School District Fuel Storage Tanks (>500gal)	X		X		X
Fuel Storage Tanks (>500gal)	X		X		X
Fuel Storage Tanks (>500gal)	X		X		X
City Fuel Storage Tanks (>500gal)	X		X		X
City Fuel Storage Tanks (>500gal)	X		X		X
Landfill Class III	X		X		X
Newhalen Health Clinic	X		X		X

LPB Community Development Planner Ms. Aboras will bring matters of the Hazard Mitigation Plan to the Borough Planning Commission.

AECOM will develop materials and lead the planning process with guidance from Ms. Aboras and DHS&EM's Scott Nelsen.

Public Participation Public involvement will continue throughout the project. The goal is to receive comments, identify key issues or concerns, and improve mitigation ideas and to guide the community.

We encourage you to take an active part in preparing the City of Newhalen 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. Please contact your community HMP Team Leader Ranya Aboras; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for more information.

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CITY OF NEWHALEN HAZARD MITIGATION PLAN (HMP)

April 2015

Newsletter 2

This newsletter discusses the preparation of the City of Newhalen (Newhalen) Hazard Mitigation Plan. It has been prepared to inform interested agencies, stakeholders, and the public about the project and to solicit comments. This newsletter can also be viewed on the State of Alaska Division of Homeland Security and Emergency Management Website at: <http://www.ready.alaska.gov/plans/localhazmitplans.htm>.

HMP Development

Newhalen was one of 21 communities selected by the State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) for a Hazard Mitigation Planning (HMP) development project. The plan identifies natural hazards that affect the community including earthquake, erosion, flood, ground failure, severe weather, and tundra/wildland fire. The HMP also identifies the people and facilities potentially at risk and potential actions to mitigate community hazards. The public participation and planning process is documented as part of the project.

What is Hazard Mitigation?

Across the United States, natural disasters have increasingly caused injury, death, property damage, and business and government service interruptions. The toll on individuals, families, and businesses can be very high. The time, money, and emotional effort required to respond to and recover from these disasters take public resources and attention away from other important programs and problems.

People and property throughout Alaska are at risk from a variety of hazards that have the potential for causing human injury, property damage, or environmental harm.

The purpose of hazard mitigation is to implement projects that reduce the risk severity of hazards on people and property. Mitigation programs may include short-term and long-term activities to reduce hazard impacts or exposure to hazards. Mitigation could include education, construction or planning projects. Hazard mitigation activity examples include relocating buildings, developing or strengthening building codes, and educating residents and building owners.

Why Do We Need A Hazard Mitigation Plan?

A community is only eligible to receive grant money for mitigation programs by preparing and adopting a hazard mitigation plan. Communities must have an approved mitigation plan to receive grant funding from the Federal Emergency Management Agency (FEMA) for eligible mitigation projects.

The Planning Process

There are very specific federal requirements that must be met when preparing a HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria may be found on the Internet at: <http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to document the following topics:

- ❑ Planning process
- ❑ Community Involvement and HMP review
- ❑ Hazard identification
- ❑ Risk assessment
- ❑ Mitigation Goals
- ❑ Mitigation programs, actions, and projects
- ❑ A resolution from the community adopting the plan

FEMA has prepared a Local Planning Review Guide) and (available at: <http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=4859>). It explains how the HMP meets each of the DMA2000 requirements. FEMA has prepared and “Mitigation Planning Guidance” and “How to Guides” (available at: <http://www.fema.gov/hazard-mitigation-planning-resources>). The City’s Hazard Mitigation Plan will follow those guidelines.

The planning process kicked-off on February 14, 2015 by establishing a local planning team and holding a public meeting. The planning team examined the full spectrum of hazards listed in the State Hazard Mitigation Plan and identified natural hazards the HMP would address.

Newhalen staff, AECOM and the public began identifying critical facilities, compiling the hazard profiles, assessing capabilities, and conducting the risk assessment for the identified hazards. Critical facilities are facilities that are critical to the recovery of a community in the event of a disaster. After collection of this information, AECOM helped to determine which critical facilities and estimated populations are vulnerable to the identified hazards in Newhalen.

A mitigation strategy was the next component of the plan to be developed. Understanding the community’s local

capabilities and using information gathered from the public and the local planning team and the expertise of the consultants and agency staff, a mitigation strategy was developed. The mitigation strategy is based on an evaluation of the hazards, and the assets at risk from those hazards. Mitigation goals and a list of potential actions/projects were developed as the foundation of the mitigation strategy.

Mitigation goals are defined as general guidelines that explain what a community wants to achieve in terms of hazard and loss prevention. Goals are positively stated future situations that are typically long-range, policy-oriented statements representing community-wide visions. Mitigation actions and projects are undertaken in order to achieve your stated objectives.

On April 2, 2015 the planning team identified projects and/or actions for each hazard that focus on six categories: prevention, property protection, public education and awareness, natural resource protection, emergency services, and structural projects. The mitigation actions identified by the planning team are explained in more detail in the plan.

The selected projects and/or actions will potentially be implemented over the next five years as funding becomes available. A maintenance plan was also been developed for the hazard mitigation plan. It outlines how the community will monitor progress on achieving the projects and actions that will help meet the stated goals and objectives, as well as an outline for continued public involvement.

The draft plan is available in the City office for public review and comment. Comments should be made via email or phone to Eileen Bechtol (contact information listed below) and be received no later than June 15, 2015. The plan will be provided to DHS&EM and FEMA for their preliminary approval and returned to Newhalen's City Council for formal adoption.

The next Planning Team meeting will be _____, 2015.

Sample of the City of Newhalen's Mitigation Actions. Review the draft HMP for a complete list.		
Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.	Obtain emergency generator for community
Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.	Reduce vulnerability of electrical supply infrastructure.	Installation of bigger pumps for lift station.

We encourage you to take an active part in the Newhalen 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. Please contact your Borough Community Development Planner Ranya Aboras; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for information.

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LAKE AND PENINSULA BOROUGH MULTI-JURISDICTIONAL Hazard Mitigation Plan Update

City of Nondalton, Alaska Hazard Mitigation Plan



City of Nondalton, Alaska (Photo: Marv Smith)

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City of Nondalton Hazard Mitigation Plan Update

1. Community Description

Section One provides the City of Nondalton location, geography, history, and demographic information.

1.1 Location, Geography and History

Nondalton, population 164 (DCRA 2014 estimate) is located on the west shore of Six Mile Lake, between Lake Clark and Iliamna Lake, 190 miles southwest of Anchorage. It lies at approximately 59.971850° North Latitude and -154.84779° West Longitude. (Sec. 30, T002S, R032W, Seward Meridian.) Nondalton is located in the Iliamna Recording District. The area encompasses 8.4 sq. miles of land and 0.4 sq. miles of water.

Nondalton lies in the transitional climatic zone. Average summer temperatures range from 42 to 62; winter temperatures average 6 to 30. The record high is 91 and the record low is -47. Annual average rainfall is 26 inches, with 64 inches of snowfall.

Nondalton is a Tanaina Indian name first recorded in 1909 by the U.S. Geological Survey. The village was originally located on the north shore of Six Mile Lake, but in 1940, wood depletion in the surrounding area and growing mud flats caused the village to move to its present location on the west shore. The post office, established in 1938, relocated with the villagers. Nondalton formed an incorporated city government in 1971. It is a Tanaina Indian (Athabascan and Iliamna) village with a fishing and subsistence lifestyle. The sale of alcohol is prohibited in the community, although importation or possession is allowed.

Fishing in Bristol Bay is an important source of income in Nondalton, DCRA (April 2015) noted that:

“The community has permit holders in fisheries but data is suppressed; three or fewer permit holders participated in one or more of the fisheries.”

One source of summer employment is firefighting. The community relies heavily on subsistence hunting and fishing. Many families travel to fish camp each summer. Salmon, trout, grayling, moose, caribou, bear, Dahl sheep, rabbit and porcupine are utilized.

An infiltration gallery at Six Mile Lake supplies the community with treated water. There are 88,000 gallons of storage capacity. Most residences are connected to the piped water and sewer system and are plumbed.

Nondalton is primarily accessible by air and water. A State-owned 2,800' long by 75' wide gravel runway services the community. Scheduled and charter air services are available. Bulk goods are received in Iliamna then taken by a cat-trail to Fish Camp, located across from Nondalton on the east side of the lake, where they are ferried by skiff or barge to the west side. There are no docking facilities.

City of Nondalton Hazard Mitigation Plan Update



Figure 1 Nondalton location in the LPB (2012 LPB Comprehensive Plan).

City of Nondalton Hazard Mitigation Plan Update

2. Planning Process

Section Two provides an overview of the planning process; identifies the Planning Team Members and key stakeholders; documents public outreach efforts; and summarizes the review and incorporation of existing plans, studies, and reports used to develop this MJHMP. Outreach support documents and meeting information regarding the Planning Team and public outreach efforts are provided in the Lake & Peninsula Borough (LPB) Multi-Jurisdictional Hazard Mitigation Plan.

2.1 Planning Process Overview

The State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) provided funding and project oversight to AECOM Corporation to facilitate and guide Planning Team development and MJHMP development.

In summary, the following five-step process took place from November 11, 2014 through May 2015.

1. 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 hazard mitigation plan.
2. Monitor, evaluate, and update the plan: The Planning Team developed a process to ensure the plan was monitored to ensure it was used as intended while fulfilling community needs. The team then developed a process to evaluate the plan to compare how their decisions affected hazard impacts. They then outlined a method to share their successes with community members to encourage support for mitigation activities and to provide data for incorporating mitigation actions into existing planning mechanisms and to provide data for the plans five-year update.
3. Assess risks: The Planning Team identified the hazards specific to the Borough and with the assistance of a hazard mitigation planning consultant (AECOM), developed the risk assessment for seven identified hazards. The Planning Team reviewed the risk assessment, including the vulnerability analysis, prior to and during the development of the mitigation strategy.
4. 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.
5. Develop a mitigation strategy: After reviewing the risks posed by each hazard, the Planning Team developed a comprehensive range of potential mitigation goals and actions. Subsequently, the Planning Team identified and prioritized the actions for implementation.

2.2 Planning Teams

The Borough planning team was developed and comprised of Ranya Aboras (Planning Team Leader) and representatives from each of the incorporated cities and Port Alsworth.

City of Nondalton Hazard Mitigation Plan Update

Table 1 LPB Planning Team Members

Team Member	Title	Involvement
Ranya Aboras	LPB Community Development Planner	MJHMP Team Leader, data gathering and plan review
LPB Planning Commission	Planning Commissioners	MJHMP plan review
Becky Bottcher	City Clerk/Treasurer	Nondalton plan
Don Strand	City Manager	Nondalton plan
Greg Anelon	City Manager	Nondalton plan
Carrie Harried	City Manager	Nondalton plan
Barbara Chestler	City Manager	Pilot Point plan
Angela Simpson	City Administrator	Port Heiden plan
Beth Hill	Port Alsworth Improvement Corporation	Port Alsworth plan
Scott Simmons	AECOM, Project Manager	MJHMP update manager, lead writer, and MJHMP project coordination.
Eileen Bechtol	BP&D/Community Planner	MJHMP update, project planner

Each community organized their own Planning Team; Nondalton Planning Team is shown on Table 2 below.

Table 2 Nondalton Planning Team

Team Member	Title	Involvement
Carrie Harried	City Administrator	Planning Team Leader
Susan Edward	Finance	Team Member
Dwayne Constaneine	City of Nondalton	Team Member
Ranya Aboras	LPB Community Development Planner	MJHMP Team Leader, data gathering and plan review
Scott Simmons	AECOM, Project Manager	MJHMP update manager, lead writer, and MJHMP project coordination.
Eileen Bechtol	BP&D/Community Planner	MJHMP update, project planner

2.3 Public Involvement & Opportunity for Interested Parties to participate

AECOM extended an invitation to all individuals and entities identified on the project mailing list described the planning process and announced the upcoming communities' planning activities. The announcement was emailed to relevant academia, nonprofits, and local, state, and federal agencies on November 20, 2014. The list of the agencies and organization is invited to participate and review the MJHMP.

Table 3 lists the community's public involvement initiatives focused to encourage participation and insight for the MJHMP effort.

City of Nondalton Hazard Mitigation Plan Update

Table 3 Public Involvement Mechanisms

Mechanism	Description
Newsletter #1 Distribution (February 2015)	In February and March 2015, the jurisdiction distributed a newsletter introducing the upcoming planning activity. The newsletter encouraged the community to provide hazard and critical facility information. It was posted at the City offices, bulletin boards, and Borough website to enable the widest dissemination.
Agency Involvement eMail (November 20, 2014)	Invited agencies to participate in mitigation planning effort and to review applicable newsletters located on the DHS&EM Local/Tribal All Hazard Mitigation Plan Development website at: http://ready.alaska.gov/plans/localhazmitplans.htm
Planning Team Meeting (March 17, 2015)	Finalized infrastructure table and reviewed mitigation plans.
Newsletter #2 Distribution (April 2015)	In April 2015, the jurisdiction distributed a second newsletter describing the MJHMP and the community specific draft plan availability and present potential MJHMP projects for review. The newsletter encouraged the community to provide comments or input. It was posted at the City or community office, and disseminated.
Public Meeting (April 6, 2015 LPB PC Meeting)	Notice of the April 6, 2015 meeting to introduce the MJHMP was posted at Borough Hall, and distributed to communities using their usual public notice procedures.
Public Meeting (May 11, 2015 LPB PC Meeting)	Notice of the May 11, 2015, meeting was posted at Borough Hall, and distributed to communities using their usual public notice procedures.
Planning Team Review of Nondalton Draft May [REDACTED], 2015)	Notice of the May [REDACTED], 2015 meeting to review the draft was posted at City Hall and distributed in the community.
Nondalton City Council Approval of HMP	Notice of the _____, 2015 meeting to approve the Nondalton HMP as posted at City Hall and distributed in the community.

2.4 Review and analysis of the Legacy 2009 MJHMP.

The Legacy 2009 Nondalton portion of the MJHMP was revised as described below.

- Section 1. **Community Description:** reviewed and updated community information.
- Section 2. **Planning Process:** updated this section to reflect 2015 public process including newsletters, public meetings and 2015 Planning Team.
- Section 3. **Plan Adoption:** 2015 resolutions and dates.
- Section 4. **Hazard Identification & Risk Assessment:** reviewed hazard identification and risk assessment adding 2009 to 2015 descriptions and data. The Legacy 2009 HMP did not identify earthquake, ground failure or volcanic ash as a hazard, so was added to the 2015 HMP.
- Section 5. **Vulnerability Analysis:** added a new section to analyze vulnerability with 2015 critical facilities and infrastructure tables.
- Section 7. **Mitigation Strategy:** reviewed 2009 mitigation goals and actions and added new goals and action for the 2015 Mitigation Action Plan.

The Planning Team did not complete their designated annual HMP reviews or plan maintenance activities. Therefore it became a primary consideration to update the existing 2009 HMP to include hazards that have, or could potentially have, impacted the community during the legacy HMP's 5-year lifecycle.

Planning Team identified HMP components that necessitated information update. The Team

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determined how community changes, construction and infrastructure conditions, climate change impacts, and population increases or decreases have influenced hazard risks and/or facility vulnerabilities.

The 2015 HMP Update process included inviting new and existing stakeholders to review the existing HMP to determine what was accomplished versus what was intended to accomplish.

2.5 Incorporation of Existing Plans and Other Relevant Information

During the planning process, the Planning Team reviewed and incorporated information from existing plans, studies, reports, and technical reports into the MJHMP.

LPB MJHMP Table 3-3 lists existing plans and other documents that were available regarding the LPB and Nondalton and were reviewed and used as references for the jurisdiction information and hazard profiles in the risk assessment of the MJHMP for the Borough and Nondalton.

2.6 Plan Maintenance

This section in the MJHMP describes a formal plan maintenance process to ensure that the MJHMP remains an active and applicable document. It includes an explanation of how the Borough's Planning Team intends to organize their efforts to ensure that improvements and revisions to the MJHMP occur in a well-managed, efficient, and coordinated manner.

The following three process steps are addressed in detail in the Borough Plan:

1. Implementation into existing planning mechanisms
2. Continued public involvement
3. Monitoring, reviewing, evaluating, and updating the MJHMP

The City will follow the same procedure as set forth in the LPB MJHMP.

3. Plan Adoption

Section Three is included to fulfill the City of Nondalton MJHMP adoption requirements.

3.1 Adoption by Local Governing Bodies and Supporting Documentation

The requirements for the adoption of this MJHMP by the local governing body, as stipulated in the DMA 2000 and its implementing regulations are described below.

The Borough is represented in this MJHMP and meets the requirements of Section 409 of the Stafford Act and Section 322 of DMA 2000, and 44 CFR §201.6(c)(5).

The LPB Borough Assembly and cities' council's formal adoption resolutions and Port

Allworth's letter stating compliance with MJHMP initiatives were submitted with the final draft MJHMP to FEMA for formal approval.

A scanned copy of the Borough's and Cities formal adoption resolutions are included in Appendix C of the LPB MJHMP.

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4. Hazard Identification and Risk Assessment

Section Four identifies and profiles the hazards that could affect the City of Nondalton.

Site visits, public meetings, and evaluation of historical information indicate that earthquake, flooding (particularly erosion), ground failure, volcano, weather (severe) and wildland fire natural hazards are present in the community of Nondalton.

Hazard identification and risk assessment for these natural hazards are contained in this section, specific to Nondalton. The City does not have a risk of tsunami.

The hazards profiled in the LPB MJHMP and the Nondalton HMP indicates that the entire City is at risk for each of the profiled hazards.

4.1 Earthquake

4.1.1 History

The following Table 4 lists 61 historical earthquakes over M5 with the largest one (M6.8) occurring on July 28, 2001. Source: USGS *NEIC Historic Earthquake Search*

Table 4 1978 to 2015 Historical Earthquakes in Nondalton

Date	Time	Latitude	Longitude	Depth	Magnitude
07/28/01	7:32:43	59.025	-155.116	131.3	6.8
02/07/88	8:46:59	60.296	-152.972	137.5	6.5
07/09/98	19:39:44	60.53	-153.219	144.8	6.2
05/19/00	20:34:26	59.204	-153.139	79.5	5.9
11/20/93	19:24:54	60.025	-153.003	116.3	5.9
01/24/09	18:09:51	59.43	-152.887	97.9	5.8
02/12/95	20:13:37	59.436	-153.127	110.5	5.6
05/12/92	3:39:31	59.691	-153.482	138.8	5.6
07/25/87	1:11:49	60.155	-153.771	166.6	5.6
03/23/84	8:38:06	58.978	-154.153	118.7	5.6
05/19/05	1:12:30	60.018	-152.693	95.5	5.5
01/25/01	5:29:38	60.114	-152.363	86.9	5.5
10/17/96	15:38:21	60.113	-152.953	117.1	5.5
01/25/79	19:30:06	60.131	-153.121	105	5.5
03/20/89	1:06:33	59.883	-153.692	126.5	5.4
08/06/83	16:33:58	60.529	-153.129	137.9	5.4
08/18/78	18:52:28	59.885	-153.532	123	5.4
02/12/78	8:56:39	59.448	-152.622	72	5.4
03/09/90	12:34:03	60.307	-152.286	84.9	5.3
03/10/13	17:11:04	59.3147	-154.2182	8.3	5.2

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Date	Time	Latitude	Longitude	Depth	Magnitude
09/10/02	9:42:04	59.997	-152.882	117.2	5.2
03/19/93	12:20:51	59.539	-152.874	104.1	5.2
08/01/81	1:42:16	60.136	-153.185	114	5.2
12/18/09	3:33:14	59.044	-153.401	80.7	5.1
04/19/91	18:19:25	59.99	-153.34	134.2	5.1
05/23/86	23:18:42	58.906	-153.377	79.5	5.1
01/13/13	12:44:08	60.528	-152.885	135	5
01/06/12	23:37:45	59.852	-153.232	136.1	5
09/15/10	16:06:42	59.861	-153.176	121	5
02/23/09	0:04:27	58.916	-153.626	87.8	5
11/09/08	23:36:58	59.997	-153.019	127.1	5
07/14/82	12:15:48	60.514	-153.67	157	5
03/21/81	23:01:37	58.97	-154.697	136	5
08/12/80	14:44:28	59.98	-152.845	110	5

4.1.2 Location, Extent, Impact and Probability of Future Events

Location

The entire community of Nondalton is at risk for earthquake damages.

Extent

Based on historic earthquake events and the criteria identified in the LPB MJHMP Table 5-2, the magnitude and severity of earthquake impacts in the Borough are considered “Limited” with potential injuries and/or illnesses that do not result in permanent disability; critical facilities could expect to be shut-down for more than two weeks; and more than 10 percent of property severely damaged with limited long-term damage to transportation, infrastructure, or the economy.

Impact

Impacts to the community such as significant ground movement that may result in infrastructure damage are not expected. Minor shaking may be seen or felt based on past events. Impacts to future populations, residences, critical facilities, and infrastructure are anticipated to remain the same. Damage could be caused to homes and the City infrastructure such as the City water plant or the City Dock, which could halt the use of the dock and supply of resources during summer months.

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Probability of Future Events

Probability of earthquake with M > 5.0 within 50 years & 50 km

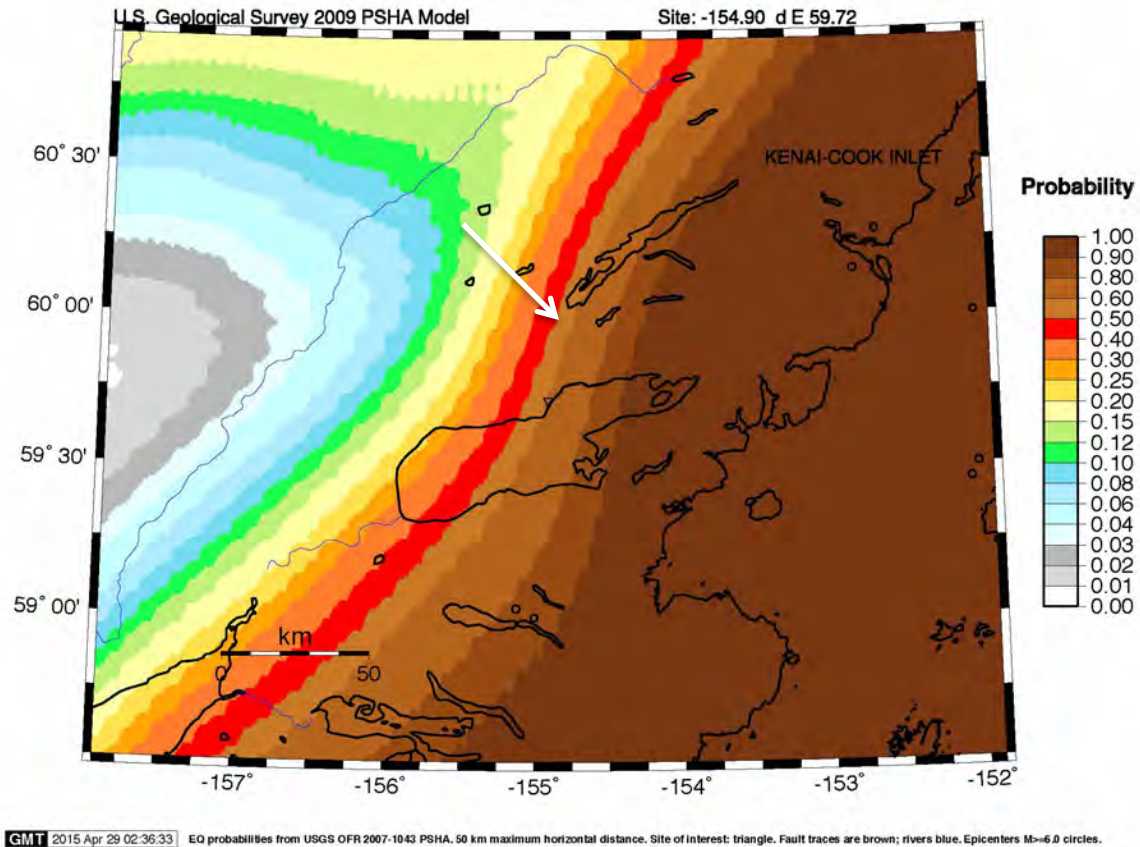


Figure 2 Probability of earthquake in Nondalton (USGS 2015)

Based on past events and the USGS Shake Map above, the probability of an event occurring is “Highly Likely”. The event is probable within the calendar year and has up to a 1 to 1 year chance of occurring (1/1=100 percent). History of events is great than 33 percent likely per year. Event is “Highly Likely” to occur.

4.2 Flood

4.2.1 History

The community has some limited problems with flooding, most commonly around the airport. Several structures and the main road are subject to flooding (see community map) but specific records of previous occurrences of flooding have not been kept. Annual spring break-up poses a problem each year and the sewage lagoon appear to be threatened on an annual basis.

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4.2.2 Location, Extent, Impact and Probability of Future Events

Location

As noted above, the community has some limited problems with flooding, most commonly around the airport. Several structures and the main road are subject to flooding (see community map) but specific records of previous occurrences of flooding have not been kept. Annual spring break-up poses a problem each year and the sewage lagoon appear to be threatened on an annual basis.

For purposes on this plan the entire community of Nondalton is at risk of flooding.

Extent

Nondalton could experience lake flooding and moderate high water flow flood erosion impacts. Therefore, based on past high water flow event history and the criteria identified in LPB MJHMP Table 5-2, the extent of flooding and resultant damages to infrastructure and their protective embankments in the City are considered “Limited” where critical facilities would shut-down for more than one week or less with more than 10 percent of property severely damaged.

Impact

Floods also result in economic losses through business and government facility closure, communications, utility (such as water and sewer), and transportation services disruptions. Floods result in excessive expenditures for emergency response, and generally disrupt the normal function of a community.

Probability of Future Event

Based on criteria established on Table 5-3 in the LPB MJHMP is probable a flood event may occur within the next five years (event has up to 1 in 5 chance of occurring). Based on the probability matrix on the history of the event occurring is more than 10% but less than or equal to 20% in a calendar year. Event could “Possibly” occur.

4.3 Volcano

4.3.1 History

Residents indicate that the proximity to active volcanoes is the hazard they most concerned about. The massive 1912 eruption of Novarupta and other active volcanoes in Katmai National Park along with the 1953 Iliamna and 1989 Mt. Redoubt activity emphasis the ongoing risk posed by volcanoes to Nondalton.

4.3.2 Location, Extent, Impact and Probability of Future Events

Location

The entire City of Nondalton is at risk of impacts from volcanic ash fall out.

Extent

Based on the devastation of past volcanic events in the world and the criteria identified in Table 5-2, the magnitude and severity of impacts in the Borough are considered critical in that more 25 percent of property could be damaged. Injuries and/or illnesses result in permanent disability and complete shutdown of critical facilities for at least two weeks.

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Impact

Not only can secondary effects such as ash fall cause temporary aviation access delays, but the ash fall could cause harm to the king salmon fishery near the village. Nondalton's isolated location places the community at risk by disrupting travel should any eruption take place. The impacts of a volcanic event could make the community vulnerable to economic losses through closure of businesses and government facilities, disruption in communications, disruption of the provision of utilities such as water and sewer services.

Probability of Future Events

Volcanoes can erupt at any time, but the AVO monitors all active volcanoes sufficiently to allow enough warning time for communities to be prepared.

Volcanic eruptions can occur at any time and, because of the existence of so many active volcanoes within the Borough, can be considered a certainty.

Based on the history of volcanoes in the Borough area and applying the criteria identified in Table 5-3, it is possible a ash fall event will occur within in the next five years. The event has up to 1 in 5 years chance of occurring ($1/5=20$ percent) and the history of events is equal to or over 10 percent but less than or equal to 20 percent likely each year. Event is "Possible".

4.4 Weather (Severe)

4.4.1 History

Severe weather impacts the community of Nondalton in the form of damages to electrical supply infrastructure. Severe weather in the form of high winds impacts the community approximately twice a year. Residents have noted that 70 to 100 mph high winds occur often enough that most structures in the must be built to withstand the winds. The temperature has been recorded as low as -40F.

4.4.2 Location, Extent, Impact and Probability of Future Events

Location

The entire City of Nondalton is at risk of a severe winter event.

Extent

Based on past severe weather events and the criteria identified in LPB MJHMP Table 5-2, the extent of severe weather in the Borough are considered limited where injuries do not result in permanent disability, complete shutdown of critical facilities occurs for more than one week, and more than 10 percent of property is severely damaged.

Impact

The intensity, location, and the land's topography influence a severe weather event's impact within a community. Hurricane force winds, rain, snow, and storm surge can be expected to impact the entire Borough.

Heavy snow can immobilize a community by bringing transportation to a halt. Until the snow can be removed, airports and roadways are impacted, even closed completely, stopping the flow of supplies and disrupting emergency and medical services. Accumulations of snow can cause roofs to collapse and knock down trees and power lines. Heavy snow can also damage light

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aircraft and sink small boats. A quick thaw after a heavy snow can cause substantial flooding. The cost of snow removal, repairing damages, and the loss of business can have severe economic impacts on cities and towns.

Injuries and deaths related to heavy snow usually occur as a result of vehicle and or snow machine accidents. Casualties also occur due to overexertion while shoveling snow and hypothermia caused by overexposure to the cold weather.

Extreme cold can also bring transportation to a halt. Aircraft may be grounded due to extreme cold and ice fog conditions, cutting off access as well as the flow of supplies to communities. Long cold spells can cause rivers to freeze, disrupting shipping and increasing the likelihood of ice jams and associated flooding.

Extreme cold also interferes with the proper functioning of a community's infrastructure by causing fuel to congeal in storage tanks and supply lines, stopping electric generation. Without electricity, heaters and furnaces do not work, causing water and sewer pipes to freeze or rupture. If extreme cold conditions are combined with low or no snow cover, the ground's frost depth can increase, disturbing buried pipes. The greatest danger from extreme cold is its effect on people. Prolonged exposure to the cold can cause frostbite or hypothermia and become life threatening. Infants and elderly people are most susceptible. The risk of hypothermia due to exposure greatly increases during episodes of extreme cold, and carbon monoxide poisoning is possible as people use supplemental heating devices.

Probability of Future Events

Based on previous occurrences and the criteria identified in LPB MJHMP Table 5-3, it is likely a severe storm event will occur in the next three years (event has up to 1 in 3 years chance of occurring) as the history of events is greater than 20 percent but less than or equal to 33 percent likely per year. Event is "Likely".

4.5 Wildland Fire

4.5.1 History

Nondalton is impacted by wildland fire hazard, which is fueled by standing dead trees and fanned by strong west and south winds. Water sources are not readily accessible. Most of the community is part of the local volunteer fire department. The community was threatened by the Iliamna wildfires over recent years. The remaining stands of dead spruce trees threaten the community and a limited capacity to fight any wildfire adds to the community's risk and vulnerability to wildfire. A continual outbreak of fires threatens the community as the source fuel builds and an effective means of firefighting remains lacking, thus leaving the community exposed to a major fire event.

4.5.2 Location, Extent, Impact and Probability of Future Events

Location

Under certain conditions wildland fires may occur in any area with fuel surrounding the community of Nondalton. Since fuels data is not readily available, for the purposes of the plan, all areas surrounding the community are considered to be vulnerable to wildland fire impacts.

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Extent

Based on the number of past wildland fire events and the criteria identified in LPB MJHMP Table 5-2 and the magnitude and severity of impacts in the City are considered critical in that more 10 percent of property could be damaged.

Impact

Impacts of a wildland fire that interfaces with the population center of Nondalton could grow into an emergency or disaster if not properly controlled. A small fire can threaten lives and resources and destroy property. In addition to impacting people, wildland fires may severely impact livestock and pets. Such events may require emergency watering and feeding, evacuation, and alternative shelter. Indirect impacts of wildland fires can be catastrophic.

In addition to stripping the land of vegetation and destroying forest resources, large intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and enhance siltation of rivers and stream, thus increasing flood potential, harming aquatic life, and degrading water quality.

The impacts of a wildfire event could make the community vulnerable to economic losses through closure of businesses and government facilities, disruption in communications, disruption of the provision of utilities such as water and sewer services.

Future Event Probability

Based on previous occurrences and applying the criteria identified in the probability matrix, it is a high chance that wildland fire will occur in the next three years (event has up to 1 in 3 years chance of occurring) as the high chance of the event occurring and the history of the event will be greater than 33% in a calendar year

Climate change and flammable vegetation species are prolific throughout Alaska's forests and tundra locations. Fire frequency may increase in the future as a result. Event is "Likely".

5. Vulnerability Analysis

Section Five outlines the vulnerability process for determining potential losses for the community from various hazard impacts.

Table 5 lists Nondalton infrastructures' hazard vulnerability.

Table 5 Nondalton Infrastructures' hazard vulnerability.

Hazard	Area's Hazard Vulnerability			
	Percent of Jurisdiction's Geographic Area	Percent of Population	Percent of Building Stock	Percent of Critical Facilities and Utilities
Earthquake	100	100	100	100
Flood	100	100	100	100
Volcano	100	100	100	100

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Weather	100	100	100	100
Wildland Fire	100	100	100	100

5.1 Existing Critical Facilities in Nondalton

A critical facility is defined as a facility that provides essential products and services to the general public, such as preserving the quality of life in the City and fulfilling important public safety, emergency response, and disaster recovery functions. The critical facilities profiled in this plan include the following:

- Government facilities, such as city and tribal administrative offices, departments, or agencies
- Emergency response facilities, including police department and firefighting equipment
- Educational facilities, including K-12
- Care facilities, such as medical clinics, congregate living health, residential and continuing care, and retirement facilities
- Community gathering places, such as community and youth centers
- Utilities, such as electric generation, communications, water and wastewater treatment, sewage lagoons, landfills.

There is limited GIS data available for the City of Nondalton. Specific to Nondalton the natural hazards of earthquake, flood, volcano, weather (severe) and wildfire are at equal risk to the entire community.

Table 6 contains the City's critical facilities and infrastructure data this information was obtained from the Planning Team during a teleconference.

Table 6 Nondalton Critical Facilities and Infrastructure

Facility Type	Estimated No. of Occupants	Facilities	Street Address	Latitude	Longitude	Estimated Value	Building Type	Earthquake	Flood	Severe Weather	Volcanic	Wildland Fire
Government	8	City Hall Offices/Multi Use Facility, inc government offices, fire station, fuel dept, utility office, boardroom	Boundary Road	59.97361	154.84583	NA	W!	X	X	X	X	X
	4	Tribal Office, Organization Library		59.97361	-154.84583	NA		X	X	X	X	X
Transportation	1	Airport	Airport Road	59.97958	-154.8376	NA	Gravel	X	X	X	X	X
		Storage shed 30 x 60	Airport Road	59.97958	-154.8376	\$100,000	S2	X	X	X	X	X
		Storage shed 20 x 50	Airport Road	59.97958	-154.8376	\$500,000	S2	X	X	X	X	X
	0	<i>Police Station - None</i>										
Edu-cation	35	Nondalton School	Hill Street	59.96832	-154.85396	\$4,700,000	S1	X	X	X	X	X

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Facility Type	Estimated No. of Occupants	Facilities	Street Address	Latitude	Longitude	Estimated Value	Building Type	Earthquake	Flood	Severe Weather	Volcanic	Wildland Fire
Medi- cal Care	5	Health Clinic	Main Street	59.9747	-154.84386	\$2,600,000	W1	X	X	X	X	X
Community	0	Cemetery	Boundary Road	59.97361	-154.84583	\$20,000		X	X	X	X	X
	6	Park	Boundary Road	59.97361	-154.84583	\$58,000	Gravel	X	X	X	X	X
	10	Post Office/Commercial Retail	Main Street	59.9732	-154.84607	\$1,180,000	W2	X	X	X	X	X
	6	Teachers Quarters, tri-plex	Main Street	59.96832	-154.85396	\$750,000	W1	X	X	X	X	X
	4	Teachers Quarters, duplex	Main Street	59.96832	-154.85396	\$500,000	W2	X	X	X	X	X
		Mechanical Shed	Main Street	NA	NA	\$65,000	S1	X	X	X	X	X
	2	Teacher Quarters, single family	Main Street	NA	NA	\$250,000	W1	X	X	X	X	X
	27	Russian Orthodox Church	Hill Street	59.97408	154.84604	\$1,000,000	W1	X	X	X	X	X
		Historical Church	Hill Street	NA	NA	\$750,000	W1	X	X	X	X	X
Roads		<i>Roads in City</i>	15 miles city roads	NA	NA		Gravel	X	X	X	X	X
Utilities		Satellite, ARC in Multi-purpose facility, 30 ft dish	Main Street	NA	NA	\$15,000		X	X	X	X	X
		Satellite, GCI, internet	Boundary Road	NA	NA	\$20,000		X	X	X	X	X
		Telephone, GCI	Main Street	NA	NA	\$20,000		X	X	X	X	X
	2	Potable Water Production and Treatment Facility	Main Street	NA	NA	\$2,000,000	PWSO	X	X	X	X	X
	0	Service/Maintenance Shop	Main Street	NA	NA	\$600,000	S1	X	X	X	X	X
	0	Sewage Lagoon	Hill Street	NA	NA	\$1,200,000		X	X	X	X	X
	2	Landfill/Incinerator, Class III, 100 x 80, 5 acres		NA	NA	\$695,000		X	X	X	X	X
		Water Wells, Two of them, 65/gal/minute	Main Street	NA	NA	\$130,000	PSTC	X	X	X	X	X
		Reservoir/Water Supply #2	Main Street	NA	NA		PWE	X	X	X	X	X
		School generator, at school	Hill Street	NA	NA			X	X	X	X	X
	2	Lift Station for sewer	Main Street	NA	NA	\$1,300,000	WLSS	X	X	X	X	X
		Water/Sewer Building Backup Generator, by water treatment plant	BY water treatment plant	NA	NA	\$5,980,000	WWTF	X	X	X	X	X
Total Occ	114				Total Damages	\$24,433,000						

(City of Nondalton)

Summary of Table 6 is listed below.

- 164 people in 76 residences (approximate value \$26,600,000)
- 24 people in two government facilities (approximate value NA*)

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- 35 people in one educational facility (approximate value \$4,700,000)
- 5 people in one health center facility (approximate value \$2,600,000)
- 57 people in eight community facilities (approximate value \$4,533,000)
- 5 people in 12 utility facilities (approximate value \$5,980,000)

The City anticipates that impacts to future populations, residential structures, critical facilities, and infrastructure will be at the same historical impact level.

5.2 Future and Planned Development in Nondalton.

There are no significant future or planned development to record in Nondalton.

Figure 3 is the map of current public facilities in Nondalton.



Figure 3 Nondalton Land Use Map

5.3 NFIP Participation and Repetitive Loss Properties

The City of Nondalton is not a participating community in the NFIP and therefore does not have any repetitive loss properties.

The Borough has participated in the NFIP since an emergency entry date of March 4, 2004 and a regular entry date of February 3, 2010.

The LPB has no repetitive loss properties and no claims for flood insurance.

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6. Nondalton Mitigation Strategy

Section Seven outlines the five-step process for preparing a mitigation strategy including:

1. Identifying the City's existing authorities for implementing mitigation action initiatives
2. Developing Mitigation Goals
3. Identifying Mitigation Actions
4. Evaluating Mitigation Actions
5. Implementing the Mitigation Action Plan (MAP)

6.1 Nondalton Capability Assessment

The City's capability assessment reviews the technical and fiscal resources available to the community.

This section outlines the resources available to the Borough for mitigation and mitigation related funding and training. Tables 7, 8, and 9 delineate the City's regulatory tools, technical specialists, and financial resource available for project management. Additional funding resources are identified in Appendix A.

Table 7 Nondalton Regulatory Tools.

Regulatory Tools (ordinances, codes, plans)	Existing Yes/No?	Comments (Year of most recent update; problems administering it, etc.)
Comprehensive Plan	Yes	As part of the LPB plan, each community has a brief Community Action Plan.
Land Use Plan	Yes	Describes the City's community development goals and initiatives as part of the Comprehensive Plan – Community Action Plan
Tribal Land Use Plan	Yes	Describes the Village's community development goals and initiatives as part of the Comprehensive Plan – Community Action Plan
Emergency Response Plan	Yes	Emergency Operation Plan, 2010 (as part of the Borough Plan)
Wildland Fire Protection Plan	No	
Building code	No	The City can exercise this authority but is not required.
Zoning ordinances	No	The City can exercise this authority but is not required.
Subdivision ordinances or regulations	No	The City can exercise this authority but is not required.
Special purpose ordinances	No	The City can exercise this authority but is not required.

Local Resources

The City relies upon the LPB for most of their planning and land management tools that allow it to implement hazard mitigation activities. The resources available in these areas have been assessed by the hazard mitigation Planning Team, and are summarized below.

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Table 8 Technical Specialists for Hazard Mitigation.

Staff/Personnel Resources	Yes / No	Department/Agency and Position
Development and land management practices	Yes	LPB Community Development Planner
Planner or engineer with an understanding of natural and/or human-caused hazards.	Yes	LPB Community Development Planner
Floodplain Manager	No	Not a NFIP participating community.
Surveyors	Yes	The City hires consultants when they need a surveyor.
Staff with education or expertise to assess the jurisdiction's vulnerability to hazards.	Yes	LPB Community Development Planner
Personnel skilled in Geospatial Information System (GIS) and/or Hazards Us-Multi Hazard (Hazard-MH) software	Yes	LPB Community Development Planner
Scientists familiar with the hazards of the jurisdiction	No	The City works with U.S. Fish & Wildlife Service (USFWS) and Fish & Game (ADF&G), and the Alaska Department of Transportation and Public Facilities
Emergency Manager	Yes	LPB Community Development Planner
Finance (Grant writers)	Yes	LPB Community Development Planner and community representatives
Public Information Officer	Yes	The City Mayor, City Administrator, or Tribal President

Table 9 Nondalton Financial Resources

Financial Resource	Accessible or Eligible to Use for Mitigation Activities
General funds	Can exercise this authority with voter approval
Municipal Energy Assistance Program (MEAP)	Provides operating support funding
Community Development Block Grants (CDBG)	Can exercise this authority with voter approval
Capital Improvement Project Funding	Can exercise this authority with voter approval
Authority to levy taxes for specific purposes	Can exercise this authority with voter approval
Incur debt through general obligation bonds	Can exercise this authority with voter approval
Incur debt through special tax and revenue bonds	Can exercise this authority with voter approval
Incur debt through private activity bonds	Can exercise this authority with voter approval
Financial Resource	Accessible or Eligible to Use for Mitigation Activities
Hazard Mitigation Grant Program (HMGP)	FEMA funding which is available to local communities after a Presidentially-declared disaster. It can be used to fund both pre- and post-disaster mitigation plans and projects.
Pre-Disaster Mitigation (PDM) grant program	FEMA funding which available on an annual basis. This grant can only be used to fund pre-disaster mitigation plans and projects only
Flood Mitigation Assistance (FMA) grant program	No, not a NFIP participating community.

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United State Fire Administration (USFA) Grants	The purpose of these grants is to assist state, regional, national or local organizations to address fire prevention and safety. The primary goal is to reach high-risk target groups including children, seniors and firefighters.

6.2 Mitigation Goals

The Planning Team developed the mitigation goals and potential mitigation actions to address identified potential hazard impacts for the City within Section 4.

The exposure analysis results were used as a basis for developing the mitigation goals and actions. Mitigation goals are defined as general guidelines that describe what a community wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing community-wide visions. As such, eight goals were developed to reduce or avoid long-term vulnerabilities to the identified hazards (Table 6).

Table 10 City of Nondalton Mitigation Goals

No.	Goal Description
Multi-Hazards (MH)	
MH 1	Promote recognition and mitigation of all natural and manmade hazards that affect Nondalton.
MH 2	Promote cross-referencing mitigation goals and actions with other City planning mechanisms and projects.
MH 3	Reduce possibility of losses from all natural and manmade hazards that affect City.
Natural Hazards	
EQ 1	Reduce structural vulnerability to earthquake (ER) damage.
FL 2	Reduce flood and erosion (FL) damage and loss possibility.
VO 3	Reduce vulnerability, damage, or loss of structures from volcanic debris impacts
W(S) 4	Reduce structural vulnerability to severe weather (SW) damage.
WF 5	Reduce structural vulnerability to Tundra/Wildland Fire (WF) damage.

6.3 Identifying Mitigation Actions

The Planning Team assessed the potential mitigation actions to carry forward into the mitigation strategy. Mitigation actions are activities, measures, or projects that help achieve the goals of a mitigation plan. Mitigation actions are usually grouped into three broad categories: property protection, public education and awareness, and structural projects.

During the planning process November 2014 through May 2015 the Planning Team selected City natural hazard, mitigation actions for potential Mitigation Action Plan (MAP) implementation during the five-year life cycle of this HMP. The Planning Team placed particular emphasis on projects and programs that reduce the effects of hazards on both new and existing buildings and infrastructure as well as facilities located in potential flood zones to comply with NFIP requirements.

Table 11 breaks out the project criteria as considered, selected, and ongoing. The Planning Team considered projects from a comprehensive list for earthquake, flood, volcano, weather (severe) and wildfire. They identified numerous “ongoing” mitigation actions currently in process or

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those that were listed in other City planning documents. The Planning Team then selected “newly identified” actions identified through this plan development activity that would most benefit the community.

Table 11 City of Nondalton Mitigation Plan and Potential Actions

Supports Goal No.	Description	Criteria <i>New Actions:</i> <i>Considered</i> <i>Selected</i> <i>Legacy Plan</i> <i>Actions:</i> <i>Ongoing</i> <i>Not Completed</i> <i>Completed</i> <i>Delete</i>	Description
MH 1	Promote recognition and mitigation of all natural and manmade hazards that affect Nondalton.	C-S	Train residents in installation of erosion monitoring devices to determine rate of eroding shorelines and riverbanks.
MH 2	Promote cross-referencing mitigation goals and actions with other City planning mechanisms and projects.	C-S	Identify City staff to take responsibility for maintaining situation reports.
MH 3	Reduce possibility of losses from all natural and manmade hazards that affect the City.	C-S	Designate liaison between the City and the Borough to work with mitigation planning; grant applications, and other mitigation-related tasks.
EQ 1	<i>Reduce structural vulnerability to earthquake (ER) damage.</i>	C-S	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.
		C-S	Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.
FL 2	<i>Reduce vulnerability, damage, or loss of structures from erosion.</i>	O-C	Additional drainage improvements (annual project). <i>This is an ongoing annual mitigation action.</i>
		O-NC	Improvements to roads to reduce vulnerability to erosion (annual project, scheduled for spring and fall). <i>This action has not been accomplished; the community still wants this a potential project.</i>
VO 3	Reduce vulnerability, damage, or loss	C-S	Prepare community for significant interruptions in transportation, supplies, and services due to ash

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Supports Goal No.	Description	Criteria <i>New Actions:</i> <i>Considered</i> <i>Selected</i> <i>Legacy Plan</i> <i>Actions:</i> <i>Ongoing</i> <i>Not Completed</i> <i>Completed</i> <i>Delete</i>	Description
	of structures from volcanic debris impacts		fall by early warning and encouraging stockpiles of items to last for several days.
SW 4	Reduce structural vulnerability to severe weather (SW) damage.	Delete	Obtain emergency generator for community. <i>Utility owner denied approval.</i>
		O-NC	Investigate weaknesses in electrical supply infrastructure and reduce vulnerability. <i>This action has not been accomplished; the community still wants this a potential project.</i>
WF 5	Reduce structural vulnerability to Tundra/Wildland Fire (WF) damage.	O-C	Brush cutting/thinning for defensible space. <i>Ongoing annual mitigation action.</i>
		O-NC	Obtain wood chipper for disposal of slash. <i>This action has not been accomplished; the community still wants this a potential project.</i>
		O-C	Construction of fire breaks around community and structures. <i>Ongoing annual mitigation action.</i>

6.4 Mitigation Action Table

Nondalton Mitigation Action Plan, Table 12, depicts how each mitigation action will be implemented and administered by the Planning Team. The MAP delineates each selected mitigation action, its priorities, the responsible entity, the anticipated implementation timeline, and provides a brief explanation as to how the overall benefit/costs and technical feasibility were taken into consideration.

Table 12 City of Nondalton Mitigation Action Plan (MAP)

Goal/ Action ID	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years 2-4 Years 3-5 Years)	Benefit-Costs (BC) / Technical Feasibility (T/F)
MH 1.1	Train residents in installation of erosion monitoring devices to determine rate of eroding shorelines and riverbanks.	High	City Manager LPB – Public Works Dept.	LPB City DHS&EM	1-3 years	B/C: This ongoing activity is essential for the City as there are limited funds available to accomplish effective mitigation actions. T/F: This activity is ongoing demonstrating its feasibility.
MH 2.1	Identify City staff to take responsibility for maintaining situation reports.	Medium	City Manager	LPB City	3-5 years	B/C: This ongoing activity is essential for the City as there are limited funds available to accomplish effective mitigation

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						actions. T/F: This activity is ongoing demonstrating its feasibility.
MH 3.1	Designate liaison between City and Borough to assist Nondalton with mitigation planning; grant applications, and other mitigation-related tasks.	Medium	City Manager	City, LPB, Tribes, FEMA HMA programs, AFG, FP&S, and SAFER	2-4 years	B/C: Sustained mitigation outreach programs have minimal cost and will help build and support area-wide capacity. T/F: This low cost activity can be combined with recurring community meetings where hazard specific information can be presented in small increments.
EQ 1.1	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.	High	City Manager	City, LPB, HMA, NRCS, ANA, USACE, US USDA, Lindbergh	1-3 years	B/C: This project would ensure threatened infrastructures are available for use – their loss would exacerbate potential damages and further threaten survivability. T/F: This project is feasible using existing staff skills, equipment, and materials.
EQ 1.2	Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.	High	City Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
FL 2.1	Additional drainage improvements (annual project).	High	Public Works	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in.
FL 2.2	Improvements to roads to reduce vulnerability to	High	City Manager LPB Manager	City, LPB, ADOT, HMA,	1-3 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in

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	erosion (annual project, scheduled for spring and fall).			NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP		less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in.
VO 3.1	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.	Medium	City Manager LPB Planner	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action.
SW 4.1	Investigate weaknesses in electrical supply infrastructure and reduce vulnerability.	High	City Manager LPB Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	3-5 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
WF 5.1	Brush cutting and thinning for defensible space and firebreaks around structures and community.	High	City Manager LPB Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: This action has a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
WF 5.2	Obtain wood chipper for disposal of slash.	High	City Manager LPB Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA	1-3 years	B/C: This action has a high/cost benefit ratio. T/F: The LPB has the skill to implement this action.

7. References

Section Eight provides a comprehensive reference list used to develop the MJHMP.

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From: [Eileen Bechtol](#)
To: [Joanna Trefon](#)
Cc: [Simmons, Scott](#)
Subject: Nondalton HMP Update
Date: Saturday, February 14, 2015 11:01:00 AM
Attachments: [2-12-15 Nondalton Newsletter.pdf](#)

Hello Ms. Trefon:

I am writing to introduce myself, Eileen R. Bechtol, I am a subcontractor for Scott Simons, AECOM (formerly known as URS Corporation). AECOM contracted by the Division of Homeland Security and Emergency Management (DHS&EM) to develop a Hazard Mitigation Plan Update for ten Alaska jurisdictions. The City of Nondalton is one of the selected jurisdictions.

Your name was provided as the community contact in the incorporated cities. If this something I should discuss with someone else please forward this email to that person. Thank you.

It is important to note that the City of Nondalton does not have to pay anything for this project. This is an important project funded by FEMA through the DHS&EM. AECOM have worked with rural communities to assist them with their hazard mitigation plan development needs. In fact, URS has been developing HMPs nationwide since 2000. Our Alaska office has completed approximately 90 State, Borough (County) and local community, State reviewed, and FEMA approved Hazard Mitigation Plans to-date. I also have written several Hazard Mitigation Plans in Alaska.

HMP updates require reviewing current plans to identify how conditions have changed since the plan was last approved. For example, the current plan's plan development activities may change such as planning team membership; new plans, reports, and studies reviewed, new hazards identified and newly disaster impacts annotated. These changes could directly change identified planning community vulnerabilities and risks. This requires that the current Mitigation Strategy be reviewed and updated to identify current project's status. Were any projects completed or do they need to be modified, merged with similar initiatives for the same impact or location, deleted because they are no longer deemed the most appropriate mitigation initiative, or changed to reflect new jurisdictional needs?

AECOM's role in this project is to ensure that the Updated HMP meets state and federal requirements -- part of this requirement is to describe the process in which the community was involved. We are at the beginning stages of this project.

Our task is to write the plan while guiding you through the HMP Update process; maximizing your local knowledge. AECOM will write the plan. Your input will assist the process by working with us to identify changes since the 2009 HMP implementation:

- <!--[if !supportLists]--> <!--[endif]-->HMP update participation and plan reviewers,
- <!--[if !supportLists]--> <!--[endif]-->Identify new hazards not formerly addressed,
- <!--[if !supportLists]--> <!--[endif]-->Help us explain your hazard impacts since 2009,
- <!--[if !supportLists]--> <!--[endif]-->Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area,
- <!--[if !supportLists]--> <!--[endif]-->Determine their "estimated" replacement costs,
- <!--[if !supportLists]--> <!--[endif]-->Define the community's population risk and critical facility vulnerabilities,

<!--[if !supportLists]-->· <!--[endif]-->Review current and update the existing hazard mitigation goals if applicable,

<!--[if !supportLists]-->· <!--[endif]-->Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.

<!--[if !supportLists]-->· <!--[endif]-->Update the HMP Maintenance section to reflect how the City completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.

There will be opportunities for the entire community to review the team's work during various public involvement processes because FEMA requires at least two public involvement activities. We will provide planning team meeting minutes and two newsletters for distribution or posting to enable community wide knowledge, providing information during City Council Meetings or other public meetings, and working with us over the phone as we capture needed information.

AECOM will provide two (2) newsletters. The first newsletter (attached) introduces the project and explains the planning process, encourages public involvement; and asks the community to identify known hazards, and to confirm their critical infrastructure as identified by DHS&EM's statewide small community Critical Facility Database. The second will introduce the updated draft HMP and encourage the community to review and provide comments to make the plan better or more usable to mitigate your hazards.

We will six copies of the newsletter via snail mail, please post wherever you think best.

I would like to teleconference with you regarding the tables on Page 2 of the newsletter. Please let me know of a convenient time for me to call, this upcoming week, if possible. If you want to invite others to participate that would be great. Otherwise, you and I can go over the tables.

I look forward to working with you. Thank you for your time.

Eileen Bechtol

Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work."

— Daniel Hudson Burnham (1846-1912)

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NONDALTON HAZARD MITIGATION PLAN UPDATE

Newsletter #1

March 2015

This newsletter describes the City of Nondalton 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 State of Alaska Division of Homeland Security and Emergency Management Website at <http://ready.alaska.gov/plans/localhazmitplans>.

The State of Alaska, Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management (DHS&EM) was awarded a Pre-Disaster Mitigation Program grant from the Federal Emergency Management Agency (FEMA) to Update your 2009 Hazard Mitigation Plan (HMP).

AECOM was contracted to assist the Lake and Peninsula Borough with preparing a 2015 FEMA approvable HMP update. Each of the incorporated cities in the LPB, including City of Nondalton will also have a HMP developed as part of the update process.

The HMP 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 include relocating or elevating buildings, replacing insufficiently sized culverts, using alternative construction techniques, or developing, implementing, or enforcing building codes, and education.

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. The LPB plans to apply for mitigation funds after our plan is complete.

A FEMA approved and community adopted HMP 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 HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria and other applicable laws and regulations may be found at: <http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to include and document the following topics:

- ❑ New Planning Team membership and processes
- ❑ HMP update participation and plan reviewers,
- ❑ Identify new hazards not formerly addressed,
- ❑ Help us explain your hazard impacts since 2009,
- ❑ Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area,
- ❑ Determine their "estimated" replacement costs,
- ❑ Define the community's population risk and critical facility vulnerabilities,
- ❑ Review current and update the existing hazard mitigation goals if applicable,
- ❑ Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.
- ❑ Update the HMP Maintenance section to reflect how the (City or Borough) completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.
- ❑ Provide a copy of the community's HMP Adoption Resolution

FEMA has prepared Local Planning Review Guide available at:

http://emilms.fema.gov/is318/assets/local_mtgtn_plan_guidance_0708.pdf. It explains how the HMP Update meets each of the DMA2000 requirements.

We are currently in the very beginning stages of preparing the plan update. We will be conducting a Planning Team Meeting to introduce the project and

planning team, to gather comments from community residents update hazards lists, and collect data to refine the vulnerability assessment.

We Need Your Help

Please use the following table to confirm the hazards AND identify new hazards not formerly addressed.

Nondalton Hazard Worksheet		
Hazard	2009 Plan	Still Valid Yes/No
Earthquake (EQ)	Yes	
Flood (Erosion) (FL)	Yes	
Ground Failure (GF) Includes: Avalanche, Landslide, Permafrost, and/or Subsidence	No	
Severe Weather (SW)	Yes	
Tsunami & Seiche (TS)	No	
Volcano (VO)	Yes	
Wildland Fire (WF)	Yes	

The 2009 HMP identified critical facilities within LPB, but the list needs to be reviewed and updated and the estimated value and location (latitude/longitude) determined.

In addition, the number and value of structures, and the number of people living in each structure will need to be documented. A newsletter will be sent to each of the incorporated cities in the LPB with a table of their critical facilities to review. Once this information is collected we will determine which critical facilities, residences, and populations are vulnerable to specific hazards in the LPB.

Critical Facility	Current Natural Hazards				
	EQ	FL	SW	VO	WF
City Hall Offices	X		X		X
Tribal Office	X		X		X
Airport	X		X		X
Fire Station	X		X		X
Police Station	X		X		X
Nondalton School	X		X		X
Health Clinic	X		X		X
Cemetery	X		X		X
Park	X		X		X
Post Office	X		X		X
Teachers Quarters	X		X		X

Critical Facility	Current Natural Hazards				
	EQ	FL	SW	VO	WF
Nondalton General Store	X		X		X
Russian Orthodox Church	X		X		X
Tribal Organization Library	X		X		X
Satellite, ARC	X		X		X
Satellite, GCI	X		X		X
Telephone, GCI	X		X		X
Potable Water Production and Treatment Facility	X		X		X
Service/Maintenance Shop	X		X		X
Sewage Lagoon	X		X		X
Landfill/Incinerator, Class III	X		X		X
Reservoir/Water Supply #1	X		X		X
Reservoir/Water Supply #2	X		X		X
Satellite, PTI	X		X		X
Telephone, PTI	X		X		X
School generator	X		X		X
Sewage Treatment Plant	X		X		X
Water/Sewer Building Backup Generator	X		X		X

Planning Team

Matters of the Hazard Mitigation Plan will be brought to the Borough Planning Commission through the LPB Community Development Planner, Ranya Aboras. AECOM will be developing materials and leading the planning process with guidance from the Planning Commission and Borough Planner.

Public Participation

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 and to guide the community.

We encourage you to take an active part in preparing the LPB 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. Please contact your Borough Community Development Planner Ranya Aboras; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for more information:

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CITY OF NONDALTON HAZARD MITIGATION PLAN (HMP)

April 2015

Newsletter 2

This newsletter discusses the preparation of the City of Nondalton (Nondalton) Hazard Mitigation Plan. It has been prepared to inform interested agencies, stakeholders, and the public about the project and to solicit comments. This newsletter can also be viewed on the State of Alaska Division of Homeland Security and Emergency Management Website at: <http://www.ready.alaska.gov/plans/localhazmitplans.htm>.

HMP Development

Nondalton was one of 21 communities selected by the State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) for a Hazard Mitigation Planning (HMP) development project. The plan identifies natural hazards that affect the community including earthquake, erosion, flood, ground failure, severe weather, and tundra/wildland fire. The HMP also identifies the people and facilities potentially at risk and potential actions to mitigate community hazards. The public participation and planning process is documented as part of the project.

What is Hazard Mitigation?

Across the United States, natural disasters have increasingly caused injury, death, property damage, and business and government service interruptions. The toll on individuals, families, and businesses can be very high. The time, money, and emotional effort required to respond to and recover from these disasters take public resources and attention away from other important programs and problems.

People and property throughout Alaska are at risk from a variety of hazards that have the potential for causing human injury, property damage, or environmental harm.

The purpose of hazard mitigation is to implement projects that reduce the risk severity of hazards on people and property. Mitigation programs may include short-term and long-term activities to reduce hazard impacts or exposure to hazards. Mitigation could include education, construction or planning projects. Hazard mitigation activity examples include relocating buildings, developing or strengthening building codes, and educating residents and building owners.

Why Do We Need A Hazard Mitigation Plan?

A community is only eligible to receive grant money for mitigation programs by preparing and adopting a hazard mitigation plan. Communities must have an approved mitigation plan to receive grant funding from the Federal Emergency Management Agency (FEMA) for eligible mitigation projects.

The Planning Process

There are very specific federal requirements that must be met when preparing a HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria may be found on the Internet at: <http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to document the following topics:

- ☐ Planning process
- ☐ Community Involvement and HMP review
- ☐ Hazard identification
- ☐ Risk assessment
- ☐ Mitigation Goals
- ☐ Mitigation programs, actions, and projects
- ☐ A resolution from the community adopting the plan

FEMA has prepared a Local Planning Review Guide) and (available at: <http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=4859>). It explains how the HMP meets each of the DMA2000 requirements. FEMA has prepared and “Mitigation Planning Guidance” and “How to Guides” (available at: <http://www.fema.gov/hazard-mitigation-planning-resources>). The City’s Hazard Mitigation Plan will follow those guidelines.

The planning process kicked-off on February 14, 2015 by establishing a local planning team and holding a public meeting. The planning team examined the full spectrum of hazards listed in the State Hazard Mitigation Plan and identified natural hazards the HMP would address.

Nondalton staff, AECOM and the public began identifying critical facilities, compiling the hazard profiles, assessing capabilities, and conducting the risk assessment for the identified hazards. Critical facilities are facilities that are critical to the recovery of a community in the event of a disaster. After collection of this information, AECOM helped to determine which critical facilities and estimated populations are vulnerable to the identified hazards in Nondalton.

A mitigation strategy was the next component of the plan to be developed. Understanding the community’s local

capabilities and using information gathered from the public and the local planning team and the expertise of the consultants and agency staff, a mitigation strategy was developed. The mitigation strategy is based on an evaluation of the hazards, and the assets at risk from those hazards. Mitigation goals and a list of potential actions/projects were developed as the foundation of the mitigation strategy.

Mitigation goals are defined as general guidelines that explain what a community wants to achieve in terms of hazard and loss prevention. Goals are positively stated future situations that are typically long-range, policy-oriented statements representing community-wide visions. Mitigation actions and projects are undertaken in order to achieve your stated objectives.

On March 17, 2015 the planning team identified projects and/or actions for each hazard that focus on six categories: prevention, property protection, public education and awareness, natural resource protection, emergency services, and structural projects. The mitigation actions identified by the planning team are explained in more detail in the plan.

The selected projects and/or actions will potentially be implemented over the next five years as funding becomes available. A maintenance plan was also been developed for the hazard mitigation plan. It outlines how the community will monitor progress on achieving the projects and actions that will help meet the stated goals and objectives, as well as an outline for continued public involvement.

The draft plan is available in the City offices for public review and comment. Comments should be made via email or phone to Eileen Bechtol (contact information listed below) and be received no later than June 15, 2015. The plan will be provided to DHS&EM and FEMA for their preliminary approval and returned to Nondalton's City Council for formal adoption.

Sample of the City of Nondalton's Mitigation Actions. Review the draft HMP for a complete list.		
Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.	Additional drainage improvements (annual project).	Improvements to roads to reduce vulnerability to erosion (annual project, scheduled for spring and fall).
Investigate weaknesses in electrical supply infrastructure and reduce vulnerability	Brush cutting and thinning for defensible space and firebreaks around structures and community.	Obtain wood chipper for disposal of slash.

We encourage you to take an active part in the Nondalton 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. Please contact your Borough Community Development Planner Ranya Aboras; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for information.

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**LAKE AND PENINSULA BOROUGH
MULTI-JURISDICTIONAL Hazard Mitigation Plan Update**

City of Pilot Point, Alaska Hazard Mitigation Plan



City of Pilot Point, Alaska (Photo: Marv Smith)

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City of Pilot Point Hazard Mitigation Plan Update

1. Community Description

Section One provides the Pilot Point location, geography, history, and demographic information.

1.1 Location, Geography and History

Pilot Point, population 78 (DCRA 2014 estimate) is located on the northern coast of the Alaska Peninsula, on the east shore of Ugashik Bay. The community lies 84 air miles south of King Salmon and 368 air miles southwest of Anchorage. It lies at approximately 57.564170° North Latitude and -157.57917° West Longitude. (Sec. 29, T030S, R051W, Seward Meridian.) Pilot Point is located in the Kvichak Recording District. The area encompasses 25.4 sq. miles of land and 115.1 sq. miles of water.

Pilot Point's maritime climate is characterized by cool, humid and windy weather. Average summer temperatures range from 41 to 60; average winter temperatures range from 20 to 37. Low cloud cover and fog frequently limit travel. Precipitation averages 19 inches per year, with 38 inches of snowfall.

This mixed Aleut and Eskimo community developed around a fish salting plant established by C.A. Johnson in 1889. At that time, it was called "Pilot Station," after the river pilots stationed here to guide boats upriver to a large cannery at Ugashik. In 1892, Charles Nelson opened a saltery which was sold the Alaska Packer's Association in 1895. The saltery continued to expand, and by 1918, developed into a three-line cannery. Many nationalities came to work in the canneries - Italians, Chinese and northern Europeans. Reindeer herding experiments at Ugashik helped to repopulate the area after the devastating 1918 flu epidemic, although the herding eventually failed. A Russian Orthodox Church and a Seventh Day Adventist Church were built in the village. A post office was established in 1933, and the name was changed to Pilot Point at that time. The deterioration of the harbor forced the cannery to close in 1958. Pilot Point incorporated as a city in 1992.

The residents of Pilot Point depend upon commercial fishing for the majority of their cash income. Twenty-one residents hold commercial fishing permits. Up to 700 commercial boats fish in the district.

Subsistence is an important part of the community lifestyle, and trapping is a source of income during the off-season. Salmon, caribou, moose, geese and porcupine are harvested.

Municipal services include septic pumping, landfill, volunteer fire, dock, fuel sales, and an airport. City of Pilot Point operates a wind turbine generator that supplements electricity.

Pilot Point is accessible by air and water. A State-owned 3,280' long by 75' wide gravel airstrip is available, and plans are underway to relocate it. One air taxi operator provides regular flights six days a week out of King Salmon as a part of the mail service. There is a second 5,280' long by 125' wide gravel airstrip located 10 miles southeast at Ugashik, owned by the U.S. Bureau of Land Management. Barge service is provided from Seattle in the spring and fall. Dago Creek serves as a natural harbor; a dock is available. Modes of local transport include ATVs, snow machines, skiffs and trucks.

Lake and Peninsula Borough Communities



Data Source: Alaska State Geospatial Data Clearinghouse
Projection: NAD 1927 Albers
Scale: 1:3,000,000

Figure 1 Pilot Point location in the LPB (2012 LPB Comprehensive Plan).

City of Pilot Point Hazard Mitigation Plan Update

2. Planning Process

Section Two provides an overview of the planning process; identifies the Planning Team Members and key stakeholders; documents public outreach efforts; and summarizes the review and incorporation of existing plans, studies, and reports used to develop this MJHMP. Outreach support documents and meeting information regarding the Planning Team and public outreach efforts are provided in the Lake & Peninsula Borough (LPB) Multi-Jurisdictional Hazard Mitigation Plan.

2.1 Planning Process Overview

The State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) provided funding and project oversight to AECOM Corporation to facilitate and guide Planning Team development and MJHMP development.

In summary, the following five-step process took place from November 11, 2014 through May 2015.

1. 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 hazard mitigation plan.
2. Monitor, evaluate, and update the plan: The Planning Team developed a process to ensure the plan was monitored to ensure it was used as intended while fulfilling community needs. The team then developed a process to evaluate the plan to compare how their decisions affected hazard impacts. They then outlined a method to share their successes with community members to encourage support for mitigation activities and to provide data for incorporating mitigation actions into existing planning mechanisms and to provide data for the plans five-year update.
3. Assess risks: The Planning Team identified the hazards specific to the Borough and with the assistance of a hazard mitigation planning consultant (AECOM), developed the risk assessment for seven identified hazards. The Planning Team reviewed the risk assessment, including the vulnerability analysis, prior to and during the development of the mitigation strategy.
4. 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.
5. Develop a mitigation strategy: After reviewing the risks posed by each hazard, the Planning Team developed a comprehensive range of potential mitigation goals and actions. Subsequently, the Planning Team identified and prioritized the actions for implementation.

2.2 Planning Teams

The Borough planning team was developed and comprised of Ranya Aboras (Planning Team Leader) and representatives from each of the incorporated cities and Port Alsworth.

City of Pilot Point Hazard Mitigation Plan Update

Table 1 LPB Planning Team Members

Team Member	Title	Involvement
Ranya Aboras	LPB Community Development Planner	MJHMP Team Leader, data gathering and plan review
LPB Planning Commission	Planning Commissioners	MJHMP plan review
Becky Bottcher	City Clerk/Treasurer	Pilot Point plan
Don Strand	City Manager	Pilot Point plan
Greg Anelon	City Manager	Newhalen plan
Carrie Harried	City Manager	Nondalton plan
Barbara Chestler	City Manager	Pilot Point plan
Angela Simpson	City Administrator	Port Heiden plan
Beth Hill	Port Alsworth Improvement Corporation	Port Alsworth plan
Scott Simmons	AECOM, Project Manager	MJHMP update manager, lead writer, and MJHMP project coordination.
Eileen Bechtol	BP&D/Community Planner	MJHMP update, project planner

Each community organized their own Planning Team; Pilot Point's Planning Team is shown on Table 2 below.

Table 2 Pilot Point Planning Team

Team Member	Title	Involvement
Barbara Chester	City Manager (Until May 20)	Planning Team Leader
Lori Abyo	City Manager (May 20, 2015 onwards)	Planning Team Leader
Steven Kramer	Mayor	Plan review
Ranya Aboras	LPB Community Development Planner	MJHMP Team Leader, data gathering and plan review
Scott Simmons	AECOM, Project Manager	MJHMP update manager, lead writer, and MJHMP project coordination.
Eileen Bechtol	BP&D/Community Planner	MJHMP update, project planner

2.3 Public Involvement & Opportunity for Interested Parties to participate

AECOM extended an invitation to all individuals and entities identified on the project mailing list described the planning process and announced the upcoming communities' planning activities. The announcement was emailed to relevant academia, nonprofits, and local, state, and federal agencies on November 20, 2014. The list of the agencies and organization is invited to participate and review the MJHMP.

Table 3 lists the community's public involvement initiatives focused to encourage participation and insight for the MJHMP effort.

City of Pilot Point Hazard Mitigation Plan Update

Table 3 Public Involvement Mechanisms

Mechanism	Description
Newsletter #1 Distribution (February 2015)	In February and March 2015, the jurisdiction distributed a newsletter introducing the upcoming planning activity. The newsletter encouraged the community to provide hazard and critical facility information. It was posted at the City offices, bulletin boards, and Borough website to enable the widest dissemination.
Agency Involvement eMail (November 20, 2014)	Invited agencies to participate in mitigation planning effort and to review applicable newsletters located on the DHS&EM Local/Tribal All Hazard Mitigation Plan Development website at: http://ready.alaska.gov/plans/localhazmitplans.htm
Planning Team Meeting (March 17, 2015)	Finalized infrastructure table and reviewed mitigation plans.
Newsletter #2 Distribution (April 2015)	In April 2015, the jurisdiction distributed a second newsletter describing the MJHMP and the community specific draft plan availability and present potential MJHMP projects for review. The newsletter encouraged the community to provide comments or input. It was posted at the City or community office, and disseminated.
Public Meeting (April 6, 2015 LPB PC Meeting)	Notice of the April 6, 2015 meeting to introduce the MJHMP was posted at Borough Hall, and distributed to communities using their usual public notice procedures.
Public Meeting (May 11, 2015 LPB PC Meeting)	Notice of the May 11, 2015, meeting was posted at Borough Hall, and distributed to communities using their usual public notice procedures.
City Council Meeting (_____, 2015)	Approval of plan, meeting was noticed usual their usual public meeting procedures.

2.4 Review and analysis of the Legacy 2009 MJHMP.

The Legacy 2009 Pilot Point portion of the MJHMP was revised as described below.

- Section 1. **Community Description:** reviewed and updated community information.
- Section 2. **Planning Process:** updated this section to reflect 2015 public process including newsletters, public meetings and 2015 Planning Team.
- Section 3. **Plan Adoption:** 2015 resolutions and dates.
- Section 4. **Hazard Identification & Risk Assessment:** reviewed hazard identification and risk assessment adding 2009 to 2015 descriptions and data.
- Section 5. **Vulnerability Analysis:** added a new section to analyze vulnerability with 2015 critical facilities and infrastructure tables.
- Section 7. **Mitigation Strategy:** reviewed 2009 mitigation goals and actions and added new goals and action for the 2015 Mitigation Action Plan.

The Planning Team did not complete their designated annual HMP reviews or plan maintenance activities. Therefore it became a primary consideration to update the existing 2009 HMP to include hazards that have, or could potentially have, impacted the community during the legacy HMP's 5-year lifecycle.

City of Pilot Point Hazard Mitigation Plan Update

Planning Team identified HMP components that necessitated information update. The Team determined how community changes, construction and infrastructure conditions, climate change impacts, and population increases or decreases have influenced hazard risks and/or facility vulnerabilities.

The 2015 HMP Update process included inviting new and existing stakeholders to review the existing HMP to determine what was accomplished versus what was intended to accomplish.

2.5 Incorporation of Existing Plans and Other Relevant Information

During the planning process, the Planning Team reviewed and incorporated information from existing plans, studies, reports, and technical reports into the MJHMP.

LPB MJHMP Table 3-3 lists existing plans and other documents that were available regarding the LPB and Pilot Point and were reviewed and used as references for the jurisdiction information and hazard profiles in the risk assessment of the MJHMP for the Borough and Pilot Point.

2.6 Plan Maintenance

This section in the MJHMP describes a formal plan maintenance process to ensure that the MJHMP remains an active and applicable document. It includes an explanation of how the Borough's Planning Team intends to organize their efforts to ensure that improvements and revisions to the MJHMP occur in a well-managed, efficient, and coordinated manner.

The following three process steps are addressed in detail in the Borough Plan:

1. Implementation into existing planning mechanisms
2. Continued public involvement
3. Monitoring, reviewing, evaluating, and updating the MJHMP

The City will follow the same procedure as set forth in the LPB MJHMP.

3. Plan Adoption

Section Three is included to fulfill the City of Pilot Point MJHMP adoption requirements.

3.1 Adoption by Local Governing Bodies and Supporting Documentation

The requirements for the adoption of this MJHMP by the local governing body, as stipulated in the DMA 2000 and its implementing regulations are described below.

The Borough is represented in this MJHMP and meets the requirements of Section 409 of the Stafford Act and Section 322 of DMA 2000, and 44 CFR §201.6(c)(5).

The LPB Borough Assembly and cities' council's formal adoption resolutions and Port

Allworth's letter stating compliance with MJHMP initiatives were submitted with the final draft MJHMP to FEMA for formal approval.

A scanned copy of the Borough's and Cities formal adoption resolutions are included in

City of Pilot Point Hazard Mitigation Plan Update

Appendix C of the LPB MJHMP.

4. Hazard Identification and Risk Assessment

Section Four identifies and profiles the hazards that could affect the City of Pilot Point.

Site visits (in 2008); public meetings, and evaluation of historical information indicate that earthquake, flooding (particularly erosion), volcano, weather (severe) and wildland fire natural hazards are present in the community of Pilot Point.

Hazard identification and risk assessment for these natural hazards are contained in this section, specific to Pilot Point. The City does not have a risk of ground failure or tsunami.

The hazards profiled in the LPB MJHMP and the Pilot Point HMP indicates that the entire City is at risk for each of the profiled hazards.

4.1 Earthquake

4.1.1 History

The following Table 4, lists 20 historical earthquakes over M5 with the largest one (M6.6) occurring on May 1, 1990. Source: USGS *NEIC Historic Earthquake Search*

Table 4 1978 to 2015 Historical Earthquakes in Pilot Point

Date	Time	Latitude	Longitude	Depth	Magnitude
05/01/90	16:12:21	58.84	-156.858	211	6.6
05/20/79	8:14:00	56.647	-156.725	71	6.4
01/27/04	9:50:52	56.806	-156.757	75.6	5.6
12/22/00	0:40:37	56.82	-158.341	105.9	5.6
02/27/03	15:35:31	58.706	-156.867	202	5.5
05/09/98	3:55:52	57.983	-156.963	0	5.4
05/09/98	0:30:13	57.893	-156.823	0	5.4
09/12/92	14:59:36	57.269	-155.23	55.1	5.4
09/26/83	23:52:53	57.445	-156.395	84.8	5.4
05/09/98	0:59:23	57.896	-156.414	0	5.3
12/28/85	7:44:38	56.58	-156.509	58.5	5.3
05/09/90	2:38:57	57.502	-155.695	77.2	5.2
04/19/88	22:05:04	56.446	-156.378	76.5	5.2
01/07/06	18:55:39	56.319	-157.396	59.3	5.1
05/05/01	5:48:48	56.448	-156.609	61.9	5.1
08/01/92	13:45:25	57.084	-155.298	56.4	5.1
06/05/84	1:44:21	56.901	-157.262	94	5.1
08/15/81	10:30:57	56.378	-156.776	53	5.1
12/30/10	19:21:27	56.748	-156.149	54	5

City of Pilot Point Hazard Mitigation Plan Update

Date	Time	Latitude	Longitude	Depth	Magnitude
08/29/01	17:57:24	57.845	-155.653	105.1	5

The City does not have any recorded instances of earthquake impacts in Pilot Point during the Legacy 2009 HMP cycle.

4.1.2 Location, Extent, Impact and Probability of Future Events

Location

The entire community of Pilot Point is at risk for earthquake damages.

Extent

Based on historic earthquake events and the criteria identified in the LPB MJHMP Table 5-2, the magnitude and severity of earthquake impacts in the Borough are considered “Limited” with potential injuries and/or illnesses that do not result in permanent disability; critical facilities could expect to be shut-down for more than two weeks; and more than 10 percent of property severely damaged with limited long-term damage to transportation, infrastructure, or the economy.

Impact

Impacts to the community such as significant ground movement that may result in infrastructure damage are not expected. Minor shaking may be seen or felt based on past events. Impacts to future populations, residences, critical facilities, and infrastructure are anticipated to remain the same. Damage could be caused to homes and the City infrastructure such as the City Dock, which could halt the use of the dock and supply of resources during summer months.

City of Pilot Point Hazard Mitigation Plan Update

Probability of Future Events

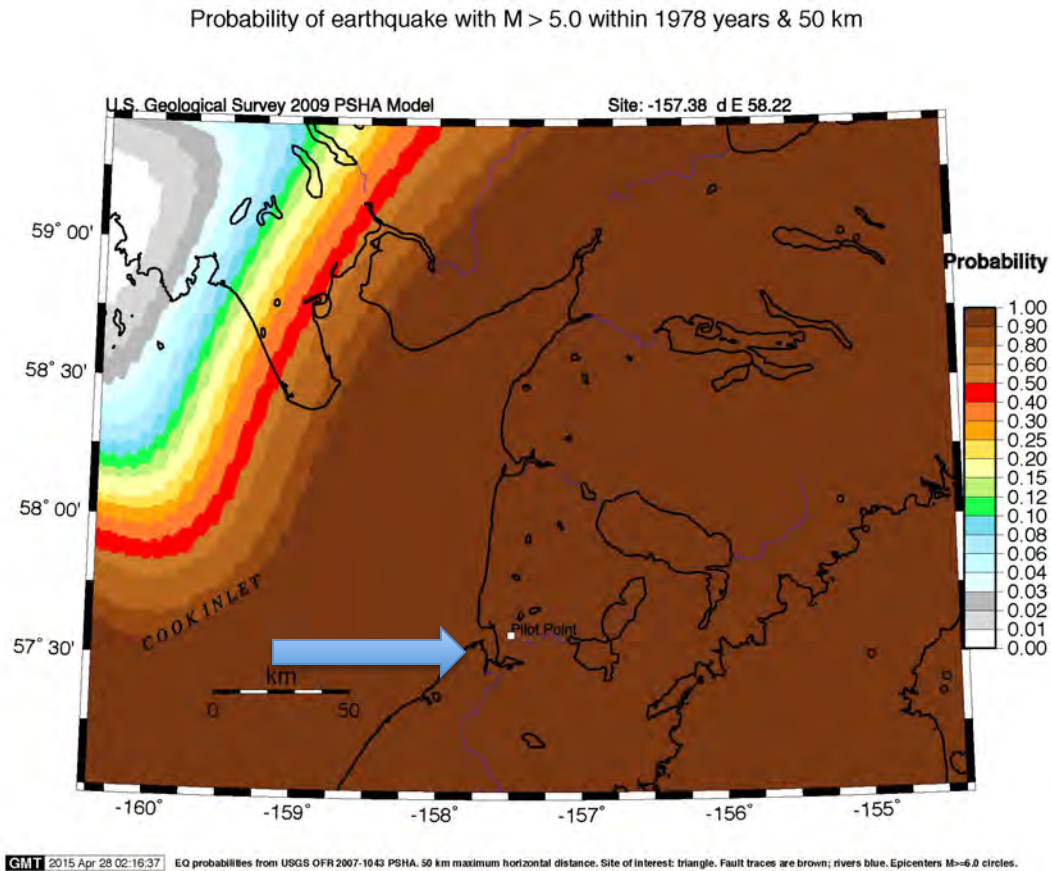


Figure 2 Probability of earthquake in Pilot Point (USGS 2015)

Based on past events and the USGS Shake Map above, the probability of an event occurring is “Highly Likely”. The event is probable within the calendar year and has up to a 1 to 1 year chance of occurring (1/1=100 percent). History of events is great than 33 percent likely per year. Event is “Highly Likely” to occur.

4.2 Flood

4.2.1 History

High tides combined with wind-driven waves cause storm surge conditions in coastal areas of the community at least twice a year. A road north of the community is washing away as a result of the storms. Beach erosion and infill occurs regularly. Large boats have been carried inland on the storm surge in the past. Currently the city mechanical shop, heavy equipment storage, and electrical shop is located within 30 feet of the high tide line.

There were no floods of record during the Legacy 2009 Plan cycle.

Figure 3 Pilot Point Seawall next to City Dock (Photo: Marv Smith)

City of Pilot Point Hazard Mitigation Plan Update

4.2.2 Location, Extent, Impact and Probability of Future Events

Location

Based on previous occurrences, annual fall storms and heavy rain events will continue to pose a threat to the community of Pilot Point due to the exposed nature of the coastline. The entire community of Pilot Point is particularly vulnerable to flooding caused by storm surges because of its low-lying location and its exposure to Bristol Bay.

Extent

Erosion due to storm surges and wave action has resulted in visible damages to the community at all waterfront areas. Residents report more loss of oceanfront than in recent memory. Heavy storms cause rapid erosion and have created hazards for drivers.

All areas intersecting a body of water are vulnerable to erosion damages. Annual fall storms and heavy rain events will continue to pose a threat to Pilot Point due to the exposed nature of the coastline.

Based on past winter storm flooding from the Bristol Bay, high water flow event history and the criteria identified in Table 5-2, the extent of flooding and resultant damages to infrastructure and their protective embankments in the Borough are considered “Limited” where critical facilities would shut-down for more than one week or less with more than 10 percent of property severely damaged.

Impact

Impacts from erosion include loss of land and any development on the land. Erosion can cause increased sedimentation of harbors and river deltas and hinder channel navigation, affecting marine transport. Other impacts include reduction in water quality due to high sediment loads, loss of native aquatic habitats, damage to public utilities, and economic impacts associated with costs trying to prevent or control erosion sites.

Probability of Future Event

With the increase of intensified fall sea storms taken place yearly, it is “likely” a flood event may occur within the next three years (event has up to 1 in 3 chance of occurring). Based on the probability matrix on the history of the event occurring is more than 20% but less than or equal to 33% in a calendar year. Event is likely to occur.

4.3 Volcano

4.3.1 History

Residents indicate that the proximity to active volcanoes is the hazard they are most concerned about. Pilot Point lies in the shadow of Aniakchak and Ukinrek Maars, two volcanoes active in the past 70 years. Given the unstable nature of the rupture zone between the North American Plate and the Pacific Plate, this area will remain volcanically vulnerable.

4.3.2 Location, Extent, Impact and Probability of Future Events

Location

The entire City of Pilot Point is at risk of impacts from volcanic ash fall out.

City of Pilot Point Hazard Mitigation Plan Update

Extent

Based on the devastation of past volcanic events in the world and the criteria identified in Table 5-2, the magnitude and severity of impacts in the Borough are considered critical in that more 25 percent of property could be damaged. Injuries and/or illnesses result in permanent disability and complete shutdown of critical facilities for at least two weeks.

Impact

Not only can secondary effects such as ash fall cause temporary aviation access delays, but the ash fall could cause harm to the king salmon fishery near the village. Pilot Point's isolated location places the community at risk by disrupting travel should any eruption take place. The impacts of a volcanic event could make the community vulnerable to economic losses through closure of businesses and government facilities, disruption in communications, disruption of the provision of utilities such as water and sewer services.

Probability of Future Events

Volcanoes can erupt at any time, but the AVO monitors all active volcanoes sufficiently to allow enough warning time for communities to be prepared.

Volcanic eruptions can occur at any time and, because of the existence of so many active volcanoes within the Borough, can be considered a certainty.

Based on the history of volcanoes in the Borough area and applying the criteria identified in Table 5-3, it is possible a tsunami event will occur within in the next five years. The event has up to 1 in 5 years chance of occurring ($1/5=20$ percent) and the history of events is equal to or over 10 percent but less than or equal to 20 percent likely each year. Event is "Possible".

4.4 Weather (Severe)

4.4.1 History

The community experiences severe weather in the form of annual blizzards and high winds. Heavy snow is problematic for the community because the homes are so far apart. It is beyond the community's capability to keep the roads plowed during periods of heavy snow. As a consequence, residents are essentially trapped in their homes and, should power be lost, can be cut off from communications with other residents. These storms have the power to disrupt air and boat travel and power generation in this isolated community with gusts of 140 mph.

4.4.2 Location, Extent, Impact and Probability of Future Events

Location

The entire City of Pilot Point is at risk of a severe winter event.

Extent

Based on past severe weather events and the criteria identified in LPB MJHMP Table 5-2, the extent of severe weather in the Borough are considered limited where injuries do not result in permanent disability, complete shutdown of critical facilities occurs for more than one week, and more than 10 percent of property is severely damaged.

City of Pilot Point Hazard Mitigation Plan Update

Impact

The intensity, location, and the land's topography influence a severe weather event's impact within a community. Hurricane force winds, rain, snow, and storm surge can be expected to impact the entire Borough.

Heavy snow can immobilize a community by bringing transportation to a halt. Until the snow can be removed, airports and roadways are impacted, even closed completely, stopping the flow of supplies and disrupting emergency and medical services. Accumulations of snow can cause roofs to collapse and knock down trees and power lines. Heavy snow can also damage light aircraft and sink small boats. A quick thaw after a heavy snow can cause substantial flooding.

The cost of snow removal, repairing damages, and the loss of business can have severe economic impacts on cities and towns. Injuries and deaths related to heavy snow usually occur as a result of vehicle and or snow machine accidents. Casualties also occur due to overexertion while shoveling snow and hypothermia caused by overexposure to the cold weather.

Extreme cold can also bring transportation to a halt. Aircraft may be grounded due to extreme cold and ice fog conditions, cutting off access as well as the flow of supplies to communities. Long cold spells can cause rivers to freeze, disrupting shipping and increasing the likelihood of ice jams and associated flooding.

Extreme cold also interferes with the proper functioning of a community's infrastructure by causing fuel to congeal in storage tanks and supply lines, stopping electric generation. Without electricity, heaters and furnaces do not work, causing water and sewer pipes to freeze or rupture. If extreme cold conditions are combined with low or no snow cover, the ground's frost depth can increase, disturbing buried pipes. The greatest danger from extreme cold is its effect on people. Prolonged exposure to the cold can cause frostbite or hypothermia and become life threatening. Infants and elderly people are most susceptible. The risk of hypothermia due to exposure greatly increases during episodes of extreme cold, and carbon monoxide poisoning is possible as people use supplemental heating devices.

Probability of Future Events

Based on previous occurrences and the criteria identified in LPB MJHMP Table 5-3, it is likely a severe storm event will occur in the next three years (event has up to 1 in 3 years chance of occurring) as the history of events is greater than 20 percent but less than or equal to 33 percent likely per year. Event is "Likely".

4.5 Wildland Fire

4.5.1 History

The community is not heavily forested and is relatively safe from forest fires, but citizens are still concerned about the probability of tundra fires making this a serious concern. Residents are concerned about wildfires because of increasing dry vegetation. Dry grasses and brush produce very fast-moving fires. They report that more fires are occurring, and they are concerned that a wildfire could be driven by high winds, which could endanger the community.

4.5.2 Location, Extent, Impact and Probability of Future Events

Location

Wildfires have not been documented within the boundaries of Pilot Point; however there is

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always the possibility that a fire from burning trash could spark a brushfire, aided by strong winds that could quickly consume the whole village. Under certain conditions wildland fires may occur in any area with fuel surrounding the community of Pilot Point. Since fuels data is not readily available, for the purposes of the plan, all areas outside the community are considered to be vulnerable to wildland tundra fire impacts.

Extent

Based on the number of past wildland fire events and the criteria identified in LPB MJHMP Table 5-2 and the magnitude and severity of impacts in the City are considered critical in that more 10 percent of property could be damaged.

Impact

Impacts of a wildland fire that interfaces with the population center of Pilot Point could grow into an emergency or disaster if not properly controlled. A small fire can threaten lives and resources and destroy property. In addition to impacting people, wildland fires may severely impact livestock and pets. Such events may require emergency watering and feeding, evacuation, and alternative shelter.

Indirect impacts of wildland fires can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soil erodes quickly and enhances siltation of rivers and stream, thus increasing flood potential, harming aquatic life, and degrading water quality. The impacts of a wildland tundra fire event could make the community vulnerable to economic losses through closure of businesses and government facilities, disruption in communications, disruption of the provision of utilities such as water and sewer services.

Future Event Probability

Important issues related to the wildland or tundra fire probability are increased development along the community's perimeter, accumulation of hazardous wildfire fuels, and the uncertainty of weather patterns that may accompany climate change. These three combined elements are reason for concern and heightened mitigation management of each community's wildland interface areas, natural areas, and open spaces.

Based on the history of wildland fires in the Borough area and applying the criteria identified in LPB MJHMP Table 5-3, it is possible a wildland or tundra fire event will occur within the next three years. The event has up to 1 in 3 years chance of occurring ($1/3=33$ percent) and the history of events is equal to or over 20 percent but less than or equal to 33 percent likely each year. Climate change and flammable vegetation species are prolific throughout Alaska's forests and tundra locations. Fire frequency may increase in the future as a result. Event is "Likely".

5. Vulnerability Analysis

Section Five outlines the vulnerability process for determining potential losses for the community from various hazard impacts.

Table 5 lists City of Pilot Point infrastructures' hazard vulnerability.

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Table 5 Pilot Point Infrastructures' hazard vulnerability.

Hazard	Area's Hazard Vulnerability			
	Percent of Jurisdiction's Geographic Area	Percent of Population	Percent of Building Stock	Percent of Critical Facilities and Utilities
Earthquake	100	100	100	100
Flood	100	100	100	100
Volcano	100	100	100	100
Weather	100	100	100	100
Wildland Fire	100	100	100	100

5.1 Existing Critical Facilities in Pilot Point

A critical facility is defined as a facility that provides essential products and services to the general public, such as preserving the quality of life in the City and fulfilling important public safety, emergency response, and disaster recovery functions. The critical facilities profiled in this plan include the following:

- Government facilities, such as city and tribal administrative offices, departments, or agencies
- Emergency response facilities, including police department and firefighting equipment
- Educational facilities, including K-12
- Care facilities, such as medical clinics, congregate living health, residential and continuing care, and retirement facilities
- Community gathering places, such as community and youth centers
- Utilities, such as electric generation, communications, water and wastewater treatment, sewage lagoons, landfills.

There is limited GIS data available for the City of Pilot Point. Specific to Pilot Point the natural hazards of earthquake, flood, volcano, weather (severe) and wildfire are at equal risk to the entire community.

Table 6 contains the City's critical facilities and infrastructure data this information was obtained from the Planning Team during a teleconference.

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Table 6 City of Pilot Point Critical Facilities and Infrastructure

Facility Type	Estimated No. of Occupants	Facilities	Street Address	Latitude	Longitude	Estimated Value	Building Type	Earthquake	Flood	Volcano	Weather Severe	Wildland Fire
Government	5	City Hall	Main Street	57.56417*	-157.57917*	\$900,000	S2	X	X	X	X	X
	2	City & Borough & Borough Maintenance Shop	Cannery Row	57.56417	-157.57917	\$4,000,000	W2	X	X	X	X	X
	3	Tribal Office/Community Hall	MAIN	57.56554	-157.57631	\$50,000	S1	X	X	X	X	X
Transportation	0	Bulkhead	Dago Creek	57.56417	-157.57917	\$400,000	S1	X	X	X	X	X
	0	Airport	Airport Road	57.57846	-157.56873	NA	Gravel	X	X	X	X	X
	0	DOTPF Shop	Airport Road	57.57846	-157.56873	\$2,000,000	S2	X	X	X	X	X
	2	Fuel Tank Facility 203,000 gallons	Airport Road	57.57846	-157.56873	\$54,000	OTF	X	X	X	X	X
	0	Waiting room	Airport Road	57.57846	-157.56873	NA	W1	X	X	X	X	X
EMT	1	Police Station	Main Street	57.56417	-157.57917	\$405,000	S1	X	X	X	X	X
	0	Fire Station	Shanigan Road	NA	NA	\$414,000	S1	X	X	X	X	X
ED	13	School	Shanigan Road	57.56509	-157.57575	NA	S1	X	X	X	X	X
MED	4	Health Clinic	Shanigan Road	57.56554	-157.57631	300,000	S1	X	X	X	X	X
Community	4	Post Office	Post Office Road	57.56616	-157.57821	\$500,000	Concrete	X	X	X	X	X
	2	Teachers Quarters	Shanigan Road	57.56417	-157.57917	\$400,000	S1	X	X	X	X	X
	8	Russian Orthodox Church	Church Road	57.56417	-157.57917	\$50,000	W1	X	X	X	X	X
	0	Cemetery 1	Church Road	57.56432	-157.57756	\$20,000		X	X	X	X	X
	0	Cemetery 2	graves close to road	57.5582	-157.57618	\$20,000		X	X	X	X	X
		Community Hall	In Tribal Office					X	X	X	X	X
Roads		Road Miles	14 miles				Gravel	X	X	X	X	X
Utilities		Satellite, ACS	Post Office Road, 10 x 10	57.56417	-157.57917		Sat	X	X	X	X	X
		Telephone, ACS	Post Office Road, 10 x 10	57.56417	-157.57917		Sat	X	X	X	X	X
	2	Fuel Storage Tanks (>500gal)100,000 gallons, harded around fuel header		57.56417	-157.57917		OTF	X	X	X	X	X
		Telephone, GCI, conex, tower satellitie		57.56417	-157.57917		Sat	X	X	X	X	X
		Satellite, GCI		57.56417	-157.57917	no data	Sat	X	X	X	X	X
		Generator 3 of them, AK Utilities, Conex area, 2008 put online, 12 x 49 feet		57.56452	-157.57405		EPPS	X	X	X	X	X

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Facility Type	Estimated No. of Occupants	Facilities	Street Address	Latitude	Longitude	Estimated Value	Building Type	Earthquake	Flood	Volcano	Weather Severe	Wildland Fire
		Power Generation Facility	Shanigan Road	57.56417	-157.57917	\$1,200,000		X	X	X	X	X
		Sewage Lagoonoff, old airport facility end of hud road, fenced and gate		57.56417	-157.57917			X	X	X	X	X
		Landfill/Incinerator Class III Muni, Village Safe Water Grant	6 miles out of town	57.57043	-157.57927			X	X	X	X	X
		Old Landfill/Incinerator - Abandoned	Out the Dump Road	57.57022	-157.58288			X	X	X	X	X
		New incinerator	Out the Dump Road	57.57043	-157.57927			X	X	X	X	X
	2	Power Plant Fuel Storage Tanks 203,000 gallons. Gas station	Shanighan Road	57.56417	-157.57917		EPPS	X	X	X	X	X
		Water is supplied by wells	Various Locations	Various Locations				X	X	X	X	X
Total Occ	49				Total Damages:	\$10,713,000						

(City of Pilot Point) *Latitude and Longitude specific information not available, DCED used the city center

The following is a summary of Table This includes approximately:

- 78 people in 28 residences (approximate value \$7,000,000)
- 11 people in five government and emergency response facilities (approximate value \$5,760,000)
- 13 people in one educational facility (approximate value NA*)
- 4 people in one health center facility (approximate value \$300,000)
- 10 people in five community facilities (approximate value \$990,000)
- 300 seasonal people at two commercial fishing complexes, including processing plants, warehousing, housing, general stores, fuel facilities, docks and boat ramps (approximate value over \$40,000,000)
- 0 full time people in Pilot Point Airport and City Deep Water Cargo Dock (approximate value over \$50,000,000)
- 5 people in five utility facilities (approximate value \$1,200,000**)
- 2 people in two transportation facilities (approximate value 2,454,000)

*NA = data not available. **=Data not complete

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The City anticipates that impacts to future populations, residential structures, critical facilities, and infrastructure will be at the same historical impact level.

5.2 Future and Planned Development in Pilot Point.

There are no significant future or planned development to record in Pilot Point.

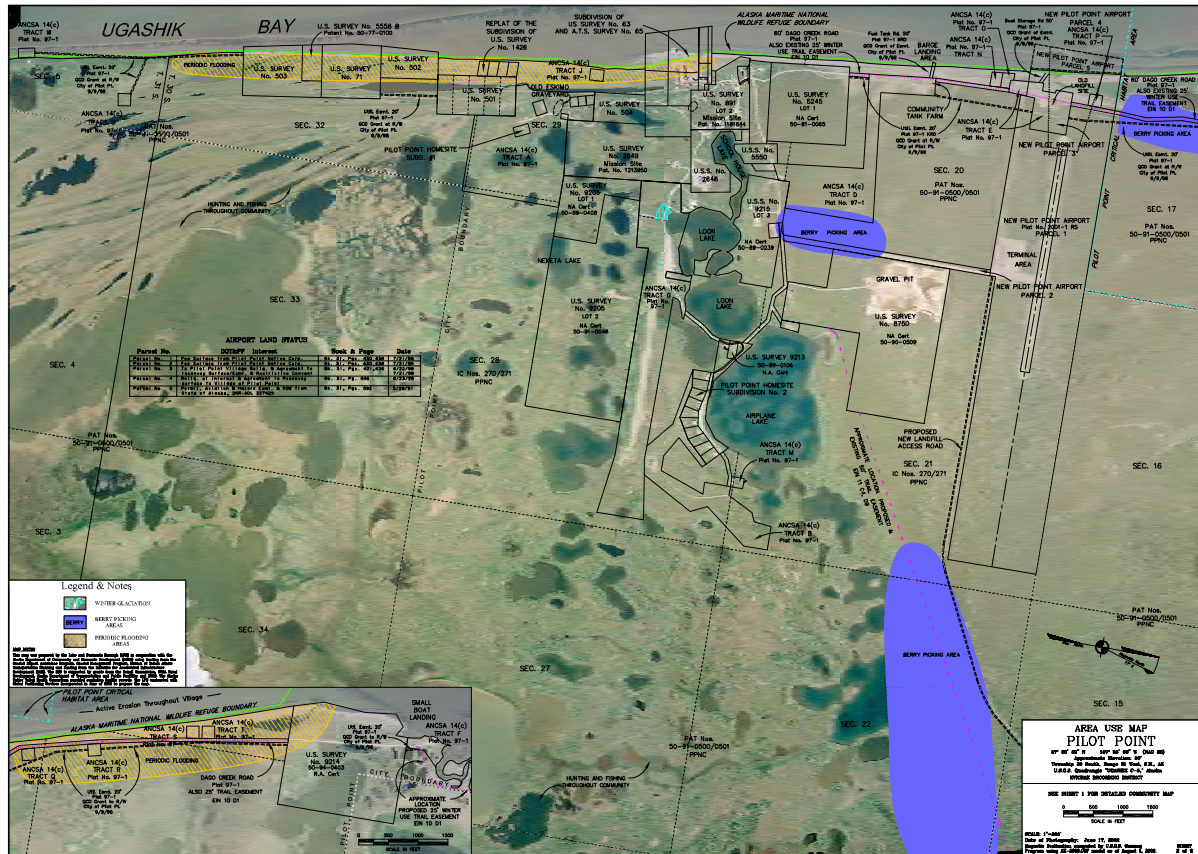


Figure 4 Pilot Point Area land Use Map

5.3 NFIP Participation and Repetitive Loss Properties

The City of Pilot Point is not a participating community in the NFIP and therefore does not have any repetitive loss properties.

The Borough has participated in the NFIP since an emergency entry date of March 4, 2004 and a regular entry date of February 3, 2010.

The LPB has no repetitive loss properties and no claims for flood insurance.

6. Pilot Point Mitigation Strategy

Section Six outlines Pilot Point's mitigation strategy including:

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Section Seven outlines the five-step process for preparing a mitigation strategy including:

1. Identifying the City's existing authorities for implementing mitigation action initiatives
2. Developing Mitigation Goals
3. Identifying Mitigation Actions
4. Evaluating Mitigation Actions
5. Implementing the Mitigation Action Plan (MAP)

6.1 Pilot Point Capability Assessment

The City's capability assessment reviews the technical and fiscal resources available to the community.

This section outlines the resources available to the Borough for mitigation and mitigation related funding and training. Tables 7, 8, and 9 delineate the City's regulatory tools, technical specialists, and financial resource available for project management. Additional funding resources are identified in Appendix A.

Table 7 Pilot Point Regulatory Tools.

Regulatory Tools (ordinances, codes, plans)	Existing Yes/No?	Comments (Year of most recent update; problems administering it, etc.)
Comprehensive Plan	Yes	As part of the LPB plan, each community has a brief Community Action Plan.
Land Use Plan	Yes	Describes the City's community development goals and initiatives as part of the Comprehensive Plan – Community Action Plan
Tribal Land Use Plan	Yes	Describes the Village's community development goals and initiatives as part of the Comprehensive Plan – Community Action Plan
Emergency Response Plan	Yes	Emergency Operation Plan, 2010 (as part of the Borough Plan)
Wildland Fire Protection Plan	No	
Building code	No	The City can exercise this authority but is not required.
Zoning ordinances	No	The City can exercise this authority but is not required.
Subdivision ordinances or regulations	No	The City can exercise this authority but is not required.
Special purpose ordinances	No	The City can exercise this authority but is not required.

Local Resources

The City relies upon the LPB for most of their planning and land management tools that allow it to implement hazard mitigation activities. The resources available in these areas have been assessed by the hazard mitigation Planning Team, and are summarized below.

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Table 8 Technical Specialists for Hazard Mitigation.

Staff/Personnel Resources	Yes / No	Department/Agency and Position
Development and land management practices	Yes	LPB Community Development Planner
Planner or engineer with an understanding of natural and/or human-caused hazards.	Yes	LPB Community Development Planner
Floodplain Manager	No	Not a NFIP participating community.
Surveyors	Yes	The City hires consultants when they need a surveyor.
Staff with education or expertise to assess the jurisdiction's vulnerability to hazards.	Yes	LPB Community Development Planner
Personnel skilled in Geospatial Information System (GIS) and/or Hazards Us-Multi Hazard (Hazu-MH) software	Yes	LPB Community Development Planner
Scientists familiar with the hazards of the jurisdiction	No	The City works with U.S. Fish & Wildlife Service (USFWS) and Fish & Game (ADF&G), and the Alaska Department of Transportation and Public Facilities
Emergency Manager	Yes	LPB Community Development Planner
Finance (Grant writers)	Yes	LPB Community Development Planner and community representatives
Public Information Officer	Yes	The City Mayor, City Administrator, or Tribal President

Table 9 Pilot Point Financial Resources

Financial Resource	Accessible or Eligible to Use for Mitigation Activities
General funds	Can exercise this authority with voter approval
Municipal Energy Assistance Program (MEAP)	Provides operating support funding
Community Development Block Grants (CDBG)	Can exercise this authority with voter approval
Capital Improvement Project Funding	Can exercise this authority with voter approval
Authority to levy taxes for specific purposes	Can exercise this authority with voter approval
Incur debt through general obligation bonds	Can exercise this authority with voter approval
Incur debt through special tax and revenue bonds	Can exercise this authority with voter approval
Incur debt through private activity bonds	Can exercise this authority with voter approval
Financial Resource	Accessible or Eligible to Use for Mitigation Activities
Hazard Mitigation Grant Program (HMGP)	FEMA funding which is available to local communities after a Presidentially-declared disaster. It can be used to fund both pre- and post-disaster mitigation plans and projects.
Pre-Disaster Mitigation (PDM) grant program	FEMA funding which available on an annual basis. This grant can only be used to fund pre-disaster mitigation plans and projects only

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Flood Mitigation Assistance (FMA) grant program	No, not a NFIP participating community.
United State Fire Administration (USFA) Grants	The purpose of these grants is to assist state, regional, national or local organizations to address fire prevention and safety. The primary goal is to reach high-risk target groups including children, seniors and firefighters.

6.2 Mitigation Goals

The Planning Team developed the mitigation goals and potential mitigation actions to address identified potential hazard impacts for the City within Section 4.

The exposure analysis results were used as a basis for developing the mitigation goals and actions. Mitigation goals are defined as general guidelines that describe what a community wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing community-wide visions. As such, six goals were developed to reduce or avoid long-term vulnerabilities to the identified hazards (Table 6).

Table 10 City of Pilot Point Mitigation Goals

No.	Goal Description
Multi-Hazards (MH)	
MH 1	Promote recognition and mitigation of all natural and manmade hazards that affect Pilot Point.
Natural Hazards	
EQ 1	Reduce structural vulnerability to earthquake (ER) damage.
FL 2	Reduce flood and erosion (FL) damage and loss possibility.
VO 3	Reduce vulnerability, damage, or loss of structures from volcanic debris impacts
W(S) 4	Reduce structural vulnerability to severe weather (SW) damage.
WF 5	Reduce structural vulnerability to Tundra/Wildland Fire (WF) damage.

6.3 Identifying Mitigation Actions

The Planning Team assessed the potential mitigation actions to carry forward into the mitigation strategy. Mitigation actions are activities, measures, or projects that help achieve the goals of a mitigation plan. Mitigation actions are usually grouped into three broad categories: property protection, public education and awareness, and structural projects.

The 2009 MJHMP organized mitigation actions into objectives and actions as listed below. The City Planning Team staff stated that all of actions are ongoing.

During the planning process November 2014 through May 2015 the Planning Team selected City natural hazard, mitigation actions for potential Mitigation Action Plan (MAP) implementation during the five-year life cycle of this MJHMP. The Planning Team placed particular emphasis on projects and programs that reduce the effects of hazards on both new and existing buildings and infrastructure as well as facilities located in potential flood zones to comply with NFIP requirements.

Table 11 breaks out the project criteria as considered, selected, and ongoing. The Planning Team considered projects from a comprehensive list for earthquake, flood, volcano, weather (severe) and wildfire. They identified numerous “ongoing” mitigation actions currently in process or

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those that were listed in other City planning documents. The Planning Team then selected “newly identified” actions identified through this plan development activity that would most benefit the community.

Table 11 City of Pilot Point Mitigation Plan and Potential Actions

Supports Goal No.	Description	Criteria <u>New Actions:</u> <u>Considered</u> <u>Selected</u> <u>Legacy Plan</u> <u>Actions:</u> <u>Ongoing</u> <u>Not Completed</u> <u>Completed</u> <u>Delete</u>	Description
MH 1	Promote recognition and mitigation of all natural and manmade hazards that affect the Lake and Peninsula (Borough).	O-NC	MOA with school to use school as emergency shelter. <i>This action has not been accomplished; the community still wants this a potential project.</i>
		O-NC	Emergency operations plan and evacuation plan. <i>This action has not been accomplished; the community still wants this a potential project.</i>
		O-NC	Improve ability to self-sustain during periods of isolation Store in town extra food, emergency back up generator, and extra water. <i>This action has not been accomplished; the community still wants this a potential project.</i>
EQ 2	Reduce structural vulnerability to earthquake (ER) damage.	C-S	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.
		C-S	Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.
FL 3	Reduce vulnerability, damage, or loss of structures from erosion	Completed- Delete	Relocate road away from shoreline.
		Delete	Conduct thorough erosion study to determine best mitigation. <i>The City changed this action to the following project; do not want another study.</i>
		C-S	Develop a road drainage and erosion control project.
VO 4	Reduce vulnerability, damage, or loss of structures from volcanic debris impacts	C-S	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.
		Completed Delete	Stockpile surgical masks and filters for personal generators
		Completed Delete	Filtration for power plant.
		Delete	Public Education - <i>Deleted emergency response agencies supply this information</i>
SW 5	Reduce structural vulnerability to severe weather (SW) damage.	C-S	Develop alternative energy source
WF 6	Reduce structural vulnerability to	C-S	Build firebreak around community.

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Supports Goal No.	Description	Criteria <i>New Actions:</i> <i>Considered</i> <i>Selected</i> <i>Legacy Plan</i> <i>Actions:</i> <i>Ongoing</i> <i>Not Completed</i> <i>Completed</i> <i>Delete</i>	Description
	Tundra/Wildland Fire (WF) damage.		Removal of dead/dry fuels.

6.4 Mitigation Action Plan

Pilot Point's Mitigation Action Plan, Table 12, depicts how each mitigation action will be implemented and administered by the Planning Team. The MAP delineates each selected mitigation action, its priorities, the responsible entity, the anticipated implementation timeline, and provides a brief explanation as to how the overall benefit/costs and technical feasibility were taken into consideration.

Table 12 City of Pilot Point Mitigation Action Plan (MAP)

Goal/ Action ID	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timefram e (1-3 Years 2-4 Years 3-5 Years)	Benefit-Costs (BC) / Technical Feasibility (T/F)
MH 1.1	MOA with school to use school as emergency shelter.	High	City Manager LPB School Superintendent	City LPB	1-3	B/C: This ongoing activity is essential for the Borough as there are limited funds available to accomplish effective mitigation actions. T/F: This activity is ongoing demonstrating its feasibility.
MH 1.2	Emergency operations plan and evacuation plan.	High	City Manager LPB Planner	City LPB	1-3	B/C: This ongoing activity is essential for the Borough as there are limited funds available to accomplish effective mitigation actions. T/F: This activity is ongoing demonstrating its feasibility.
MH 1.3	Improve ability to self-sustain during periods of isolation Store in town extra food, emergency back up generator, and extra water.	High	City Manager LPB Planner	City LPB	1-3	B/C: This ongoing activity is essential for the Borough as there are limited funds available to accomplish effective mitigation actions. T/F: This activity is ongoing demonstrating its feasibility.
EQ 2.1	Inspect, prioritize, and retrofit any critical facility or	High	City Manager LPB Manager	City, LPB, HMA, NRCS, ANA, USACE, US USDA,	1-3 years	B/C: This project would ensure threatened infrastructures are available for use – their

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	public infrastructure that does not meet current State Adopted Building Codes.			Lindbergh		loss would exacerbate potential damages and further threaten survivability. T/F: This project is feasible using existing staff skills, equipment, and materials.
EQ 2.2	Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.	High	City Manager LPB Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
FL 3.1	Develop a road drainage and erosion control project.	High	City Manager LPB Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
VO 3.1	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.	Medium	City Manager LPB Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
SW 4.1	Develop alternative energy source	High	City Manager LPB Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	3-5 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.

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WF 5.1	Build firebreak around community.	High	City Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: This action has a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action.
WF 5.2	Removal of dead/dry fuels.	High	City Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: This action has a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action.

7. References

Section Eight provides a comprehensive reference list used to develop the MJHMP.

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From: [Eileen Bechtol](#)
To: [Barbara Higgins](#)
Cc: [Simmons, Scott](#)
Subject: Pilot Point
Date: Saturday, February 14, 2015 10:53:44 AM
Attachments: [2-15-15 Pilot Point Newsletter.pdf](#)

Hello Ms. Higgins:

I am writing to introduce myself, Eileen R. Bechtol, I am a subcontractor for Scott Simons, AECOM (formerly known as URS Corporation). AECOM contracted by the Division of Homeland Security and Emergency Management (DHS&EM) to develop a Hazard Mitigation Plan Update for ten Alaska jurisdictions. The City of Pilot Point is one of the selected jurisdictions.

Your name was provided as the community contact in the incorporated cities. If this something I should discuss with someone else please forward this email to that person. Thank you.

It is important to note that the City of Pilot Point does not have to pay anything for this project. This is an important project funded by FEMA through the DHS&EM. AECOM have worked with rural communities to assist them with their hazard mitigation plan development needs. In fact, URS has been developing HMPs nationwide since 2000. Our Alaska office has completed approximately 90 State, Borough (County) and local community, State reviewed, and FEMA approved Hazard Mitigation Plans to-date. I also have written several Hazard Mitigation Plans in Alaska.

HMP updates require reviewing current plans to identify how conditions have changed since the plan was last approved. For example, the current plan's plan development activities may change such as planning team membership; new plans, reports, and studies reviewed, new hazards identified and newly disaster impacts annotated. These changes could directly change identified planning community vulnerabilities and risks. This requires that the current Mitigation Strategy be reviewed and updated to identify current project's status. Were any projects completed or do they need to be modified, merged with similar initiatives for the same impact or location, deleted because they are no longer deemed the most appropriate mitigation initiative, or changed to reflect new jurisdictional needs?

AECOM's role in this project is to ensure that the Updated HMP meets state and federal requirements -- part of this requirement is to describe the process in which the community was involved. We are at the beginning stages of this project.

Our task is to write the plan while guiding you through the HMP Update process; maximizing your local knowledge. AECOM will write the plan. Your input will assist the process by working with us to identify changes since the 2009 HMP implementation:

- <!--[if !supportLists]--> <!--[endif]-->HMP update participation and plan reviewers,
- <!--[if !supportLists]--> <!--[endif]-->Identify new hazards not formerly addressed,
- <!--[if !supportLists]--> <!--[endif]-->Help us explain your hazard impacts since 2009,
- <!--[if !supportLists]--> <!--[endif]-->Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area,
- <!--[if !supportLists]--> <!--[endif]-->Determine their "estimated" replacement costs,
- <!--[if !supportLists]--> <!--[endif]-->Define the community's population risk and critical facility vulnerabilities,

<!--[if !supportLists]-->· <!--[endif]-->Review current and update the existing hazard mitigation goals if applicable,

<!--[if !supportLists]-->· <!--[endif]-->Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.

<!--[if !supportLists]-->· <!--[endif]-->Update the HMP Maintenance section to reflect how the City completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.

There will be opportunities for the entire community to review the team's work during various public involvement processes because FEMA requires at least two public involvement activities. We will provide planning team meeting minutes and two newsletters for distribution or posting to enable community wide knowledge, providing information during City Council Meetings or other public meetings, and working with us over the phone as we capture needed information.

AECOM will provide two (2) newsletters. The first newsletter (attached) introduces the project and explains the planning process, encourages public involvement; and asks the community to identify known hazards, and to confirm their critical infrastructure as identified by DHS&EM's statewide small community Critical Facility Database. The second will introduce the updated draft HMP and encourage the community to review and provide comments to make the plan better or more usable to mitigate your hazards.

We will be sending via snail mail six copies of the attached newsletter. Please post around town wherever you think best.

I would like to teleconference with you regarding the tables on Page 2 of the newsletter. Please let me know of a convenient time for me to call, next week if possible. If you want to invite others to participate that would be great. Otherwise, you and I can go over the tables. I look forward to working with you.

Thank you for your time.

Eileen Bechtol

Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work."

— Daniel Hudson Burnham (1846-1912)

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PILOT POINT HAZARD MITIGATION PLAN UPDATE

Newsletter #1

February 2015

This newsletter describes the City of Pilot Point 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 State of Alaska Division of Homeland Security and Emergency Management Website at <http://ready.alaska.gov/plans/localhazmitplans>.

The State of Alaska, Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management (DHS&EM) was awarded a Pre-Disaster Mitigation Program grant from the Federal Emergency Management Agency (FEMA) to Update your 2009 Hazard Mitigation Plan (HMP).

AECOM was contracted to assist the Lake and Peninsula Borough (LPB) with preparing a 2015 FEMA approvable HMP update. Each of the incorporated cities in the LPB, including City of Pilot Point, will also have a HMP developed as part of the update process.

The HMP 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 include relocating or elevating buildings, replacing insufficiently sized culverts, using alternative construction techniques, or developing, implementing, or enforcing building codes, and education.

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. The LPB plans to apply for mitigation funds after our plan is complete.

A FEMA approved and community adopted HMP 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 HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria and other applicable laws and regulations may be found at: <http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to include and document the following topics:

- ❑ New Planning Team membership and processes
- ❑ HMP update participation and plan reviewers,
- ❑ Identify new hazards not formerly addressed,
- ❑ Help us explain your hazard impacts since 2009,
- ❑ Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area,
- ❑ Determine their "estimated" replacement costs,
- ❑ Define the community's population risk and critical facility vulnerabilities,
- ❑ Review current and update the existing hazard mitigation goals if applicable,
- ❑ Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.
- ❑ Update the HMP Maintenance section to reflect how the (City or Borough) completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.
- ❑ Provide a copy of the community's HMP Adoption Resolution

FEMA has prepared Local Planning Review Guide available at:

http://emilms.fema.gov/is318/assets/local_mtgtn_plan_guidance_0708.pdf. It explains how the HMP Update meets each of the DMA2000 requirements.

We are currently in the very beginning stages of preparing the plan update. We will be conducting a Planning Team Meeting to introduce the project and

planning team, to gather comments from community residents update hazards lists, and collect data to refine the vulnerability assessment.

We Need Your Help

Please use the following table to confirm the hazards AND identify new hazards not formerly addressed.

Pilot Point Hazard Worksheet		
Hazard	2009 Plan	Still Valid Yes/No
Earthquake (EQ)	Yes	
Flood (Erosion) (FL)	Yes	
Ground Failure (GF) Includes: Avalanche, Landslide, Permafrost, and/or Subsidence	No	
Severe Weather (SW)	Yes	
Tsunami & Seiche (TS)	No	
Volcano (VO)	Yes	
Wildland Fire (WF)	Yes	

The 2009 HMP identified critical facilities within LPB, but the list needs to be reviewed and updated and the estimated value and location (latitude/longitude) determined.

In addition, the number and value of structures, and the number of people living in each structure will need to be documented. A newsletter will be sent to each of the incorporated cities in the LPB with a table of their critical facilities to review. Once this information is collected we will determine which critical facilities, residences, and populations

Critical Facility	Current Natural Hazards				
	EQ	FL	SW	VO	WF
City Hall	X		X		X
City Maintenance Shop	X		X		X
Tribal Office	X		X		X
Harbor/Dock/Port	X		X		X
Airport	X		X		X
Fire Station	X		X		X
Police Station	X		X		X
School	X		X		X
Health Clinic	X		X		X

Critical Facility	Current Natural Hazards				
	EQ	FL	SW	VO	WF
Cemetery 1	X		X		X
Cemetery 2	X		X		X
Community Hall	X		X		X
Post Office	X		X		X
Teachers Quarters	X		X		X
Russian Orthodox Church	X		X		X
Fuel Storage Tanks (>500gal) AK Packers Assn Cannery	X		X		X
Satellite, ATT	X		X		X
Telephone, ATT	X		X		X
Fuel Storage Tanks (>500gal)	X		X		X
Telephone, GCI	X		X		X
Satellite, GCI	X		X		X
Generator	X		X		X
Power Generation Facility	X		X		X
Sewage Lagoon	X		X		X
Landfill/Incinerator Class III Muni	X		X		X
Old Landfill/Incinerator	X		X		X
Power Plant Fuel Storage Tanks (>500gal)	X		X		X
Reservoir/Water Supply/Pumphouse	X		X		X

Planning Team

The LPB Planning Team will be led by Ranya Aboras, Borough Planner with assistance from AECOM (contracted by DHS&EM). Matters of the Hazard Mitigation Plan will be brought to the Borough Planning Commission through the LPB Community Development Planner, Ranya Aboras. AECOM will be developing materials and leading the planning process with guidance from the Planning Commission and Borough Planner.

Public Participation

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 and to guide the community.

We encourage you to take an active part in preparing the LPB 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. Please contact your Borough Community Development Planner Ranya Aboras; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for more information:

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CITY OF PILOT POINT HAZARD MITIGATION PLAN (HMP)

April 2015

Newsletter 2

This newsletter discusses the preparation of the City of Pilot Point (Pilot Point) Hazard Mitigation Plan. It has been prepared to inform interested agencies, stakeholders, and the public about the project and to solicit comments. This newsletter can also be viewed on the State of Alaska Division of Homeland Security and Emergency Management Website at: <http://www.ready.alaska.gov/plans/localhazmitplans.htm>.

HMP Development

Pilot Point was one of 21 communities selected by the State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) for a Hazard Mitigation Planning (HMP) development project. The plan identifies natural hazards that affect the community including earthquake, erosion, flood, ground failure, severe weather, and tundra/wildland fire. The HMP also identifies the people and facilities potentially at risk and potential actions to mitigate community hazards. The public participation and planning process is documented as part of the project.

What is Hazard Mitigation?

Across the United States, natural disasters have increasingly caused injury, death, property damage, and business and government service interruptions. The toll on individuals, families, and businesses can be very high. The time, money, and emotional effort required to respond to and recover from these disasters take public resources and attention away from other important programs and problems.

People and property throughout Alaska are at risk from a variety of hazards that have the potential for causing human injury, property damage, or environmental harm.

The purpose of hazard mitigation is to implement projects that reduce the risk severity of hazards on people and property. Mitigation programs may include short-term and long-term activities to reduce hazard impacts or exposure to hazards. Mitigation could include education, construction or planning projects. Hazard mitigation activity examples include relocating buildings, developing or strengthening building codes, and educating residents and building owners.

Why Do We Need A Hazard Mitigation Plan?

A community is only eligible to receive grant money for mitigation programs by preparing and adopting a hazard mitigation plan. Communities must have an approved mitigation plan to receive grant funding from the Federal Emergency Management Agency (FEMA) for eligible mitigation projects.

The Planning Process

There are very specific federal requirements that must be met when preparing a HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria may be found on the Internet at: <http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to document the following topics:

- ☐ Planning process
- ☐ Community Involvement and HMP review
- ☐ Hazard identification
- ☐ Risk assessment
- ☐ Mitigation Goals
- ☐ Mitigation programs, actions, and projects
- ☐ A resolution from the community adopting the plan

FEMA has prepared a Local Planning Review Guide) and (available at: <http://www.fema.gov/library/viewRecord.do?fromSearch=fro msearch&id=4859>). It explains how the HMP meets each of the DMA2000 requirements. FEMA has prepared and “Mitigation Planning Guidance” and “How to Guides” (available at: <http://www.fema.gov/hazard-mitigation-planning-resources>). The City’s Hazard Mitigation Plan will follow those guidelines.

The planning process kicked-off on February 14, 2015 by establishing a local planning team and holding a public meeting. The planning team examined the full spectrum of hazards listed in the State Hazard Mitigation Plan and identified natural hazards the HMP would address.

Pilot Point staff, AECOM and the public began identifying critical facilities, compiling the hazard profiles, assessing capabilities, and conducting the risk assessment for the identified hazards. Critical facilities are facilities that are critical to the recovery of a community in the event of a disaster. After collection of this information, AECOM helped to determine which critical facilities and estimated populations are vulnerable to the identified hazards in Pilot Point.

A mitigation strategy was the next component of the plan to be developed. Understanding the community’s local

capabilities and using information gathered from the public and the local planning team and the expertise of the consultants and agency staff, a mitigation strategy was developed. The mitigation strategy is based on an evaluation of the hazards, and the assets at risk from those hazards. Mitigation goals and a list of potential actions/projects were developed as the foundation of the mitigation strategy.

Mitigation goals are defined as general guidelines that explain what a community wants to achieve in terms of hazard and loss prevention. Goals are positively stated future situations that are typically long-range, policy-oriented statements representing community-wide visions. Mitigation actions and projects are undertaken in order to achieve your stated objectives.

On March 17, 2015 the planning team identified projects and/or actions for each hazard that focus on six categories: prevention, property protection, public education and awareness, natural resource protection, emergency services,

and structural projects. The mitigation actions identified by the planning team are explained in more detail in the plan.

The selected projects and/or actions will potentially be implemented over the next five years as funding becomes available. A maintenance plan was also been developed for the hazard mitigation plan. It outlines how the community will monitor progress on achieving the projects and actions that will help meet the stated goals and objectives, as well as an outline for continued public involvement.

The draft plan is available in the City offices for public review and comment. Comments should be made via email or phone to Eileen Bechtol (contact information listed below) and be received no later than June 15, 2015. The plan will be provided to DHS&EM and FEMA for their preliminary approval and returned to the Pilot Point City Council for formal adoption.

Sample of the City of Pilot Point's Mitigation Actions. Review the draft HMP for a complete list.		
Develop a road drainage and erosion control project.	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.	Build firebreak around community.
Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.	Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.	Removal of dead/dry fuels.

We encourage you to take an active part in the Pilot Point 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. Please contact your Borough Community Development Planner Ranya Aboras; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for information.

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**LAKE AND PENINSULA BOROUGH
MULTI-JURISDICTIONAL Hazard Mitigation Plan Update**

**Community of Port Alsworth, Alaska Hazard Mitigation
Plan**



Community of Port Alsworth, Alaska (Photo: Marv Smith)

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Community of Port Alsworth Hazard Mitigation Plan Update

1. Community Description

Section One provides the Port Alsworth location, geography, history, and demographic information.

1.1 Location, Geography and History

Port Alsworth (PA), population 179 (DCRA 2014) is located on Hardenburg Bay on the east shore of Lake Clark approximately 170 miles west of Anchorage at approximately 60.2025° North Latitude and -154.31278° West Longitude (Section 04, T001N, R029W) Seward Meridian. The size of the community is approximately 22.7 sq. miles of land and 0.1 square miles of water.

Tanalian Point, the name of the community before it became Port Alsworth and Lake Clark's first Euro-American settlement, was settled by prospectors in the late 1880s. Dena'ina Athabaskan Indians lived at Tanalian Point after prospectors established the site as a community. The location offered ready access to nearby copper prospects and the best wood fuel and timber for cabins. It developed into a staging area for the Telaquana Trail and mining activities on Kontrashibuna Lake and Portage Creek. Big game hunters arrived in 1921 seeking local guides. Pioneer bush pilot Leon "Babe" Alsworth and his wife Mary were among the first settlers in the 1940s.

Port Alsworth falls within the transitional climate zone, characterized by tundra interspersed with boreal forests, and weather patterns of long, cold winters and shorter, warm summers. Annual rainfall is 14 inches with 55 inches of snowfall.

Port Alsworth is part of the Lake and Peninsula Borough (LPB) but is not an incorporated Community. There is a Port Alsworth Improvement Corporation (PAIC) in the community which is like an alternative to a local government and advocates for local issues on behalf of residents. The community was not included in the 1971 Alaska Native Claims Settlement Act (ANCSA) so there is not a federally recognized Native village council.

Sixty-eight percent of the population is non-native and twenty-one percent are Alaska Native or part Native.

Port Alsworth has a long-established tourism industry with numerous fishing lodges some open year-round and is the local headquarters for the Lake Clark National Park and Preserve. Local attractions include the 40-mile-long Lake Clark, one of the spawning grounds for the world-famous Bristol Bay sockeye salmon run; the ruins of historic Kijik village listed on the National Register of Historic Places; and picturesque Tanalian Falls.

There are 74 housing units and of those, 44 units are occupied and 30 are vacant. There are numerous lodges and commercial outfitters and guides for recreational activities. Residents holding commercial fishing permits have declined from four in 2000 to two in 2010.

The Port Alsworth Volunteer Fire Department offers limited fire and emergency medical services (EMS). According to the DCCED community profile, the fire department does not have structural, marine, airport or industrial firefighting capabilities. The nearest Alaska State trooper post is in Iliamna, which is 37 air miles. There is not a state-owned airport in Port Alsworth; however, there are two privately-owned and operated airstrips: 3,000' long by 100' wide dirt/gravel airstrip and a 4,200' gravel airstrip. Schedule and charter air services are available from Iliamna and Anchorage to the private airstrips. There are no ferry or road connections to the community.

Community of Port Alsworth Hazard Mitigation Plan Update

Lake and Peninsula Borough Communities

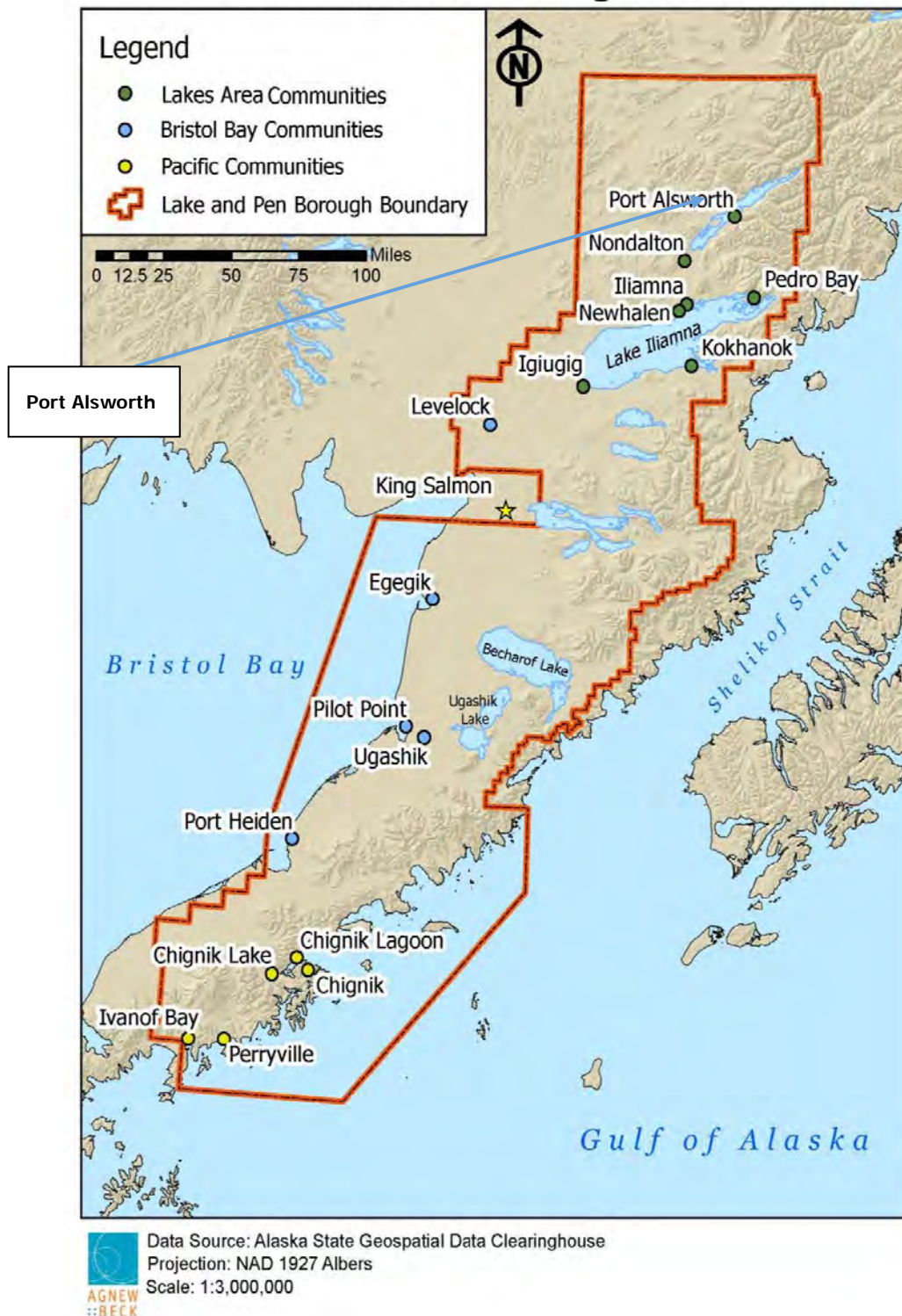


Figure 1 Lake & Peninsula Borough (2012 LPB Comprehensive Plan)

Community of Port Alsworth Hazard Mitigation Plan Update

2. Planning Process

Section Two provides an overview of the planning process; identifies the Planning Team Members and key stakeholders; documents public outreach efforts; and summarizes the review and incorporation of existing plans, studies, and reports used to develop this MJHMP. Outreach support documents and meeting information regarding the Planning Team and public outreach efforts are provided in the Lake & Peninsula Borough (LPB) Multi-Jurisdictional Hazard Mitigation Plan.

2.1 Planning Process Overview

The State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) provided funding and project oversight to AECOM Corporation to facilitate and guide Planning Team development and MJHMP development.

In summary, the following five-step process took place from November 11, 2014 through May 2015.

1. 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 hazard mitigation plan.
2. Monitor, evaluate, and update the plan: The Planning Team developed a process to ensure the plan was monitored to ensure it was used as intended while fulfilling community needs. The team then developed a process to evaluate the plan to compare how their decisions affected hazard impacts. They then outlined a method to share their successes with community members to encourage support for mitigation activities and to provide data for incorporating mitigation actions into existing planning mechanisms and to provide data for the plans five-year update.
3. Assess risks: The Planning Team identified the hazards specific to the Borough and with the assistance of a hazard mitigation planning consultant (AECOM), developed the risk assessment for seven identified hazards. The Planning Team reviewed the risk assessment, including the vulnerability analysis, prior to and during the development of the mitigation strategy.
4. 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.
5. Develop a mitigation strategy: After reviewing the risks posed by each hazard, the Planning Team developed a comprehensive range of potential mitigation goals and actions. Subsequently, the Planning Team identified and prioritized the actions for implementation.

Community of Port Alsworth Hazard Mitigation Plan Update

2.2 Planning Teams

The Borough planning team was developed and comprised of Ranya Aboras (Planning Team Leader) and representatives from each of the incorporated cities and Port Alsworth.

Table 1 LPB Planning Team Members

Team Member	Title	Involvement
Ranya Aboras	LPB Community Development Planner	MJHMP Team Leader, data gathering and plan review
LPB Planning Commission	Planning Commissioners	MJHMP plan review
Becky Bottcher	City Clerk/Treasurer	Port Alsworth plan
Don Strand	City Manager	Port Alsworth plan
Greg Anelon	City Manager	Port Alsworth plan
Carrie Harried	City Manager	Port Alsworth plan
Barbara Chestler	City Manager	Pilot Point plan
Angela Simpson	City Administrator	Port Heiden plan
Beth Hill	Port Alsworth Improvement Corporation	Port Alsworth plan
Scott Simmons	AECOM, Project Manager	MJHMP update manager, lead writer, and MJHMP project coordination.
Eileen Bechtol	BP&D/Community Planner	MJHMP update, project planner

Each community organized their own Planning Team; Port Alsworth Planning Team is shown on Table 2 below.

Table 2 Port Alsworth Planning Team

Team Member	Title	Involvement
Beth Hill	PA Administrator	Planning Team Leader
Mark Lang	PA Corporation Member	Planning Team
Ranya Aboras	LPB Community Development Planner	MJHMP Team Leader, data gathering and plan review
Scott Simmons	AECOM, Project Manager	MJHMP update manager, lead writer, and MJHMP project coordination.
Eileen Bechtol	BP&D/Community Planner	MJHMP update, project planner

2.3 Public Involvement & Opportunity for Interested Parties to participate

AECOM extended an invitation to all individuals and entities identified on the project mailing list described the planning process and announced the upcoming communities' planning activities. The announcement was emailed to relevant academia, nonprofits, and local, state, and federal agencies on November 20, 2014. The list of the agencies and organization is invited to participate and review the MJHMP.

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Table 3 lists the community's public involvement initiatives focused to encourage participation and insight for the MJHMP effort.

Table 3 Public Involvement Mechanisms

Mechanism	Description
Newsletter #1 Distribution (February 2015)	In February and March 2015, the jurisdiction distributed a newsletter introducing the upcoming planning activity. The newsletter encouraged the community to provide hazard and critical facility information. It was posted at the Community offices, bulletin boards, and Borough website to enable the widest dissemination.
Agency Involvement eMail (November 20, 2014)	Invited agencies to participate in mitigation planning effort and to review applicable newsletters located on the DHS&EM Local/Tribal All Hazard Mitigation Plan Development website at: http://ready.alaska.gov/plans/localhazmitplans.htm
Planning Team Meeting (March 24, 2015)	Finalized infrastructure table and reviewed mitigation plans.
Newsletter #2 Distribution (April 2015)	In April 2015, the jurisdiction distributed a second newsletter describing the MJHMP and the community specific draft plan availability and present potential MJHMP projects for review. The newsletter encouraged the community to provide comments or input. It was posted at the community office, and disseminated.
Public Meeting (April 6, 2015 LPB PC Meeting)	Notice of the April 6, 2015 meeting to introduce the MJHMP was posted at Borough Hall, and distributed to communities using their usual public notice procedures.
Public Meeting (May 11, 2015 LPB PC Meeting)	Notice of the May 11, 2015, meeting was posted at Borough Hall, and distributed to communities using their usual public notice procedures.
Planning Team Review of Port Alsworth Draft (May 21, 2015)	Notice of the May 21, 2015 meeting to review the draft was distributed in the community.

2.4 Review and analysis of the Legacy 2009 MJHMP.

The Legacy 2009 Port Alsworth portion of the MJHMP was revised as described below.

- Section 1. **Community Description:** reviewed and updated community information.
- Section 2. **Planning Process:** updated this section to reflect 2015 public process including newsletters, public meetings and 2015 Planning Team.
- Section 3. **Plan Adoption:** 2015 resolutions and dates.
- Section 4. **Hazard Identification & Risk Assessment:** reviewed hazard identification and risk assessment adding 2009 to 2015 descriptions and data. The Legacy 2009 HMP did not identify earthquake, ground failure or volcanic ash as a hazard, so was added to the 2015 HMP.
- Section 5. **Vulnerability Analysis:** added a new section to analyze vulnerability with 2015 critical facilities and infrastructure tables.
- Section 7. **Mitigation Strategy:** reviewed 2009 mitigation goals and actions and added new goals and action for the 2015 Mitigation Action Plan.

The Planning Team did not complete their designated annual HMP reviews or plan maintenance activities. Therefore it became a primary consideration to update the existing 2009 HMP to include hazards that have, or could potentially have, impacted the community during the legacy HMP's 5-year lifecycle.

Planning Team identified HMP components that necessitated information update. The Team determined how community changes, construction and infrastructure conditions, climate change

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impacts, and population increases or decreases have influenced hazard risks and/or facility vulnerabilities.

The 2015 HMP Update process included inviting new and existing stakeholders to review the existing HMP to determine what was accomplished versus what was intended to accomplish.

2.5 Incorporation of Existing Plans and Other Relevant Information

During the planning process, the Planning Team reviewed and incorporated information from existing plans, studies, reports, and technical reports into the MJHMP.

LPB MJHMP Table 3-3 lists existing plans and other documents that were available regarding the LPB and Port Alsworth and were reviewed and used as references for the jurisdiction information and hazard profiles in the risk assessment of the MJHMP for the Borough and Port Alsworth.

2.6 Plan Maintenance

This section in the MJHMP describes a formal plan maintenance process to ensure that the MJHMP remains an active and applicable document. It includes an explanation of how the Borough's Planning Team intends to organize their efforts to ensure that improvements and revisions to the MJHMP occur in a well-managed, efficient, and coordinated manner.

The following three process steps are addressed in detail in the Borough Plan:

1. Implementation into existing planning mechanisms
2. Continued public involvement
3. Monitoring, reviewing, evaluating, and updating the MJHMP

The Community will follow the same procedure as set forth in the LPB MJHMP.

3. Plan Adoption

Section Three is included to fulfill the community of Port Alsworth MJHMP adoption requirements.

3.1 Adoption by Local Governing Bodies and Supporting Documentation

The requirements for the adoption of this MJHMP by the local governing body are stipulated in the DMA 2000.

Because Port Alsworth does not have either a Community or tribal government, the DHSEM will be responsible for final adoption Port Alsworth portion of the MJHMP.

The Borough is represented in this MJHMP and meets the requirements of Section 409 of the Stafford Act and Section 322 of DMA 2000, and 44 CFR §201.6(c)(5).

The LPB Borough Assembly and cities' council's formal adoption resolutions and Port Allworth's letter stating compliance with MJHMP initiatives were submitted with the final draft MJHMP to FEMA for formal approval.

A scanned copy of the Borough's and Cities formal adoption resolutions are included in Appendix C of the LPB MJHMP.

A scanned copy of the formal resolutions of adoption by the LPB and cities and Port Alsworth

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approval letter from DHSEM are included in the MJHMP Appendix C.

4. Hazard Profile Analysis

Section Four identifies and profiles the hazards that could affect Port Alsworth.

Site visits, public meetings, and evaluation of historical information indicate that earthquake, flooding (particularly erosion), volcano, weather (severe) and wildland fire natural hazards are present in the community of Port Alsworth.

Hazard identification and risk assessment for these natural hazards are contained in this section, specific to Port Alsworth. The Community does not have a risk of tsunami.

The hazards profiled in the LPB MJHMP and the Port Alsworth HMP indicates that the entire Community is at risk for each of the profiled hazards.

4.1 Earthquake

4.1.1 History

The following Table 4 lists 39 historical earthquakes over M5 with the largest one (M6.8) occurring on July 28, 2001. Source: USGS *NEIC Historic Earthquake Search*

Table 4 1978 to 2015 Historical Earthquakes in Port Alsworth

Date	Time	Latitude	Longitude	Depth	Magnitude
07/28/01	7:32:43	59.025	-155.116	131.3	6.8
02/07/88	8:46:59	60.296	-152.972	137.5	6.5
07/09/98	19:39:44	60.53	-153.219	144.8	6.2
05/19/00	20:34:26	59.204	-153.139	79.5	5.9
11/20/93	19:24:54	60.025	-153.003	116.3	5.9
01/24/09	18:09:51	59.43	-152.887	97.9	5.8
05/10/14	14:16:09	60.0035	-152.1323	91.1	5.6
02/12/95	20:13:37	59.436	-153.127	110.5	5.6
05/12/92	3:39:31	59.691	-153.482	138.8	5.6
07/25/87	1:11:49	60.155	-153.771	166.6	5.6
03/23/84	8:38:06	58.978	-154.153	118.7	5.6
05/19/05	1:12:30	60.018	-152.693	95.5	5.5
01/25/01	5:29:38	60.114	-152.363	86.9	5.5
10/17/96	15:38:21	60.113	-152.953	117.1	5.5
08/13/90	23:04:21	60.115	-152.006	87.6	5.5
01/25/79	19:30:06	60.131	-153.121	105	5.5
03/20/89	1:06:33	59.883	-153.692	126.5	5.4
08/06/83	16:33:58	60.529	-153.129	137.9	5.4
08/18/78	18:52:28	59.885	-153.532	123	5.4
02/12/78	8:56:39	59.448	-152.622	72	5.4

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Date	Time	Latitude	Longitude	Depth	Magnitude
05/30/04	11:03:27	61.059	-152.211	126.7	5.3
04/18/99	15:05:58	60.387	-151.852	73.4	5.3
03/09/90	12:34:03	60.307	-152.286	84.9	5.3
03/10/13	17:11:04	59.3147	-154.2182	8.3	5.2
09/10/02	9:42:04	59.997	-152.882	117.2	5.2
03/19/93	12:20:51	59.539	-152.874	104.1	5.2
08/01/81	1:42:16	60.136	-153.185	114	5.2
12/18/09	3:33:14	59.044	-153.401	80.7	5.1
03/14/08	9:38:22	61.073	-152.64	143.7	5.1
04/19/91	18:19:25	59.99	-153.34	134.2	5.1
04/18/84	19:31:29	60.833	-152.067	95	5.1
01/13/13	12:44:08	60.528	-152.885	135	5
01/06/12	23:37:45	59.852	-153.232	136.1	5
09/15/10	16:06:42	59.861	-153.176	121	5
02/23/09	0:04:27	58.916	-153.626	87.8	5
11/09/08	23:36:58	59.997	-153.019	127.1	5
07/14/82	12:15:48	60.514	-153.67	157	5
03/21/81	23:01:37	58.97	-154.697	136	5
08/12/80	14:44:28	59.98	-152.845	110	5

4.1.2 Location, Extent, Impact and Probability of Future Events

Location

The entire community of Port Alsworth is at risk for earthquake damages.

Extent

Based on historic earthquake events and the criteria identified in the LPB MJHMP Table 5-2, the magnitude and severity of earthquake impacts in the Borough are considered “Limited” with potential injuries and/or illnesses that do not result in permanent disability; critical facilities could expect to be shut-down for more than two weeks; and more than 10 percent of property severely damaged with limited long-term damage to transportation, infrastructure, or the economy.

Impact

Impacts to the community such as significant ground movement that may result in infrastructure damage are not expected. Minor shaking may be seen or felt based on past events. Impacts to future populations, residences, critical facilities, and infrastructure are anticipated to remain the same. Damage could be caused to homes and the Community infrastructure such as the Community water plant or the Community Dock, which could halt the use of the dock and supply of resources during summer months.

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Probability of Future Events

Probability of earthquake with M > 5.0 within 50 years & 50 km

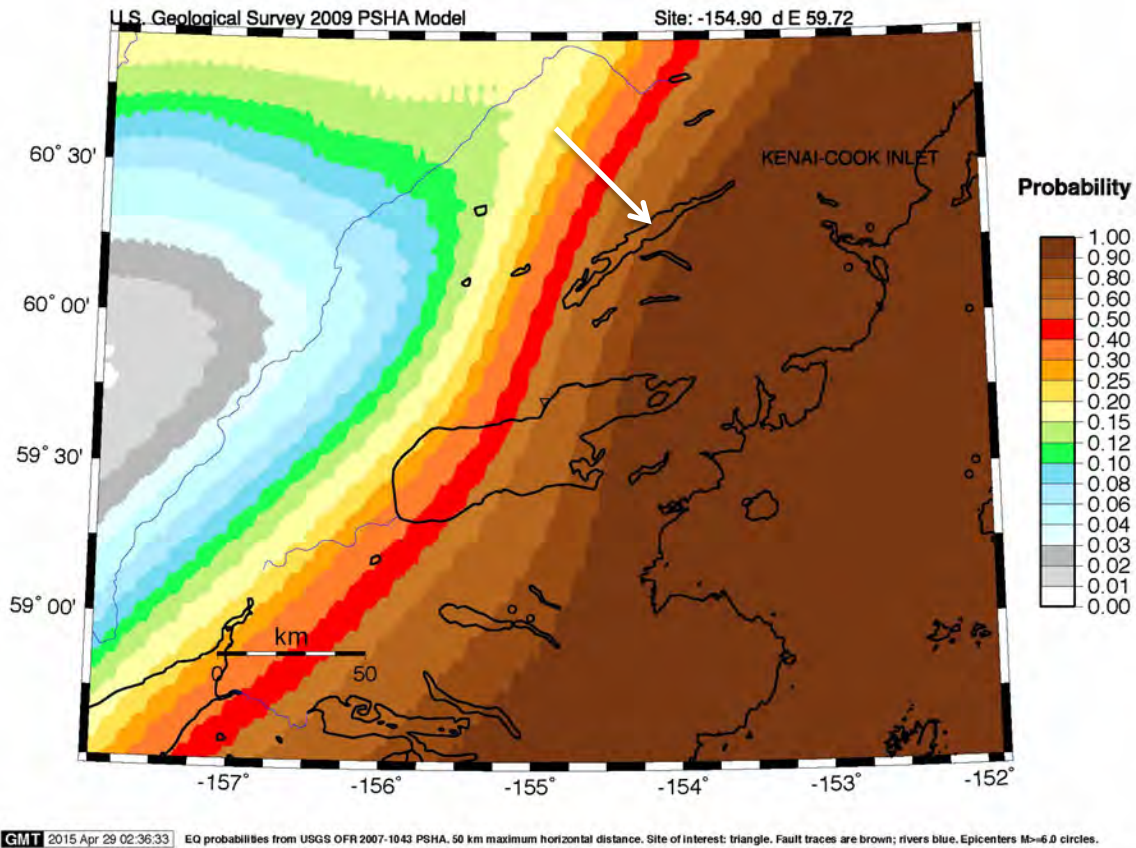


Figure 2 Probability of earthquake in Port Alsworth (USGS 2015)

Based on past events and the USGS Shake Map above, the probability of an event occurring is “Highly Likely”. The event is probable within the calendar year and has up to a 1 to 1 year chance of occurring (1/1=100 percent). History of events is great than 33 percent likely per year. Event is “Highly Likely” to occur.

4.2 Flood

4.2.1 History

The Tanalian River, like most Alaskan riverine waterways, is subject to evolution in its route. The river constantly changes course. Currently, several homes are located in the floodplain of the river, which, during its flood stages, has washed out power poles and phone lines. The power and telephone supplies are vulnerable to flood damages, and the entire community has lost power during flood events. Residents report that approximately every ten years there is a significant flooding event that causes disruptions in power supply. More details about previous occurrences are not available as detailed records have not been kept in the community. Flood mapping is necessary to determine precise locations of flood-prone properties.

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4.2.2 Location, Extent, Impact and Probability of Future Events

Location

For purposes on this plan the entire community of Port Alsworth is at risk of flooding.

Extent

Port Alsworth could experience lake flooding and moderate high water flow flood erosion impacts. Therefore, based on past high water flow event history and the criteria identified in LPB MJHMP Table 5-2, the extent of flooding and resultant damages to infrastructure and their protective embankments in the Community are considered “Limited” where critical facilities would shut-down for more than one week or less with more than 10 percent of property severely damaged.

Impact

Floods also result in economic losses through business and government facility closure, communications, utility (such as water and sewer), and transportation services disruptions. Floods result in excessive expenditures for emergency response, and generally disrupt the normal function of a community.

Probability of Future Event

Based on criteria established on Table 5-3 in the LPB MJHMP is probable a flood event may occur within the next five years (event has up to 1 in 5 chance of occurring). Based on the probability matrix on the history of the event occurring is more than 10% but less than or equal to 20% in a calendar year. Event could “Possibly” occur.

4.3 Volcano

4.3.1 History

Residents indicate that the proximity to active volcanoes is the hazard they most concerned about. The massive 1912 eruption of Novarupta and other active volcanoes in Katmai National Park along with the 1953 Iliamna and 1989 Mt. Redoubt activity emphasis the ongoing risk posed by volcanoes to Port Alsworth.

4.3.2 Location, Extent, Impact and Probability of Future Events

Location

The entire Community of Port Alsworth is at risk of impacts from volcanic ash fall out.

Extent

Based on the devastation of past volcanic events in the world and the criteria identified in Table 5-2, the magnitude and severity of impacts in the Borough are considered critical in that more 25 percent of property could be damaged. Injuries and/or illnesses result in permanent disability and complete shutdown of critical facilities for at least two weeks.

Impact

Not only can secondary effects such as ash fall cause temporary aviation access delays, but the ash fall could cause harm to the king salmon fishery near the village. Port Alsworth’ isolated location places the community at risk by disrupting travel should any eruption take place. The impacts of a volcanic event could make the community vulnerable to economic losses through closure of businesses and government facilities, disruption in communications, disruption of the provision of utilities such as water and sewer services.

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Probability of Future Events

Volcanoes can erupt at any time, but the AVO monitors all active volcanoes sufficiently to allow enough warning time for communities to be prepared.

Volcanic eruptions can occur at any time and, because of the existence of so many active volcanoes within the Borough, can be considered a certainty.

Based on the history of volcanoes in the Borough area and applying the criteria identified in Table 5-3, it is possible a ash fall event will occur within in the next five years. The event has up to 1 in 5 years chance of occurring (1/5=20 percent) and the history of events is equal to or over 10 percent but less than or equal to 20 percent likely each year. Event is "Possible".

4.4 Weather (Severe)

4.4.1 History

Severe weather impacts the community of Port Alsworth in the form of damages to electrical supply infrastructure. Severe weather in the form of high winds impacts the community approximately twice a year. Residents have noted that 70 to 100 mph high winds occur often enough that most structures in the must be built to withstand the winds. The temperature has been recorded as low as -40F.

4.4.2 Location, Extent, Impact and Probability of Future Events

Location

The entire Community of Port Alsworth is at risk of a severe winter event.

Extent

Based on past severe weather events and the criteria identified in LPB MJHMP Table 5-2, the extent of severe weather in the Borough are considered limited where injuries do not result in permanent disability, complete shutdown of critical facilities occurs for more than one week, and more than 10 percent of property is severely damaged.

Impact

The intensity, location, and the land's topography influence a severe weather event's impact within a community. Hurricane force winds, rain, snow, and storm surge can be expected to impact the entire Borough.

Heavy snow can immobilize a community by bringing transportation to a halt. Until the snow can be removed, airports and roadways are impacted, even closed completely, stopping the flow of supplies and disrupting emergency and medical services. Accumulations of snow can cause roofs to collapse and knock down trees and power lines. Heavy snow can also damage light aircraft and sink small boats. A quick thaw after a heavy snow can cause substantial flooding. The cost of snow removal, repairing damages, and the loss of business can have severe economic impacts on cities and towns. Injuries and deaths related to heavy snow usually occur as a result of vehicle and or snow machine accidents. Casualties also occur due to overexertion while shoveling snow and hypothermia caused by overexposure to the cold weather.

Extreme cold can also bring transportation to a halt. Aircraft may be grounded due to extreme cold and ice fog conditions, cutting off access as well as the flow of supplies to communities. Long cold spells can cause rivers to freeze, disrupting shipping and increasing the likelihood of ice jams and associated flooding.

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Extreme cold also interferes with the proper functioning of a community's infrastructure by causing fuel to congeal in storage tanks and supply lines, stopping electric generation. Without electricity, heaters and furnaces do not work, causing water and sewer pipes to freeze or rupture. If extreme cold conditions are combined with low or no snow cover, the ground's frost depth can increase, disturbing buried pipes. The greatest danger from extreme cold is its effect on people. Prolonged exposure to the cold can cause frostbite or hypothermia and become life threatening. Infants and elderly people are most susceptible. The risk of hypothermia due to exposure greatly increases during episodes of extreme cold, and carbon monoxide poisoning is possible as people use supplemental heating devices.

Probability of Future Events

Based on previous occurrences and the criteria identified in LPB MJHMP Table 5-3, it is likely a severe storm event will occur in the next three years (event has up to 1 in 3 years chance of occurring) as the history of events is greater than 20 percent but less than or equal to 33 percent likely per year. Event is "Likely".

4.5 Wildland Fire

4.5.1 History

Port Alsworth is located in a heavily forested area, which has been subject to the same spruce bark beetle outbreak that has plagued other parts of Southcentral Alaska. Standing dead spruce from the beetle outbreak and from a past fire has created a very heavy fire fuel load and little defensible space. The community has done some thinning of fuels, but has no way to dispose of the slash. The last large fire was in 1953.

Open burn barrels are a concern in regards to fire ignition, because this is the primary way in which the community disposes of trash. The community does not have a landfill or burn box.

4.5.2 Location, Extent, Impact and Probability of Future Events

Location

Under certain conditions wildland fires may occur in any area with fuel surrounding the community of Port Alsworth. Since fuels data is not readily available, for the purposes of the plan, all areas surrounding the community are considered to be vulnerable to wildland fire impacts.

Extent

Based on the number of past wildland fire events and the criteria identified in LPB MJHMP Table 5-2 and the magnitude and severity of impacts in the Community are considered critical in that more 10 percent of property could be damaged.

Impact

Impacts of a wildland fire that interfaces with the population center of Port Alsworth could grow into an emergency or disaster if not properly controlled. A small fire can threaten lives and resources and destroy property. In addition to impacting people, wildland fires may severely impact livestock and pets. Such events may require emergency watering and feeding, evacuation, and alternative shelter. Indirect impacts of wildland fires can be catastrophic.

In addition to stripping the land of vegetation and destroying forest resources, large intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and enhance siltation of rivers and stream, thus increasing flood potential, harming aquatic life, and degrading water quality.

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The impacts of a wildfire event could make the community vulnerable to economic losses through closure of businesses and government facilities, disruption in communications, disruption of the provision of utilities such as water and sewer services.

Future Event Probability

Based on previous occurrences and applying the criteria identified in the probability matrix, it is a high chance that wildland fire will occur in the next three years (event has up to 1 in 3 years chance of occurring) as the high chance of the event occurring and the history of the event will be greater than 33% in a calendar year

Climate change and flammable vegetation species are prolific throughout Alaska's forests and tundra locations. Fire frequency may increase in the future as a result. Event is "Likely".

5. Vulnerability Analysis

Section Five outlines the vulnerability process for determining potential losses for the community from various hazard impacts.

Table 5 lists Port Alsworth infrastructures' hazard vulnerability.

Table 5 Port Alsworth Infrastructures' hazard vulnerability.

Hazard	Area's Hazard Vulnerability			
	Percent of Jurisdiction's Geographic Area	Percent of Population	Percent of Building Stock	Percent of Critical Facilities and Utilities
Earthquake	100	100	100	100
Flood	100	100	100	100
Volcano	100	100	100	100
Weather	100	100	100	100
Wildland Fire	100	100	100	100

5.1 Existing Critical Facilities in Port Alsworth

A critical facility is defined as a facility that provides essential products and services to the general public, such as preserving the quality of life in the Community and fulfilling important public safety, emergency response, and disaster recovery functions. The critical facilities profiled in this plan include the following:

- There are no government facilities in Port Alsworth
- Emergency response facilities, including police department and firefighting equipment
- Educational facilities, including K-12
- Care facilities, such as medical clinics, congregate living health, residential and continuing care, and retirement facilities
- Community gathering places, such as community and youth centers

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- Utilities, such as electric generation, communications, water and wastewater treatment, sewage lagoons, landfills.

There is limited GIS data available for the Community of Port Alsworth. Table 6 contains the City's critical facilities and infrastructure data this information was obtained from the Planning Team during a teleconference.

Because Port Alsworth is not a municipal government or a tribal organization there are very few public facilities or infrastructure. There is very little data available on the structures there in the community.

Table 6 Port Alsworth Critical Facilities and Infrastructure

Facility Type	Estimated No. of Occupants	Facilities	Street Address	Latitude	Longitude	Estimated Value	Building Type	Earthquake	Flood	Volcano	Weather Severe	Wildland Fire
Government	No government or tribal organizations											
Transportation	No public owned transportation facilities. Two privately owned airstrips, no information available of value.											
EMT	No emergency response facilities.											
ED	NA	School	NA	NA	NA	NA	NA	X	X	X	X	X
MED	NA	Health Clinic	NA	NA	NA	NA	NA	X	X	X	X	X
Community	Information from community is that there are ten people in three community facilities (approximate value NA*)											
Utilities	NA	Generator, Backup	Located by the School	NA	NA	\$100,000	NA	X	X	X	X	X
	No	Powerhouse	NA	NA	NA	\$1,900,000	NA	X	X	X	X	X

(Port Alsworth Improvement Corporation)

Specific to Port Alsworth the natural hazards of earthquake, flood, volcano, weather (severe) and wildfire are at equal risk to the entire community. This includes approximately:

- 179 people in 44 residences (approximate value \$13,200,000)
- 0 people in zero government and emergency response facilities
- NA* people in one educational facility (approximate value *NA)
- 0 people in zero health center facility
- 10 people in three community facilities (approximate value NA*)

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- NA* people in two utility facilities (approximate value \$2,000,000)

* NA data not available

5.2 Future and Planned Development in Port Alsworth.

There are no significant future or planned development to record in Port Alsworth. The Community anticipates that impacts to future populations, residential structures, critical facilities, and infrastructure will be at the same historical impact level.

Figure 3 illustrates the land use in Port Alsworth.

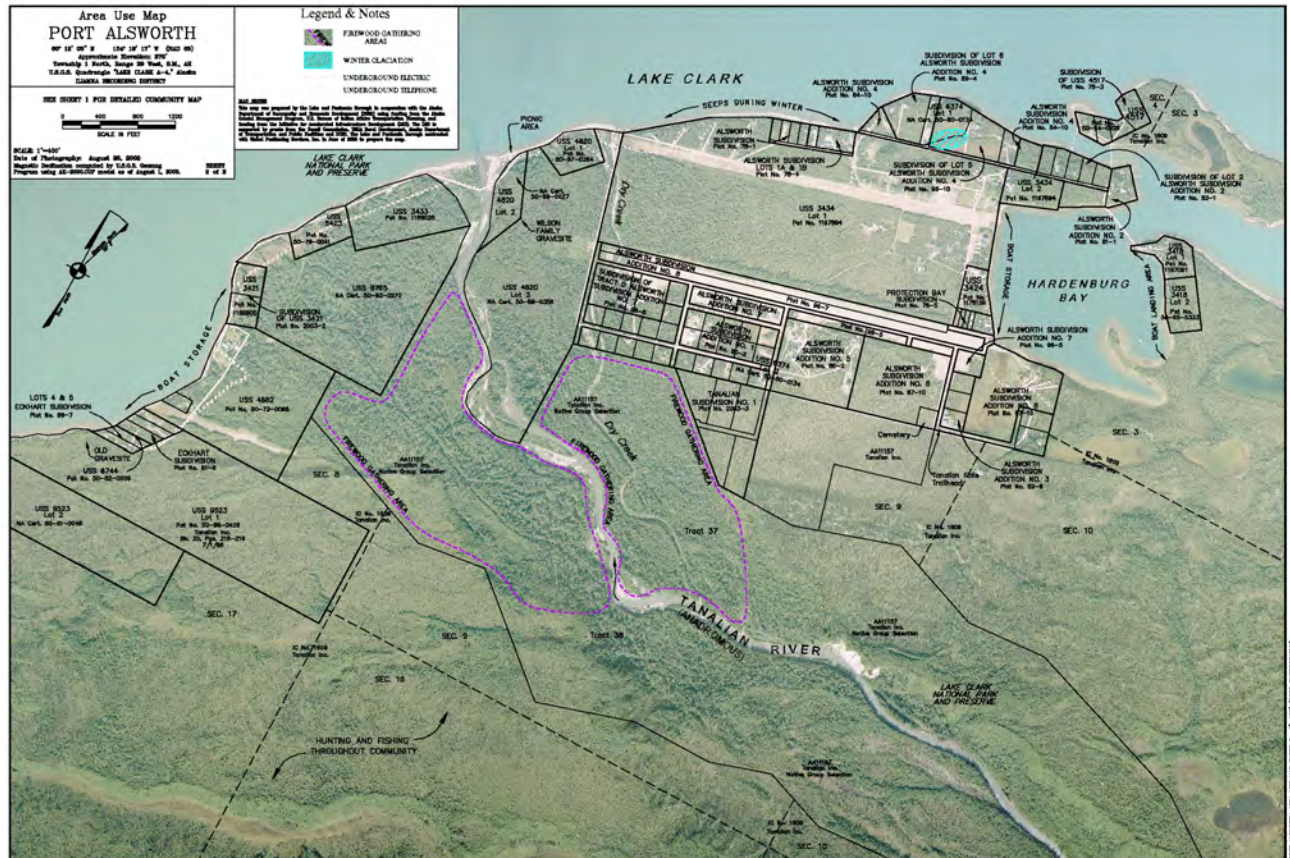


Figure 3 Port Alsworth Land Use Map

5.3 NFIP Participation and Repetitive Loss Properties

The City of Port Alsworth is not a participating community in the NFIP and therefore does not have any repetitive loss properties.

The Borough has participated in the NFIP since an emergency entry date of March 4, 2004 and a regular entry date of February 3, 2010.

The LPB has no repetitive loss properties and no claims for flood insurance.

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6. Port Alsworth Mitigation Strategy

Section Six outlines Port Alsworth mitigation strategy including:

1. Identifying the City's existing authorities for implementing mitigation action initiatives
2. Developing Mitigation Goals
3. Identifying Mitigation Actions
4. Evaluating Mitigation Actions
5. Implementing the Mitigation Action Plan (MAP)

6.1 Port Alsworth Capability Assessment

The City's capability assessment reviews the technical and fiscal resources available to the community.

This section outlines the resources available to the Borough for mitigation and mitigation related funding and training. Tables 7, 8, and 9 delineate the City's regulatory tools, technical specialists, and financial resource available for project management. Additional funding resources are identified in Appendix A.

Table 7 Port Alsworth Regulatory Tools.

Regulatory Tools (ordinances, codes, plans)	Existing Yes/No?	Comments (Year of most recent update; problems administering it, etc.)
Comprehensive Plan	Yes	As part of the LPB plan, each community has a brief Community Action Plan.
Land Use Plan	Yes	Describes the City's community development goals and initiatives as part of the Comprehensive Plan – Community Action Plan
Tribal Land Use Plan	Yes	Describes the Village's community development goals and initiatives as part of the Comprehensive Plan – Community Action Plan
Emergency Response Plan	Yes	Emergency Operation Plan, 2010 (as part of the Borough Plan)
Wildland Fire Protection Plan	No	PA is not a municipal government or a tribal organization.
Building code	No	
Zoning ordinances	No	
Subdivision ordinances or regulations	No	
Special purpose ordinances	No	

Local Resources

The City relies upon the LPB for most of their planning and land management tools that allow it to implement hazard mitigation activities. The resources available in these areas have been assessed by the hazard mitigation Planning Team, and are summarized below.

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Table 8 Technical Specialists for Hazard Mitigation.

Staff/Personnel Resources	Yes / No	Department/Agency and Position
Development and land management practices	Yes	LPB Community Development Planner
Planner or engineer with an understanding of natural and/or human-caused hazards.	Yes	LPB Community Development Planner
Floodplain Manager	No	Not a NFIP participating community.
Surveyors	Yes	PA hires consultants when they need a surveyor.
Staff with education or expertise to assess the jurisdiction's vulnerability to hazards.	Yes	LPB Community Development Planner
Personnel skilled in Geospatial Information System (GIS) and/or Hazards Us-Multi Hazard (Hazus-MH) software	Yes	LPB Community Development Planner
Scientists familiar with the hazards of the jurisdiction	No	PA works with U.S. Fish & Wildlife Service (USFWS) and Fish & Game (ADF&G), and the Alaska Department of Transportation and Public Facilities
Emergency Manager	Yes	LPB Community Development Planner
Finance (Grant writers)	Yes	LPB Community Development Planner and community representatives
Public Information Officer	Yes	PA Improvement Corporation Administrator

Table 9 Port Alsworth Financial Resources

Financial Resource	Accessible or Eligible to Use for Mitigation Activities
General funds	No
Municipal Energy Assistance Program (MEAP)	No
Community Development Block Grants (CDBG)	No
Capital Improvement Project Funding	No
Authority to levy taxes for specific purposes	No
Incur debt through general obligation bonds	No
Incur debt through special tax and revenue bonds	No
Incur debt through private activity bonds	No
Financial Resource	Accessible or Eligible to Use for Mitigation Activities
Hazard Mitigation Grant Program (HMGP)	FEMA funding which is available to local communities after a Presidentially-declared disaster. It can be used to fund both pre- and post-disaster mitigation plans and projects.
Pre-Disaster Mitigation (PDM) grant program	FEMA funding which available on an annual basis. This grant can only be used to fund pre-disaster mitigation plans and projects only
Flood Mitigation Assistance (FMA) grant program	No, not a NFIP participating community.
United State Fire Administration (USFA) Grants	The purpose of these grants is to assist state, regional, national or local organizations to address fire prevention

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	and safety. The primary goal is to reach high-risk target groups including children, seniors and firefighters.

6.2 Mitigation Goals

The Planning Team developed the mitigation goals and potential mitigation actions to address identified potential hazard impacts for the City within Section 4.

The exposure analysis results were used as a basis for developing the mitigation goals and actions. Mitigation goals are defined as general guidelines that describe what a community wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing community-wide visions. As such, six goals were developed to reduce or avoid long-term vulnerabilities to the identified hazards (Table 9).

Table 10 City of Port Alsworth Mitigation Goals

No.	Goal Description
Multi-Hazards (MH)	
MH 1	Promote recognition and mitigation of all natural and manmade hazards that affect Port Alsworth.
Natural Hazards	
EQ 2	Reduce structural vulnerability to earthquake (ER) damage.
FL 3	Reduce flood and erosion (FL) damage and loss possibility.
VO 4	Reduce vulnerability, damage, or loss of structures from volcanic debris impacts
W(S) 5	Reduce structural vulnerability to severe weather (SW) damage.
WF 6	Reduce structural vulnerability to Tundra/Wildland Fire (WF) damage.

6.3 Identifying Mitigation Actions

The Planning Team assessed the potential mitigation actions to carry forward into the mitigation strategy. Mitigation actions are activities, measures, or projects that help achieve the goals of a mitigation plan. Mitigation actions are usually grouped into three broad categories: property protection, public education and awareness, and structural projects.

During the planning process November 2014 through May 2015 the Planning Team selected City natural hazard, mitigation actions for potential Mitigation Action Plan (MAP) implementation during the five-year life cycle of this HMP. The Planning Team placed particular emphasis on projects and programs that reduce the effects of hazards on both new and existing buildings and infrastructure as well as facilities located in potential flood zones to comply with NFIP requirements.

Table 10 breaks out the project criteria as considered, selected, and ongoing. The Planning Team considered projects from a comprehensive list for earthquake, flood, volcano, weather (severe) and wildfire. They identified numerous “ongoing” mitigation actions currently in process or those that were listed in other City planning documents. The Planning Team then selected “newly identified” actions identified through this plan development activity that would most benefit the community.

Community of Port Alsworth Hazard Mitigation Plan Update

Table 11 Community of Port Alsworth Mitigation Plan and Potential Actions

Supports Goal No.	Description	Criteria <i>New Actions:</i> <i>Considered</i> <i>Selected</i> <i>Legacy Plan</i> <i>Actions:</i> <i>Ongoing</i> <i>Not Completed</i> <i>Completed</i> <i>Delete</i>	Description
MH 1	Promote recognition and mitigation of all natural and manmade hazards that affect the Lake and Peninsula (Borough).	C-S	Improve ability to self-sustain during periods of isolation Store in town extra food, emergency back up generator, and extra water.
EQ 2	<i>Reduce structural vulnerability to earthquake (ER) damage.</i>	C-S	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.
		C-S	Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.
FL 3	<i>Reduce vulnerability, damage, or loss of structures from erosion.</i>	O-NC	Improve electrical supply infrastructure in regards to flood vulnerability. <i>The PA Corporation has secured a grant for ongoing project.</i>
		Delete	Bank stabilization and flood control. <i>Not needed</i>
VO 4	Reduce vulnerability, damage, or loss of structures from volcanic debris impacts	C-S	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.
SW 5	Reduce structural vulnerability to severe weather (SW) damage.	C-S	Develop alternative energy source
WF 6	Reduce structural vulnerability to Tundra/Wildland Fire (WF) damage.	O-NC	Obtain wood chipper for disposal of slash. <i>Not completed and still very much needed.</i>
		O	Construction of fire breaks around community and structures. <i>Ongoing annual mitigation action.</i>

6.4 Mitigation Action Plan

Port Alsworth Mitigation Action Plan, Table 1, depicts how each mitigation action will be implemented and administered by the Planning Team. The MAP delineates each selected mitigation action, its priorities, the responsible entity, the anticipated implementation timeline, and provides a brief explanation as to how the overall benefit/costs and technical feasibility were taken into consideration.

Community of Port Alsworth Hazard Mitigation Plan Update

Table 12 Community of Port Alsworth Mitigation Action Plan (MAP)

Goal/ Action ID	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years 2-4 Years 3-5 Years)	Benefit-Costs (BC) / Technical Feasibility (T/F)
MH 1.1	Improve ability to self-sustain during periods of isolation Store in town extra food, emergency back up generator, and extra water.	High	PA Imp. Corp Administrator LPB Planner	PA LPB	1-3	B/C: This ongoing activity is essential for the Borough as there are limited funds available to accomplish effective mitigation actions. T/F: This activity is ongoing demonstrating its feasibility.
EQ 2.1	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.	High	PA Imp. Corp Administrator LPB Manager	PA, LPB, HMA, NRCS, ANA, USACE, US USDA, Lindbergh	1-3 years	B/C: This project would ensure threatened infrastructures are available for use – their loss would exacerbate potential damages and further threaten survivability. T/F: This project is feasible using existing staff skills, equipment, and materials.
EQ 2.2	Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.	High	PA Imp. Corp Administrator LPB Manager	PA, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
FL 3.1	Improve electrical supply infrastructure in regards to flood vulnerability. (The PA Corporation has secured a grant ongoing project.)	High	PA Imp. Corp Administrator	PA, AEA, Pebble Project, TE, PARK SERVICE	1-3 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in.

Community of Port Alsworth Hazard Mitigation Plan Update

VO 4.1	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.	Medium	PA Imp. Corp Administrator	PA, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
SW 5.1	Research alternative energy sources.	High	PA Imp. Corp Administrator	PA, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	3-5 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
WF 6.1	Obtain wood chipper for disposal of slash.	High	PA Imp. Corp Administrator	PA, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA	1-3 years	B/C: This action has a high/cost benefit ratio. T/F: The LPB has the skill to implement this action.
WF 6.2	Brush cutting and thinning for defensible space and firebreaks around structures and community.	High	PA Imp. Corp Administrator Community Volunteers	PA, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: This action has a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.

7. References

Section Eight provides a comprehensive reference list used to develop the MJHMP.

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From: [Eileen Bechtol](#)
To: lakeclarkmark@gmail.com
Cc: [Ranya Aboras](#)
Subject: FW: Port Alsworth HMP Update
Date: Wednesday, March 18, 2015 8:36:15 AM
Attachments: [Port Alworth CriticalFacility-HazardsSpreadsheet.xlsx](#)
[2-14-15 Port Alsworth Newsletter.pdf](#)
[2-14-15 Port Alsworth Newsletter.pdf](#)

Hi Mark:

This is a follow up to our telephone conversation yesterday. Below is an explanation of the project of updating Port Alsworth's Hazard Mitigation Plan, which was initially approved in 2009.

Attached is a critical facilities table that I need help filling out, a newsletter that I sent Beth on 2/14 /15 and your section of the LPB HMP Plan. I need to talk to someone about what mitigation projects have been accomplished, deferred, deleted or ongoing. I also need a list of any new development that has occurred since the 2009 HMP.

It is vital that I talk to someone from the community since the draft plan will be introduced at the LPB Planning Commission on 4/6/15.

Thank you for helping to facilitate my contact with Beth Hill or anyone else from the community that would work with us on this project.

If you have any questions, please do not hesitate to contact me.

Thanks for your time.

Eileen Bechtol

From: Eileen Bechtol <erbechtol@gmail.com>

Date: Friday, March 13, 2015 at 11:45 AM

To: Beth Hill <portalsworth@gmail.com>

Subject: FW: Port Alsworth HMP Update

Hello Ms. Hill:

I have been trying to reach you. Kate Hill said you were the person to work with on this plan. Attached is a table that I need help filling out, the critical facilities are the ones on Page 2 of the newsletter. I will call you on 3/17 at 3:30 pm. If that does not work, please let me know.

Thank you very much in advance for your time.

Eileen Bechtol

Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work."

— Daniel Hudson Burnham (1846-1912)

Bechtol Planning & Development

Eileen R. Bechtol, AICP

P.O. Box 3426

Homer, Alaska 99603

Phone: 907.399.1624

Email: erbechtol@gmail.com

From: Eileen Bechtol <erbechtol@gmail.com>
Date: Friday, February 20, 2015 at 11:41 AM
To: Beth Hill <portalsworth@gmail.com>
Subject: Port Alsworth HMP Update

Hello Ms. Hill

I am writing to introduce myself, Eileen R. Bechtol, I am a subcontractor for Scott Simons, AECOM (formerly known as URS Corporation). AECOM contracted by the Division of Homeland Security and Emergency Management (DHS&EM) to develop a Hazard Mitigation Plan Update for seven Alaska jurisdictions. The Community of Port Alsworth is one of the selected jurisdictions.

Your name was given to me as the contact person for Port Alsworth. If this something I should discuss with someone else please forward this email to that person. Thank you.

It is important to note that the Community of Port Alsworth does not have to pay anything for this project. This is an important project funded by FEMA through the DHS&EM. AECOM have worked with rural communities to assist them with their hazard mitigation plan development needs. In fact, URS has been developing HMPs nationwide since 2000. Our Alaska office has completed approximately 90 State, Borough (County) and local community, State reviewed, and FEMA approved Hazard Mitigation Plans to-date. I also have written several Hazard Mitigation Plans in Alaska.

HMP updates require reviewing current plans to identify how conditions have changed since the plan was last approved. For example, the current plan's plan development activities may change such as planning team membership; new plans, reports, and studies reviewed, new hazards identified and newly disaster impacts annotated. These changes could directly change identified planning community vulnerabilities and risks. This requires that the current Mitigation Strategy be reviewed and updated to identify current project's status. Were any projects completed or do they need to be modified, merged with similar initiatives for the same impact or location, deleted because they are no longer deemed the most appropriate mitigation initiative, or changed to reflect new jurisdictional needs?

AECOM's role in this project is to ensure that the Updated HMP meets state and federal requirements -- part of this requirement is to describe the process in which the community was involved. We are at the beginning stages of this project.

Our task is to write the plan while guiding you through the HMP Update process; maximizing your local knowledge. AECOM will write the plan. Your input will assist the process by working with us to identify changes since the 2009 HMP implementation:

- HMP update participation and plan reviewers,
- Identify new hazards not formerly addressed,
- Help us explain your hazard impacts since 2009,
- Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area,
- Determine their "estimated" replacement costs,

Define the community's population risk and critical facility vulnerabilities,
Review current and update the existing hazard mitigation goals if applicable,
Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.
Update the HMP Maintenance section to reflect how the Community completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.

There will be opportunities for the entire community to review the team's work during various public involvement processes because FEMA requires at least two public involvement activities. We will provide planning team meeting minutes and two newsletters for distribution or posting to enable community wide knowledge, providing information during Community Meetings or other public meetings, and working with us over the phone as we capture needed information.

AECOM will provide two (2) newsletters. The first newsletter will introduce the project and explain the planning process, encourages public involvement; and asks the community to identify known hazards, and to confirm their critical infrastructure as identified by DHS&EM's statewide small community Critical Facility Database. The second will introduce the updated draft HMP and encourage the community to review and provide comments to make the plan better or more usable to mitigate your hazards.

Please give me a call or email when a good time is for me to call you.

I look forward to working with you.

Thank you for your time.

Eileen Bechtol

Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work."

— Daniel Hudson Burnham (1846-1912)

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PORT ALSWORTH HAZARD MITIGATION PLAN UPDATE

Newsletter #1

February 2015

This newsletter describes the Community of Port Alsworth 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 State of Alaska Division of Homeland Security and Emergency Management Website at <http://ready.alaska.gov/plans/localhazmitplans>.

The State of Alaska, Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management (DHS&EM) was awarded a Pre-Disaster Mitigation Program grant from the Federal Emergency Management Agency (FEMA) to Update your 2009 Hazard Mitigation Plan (HMP).

AECOM was contracted to assist the Lake and Peninsula Borough (LPB) with preparing a 2015 FEMA approvable HMP update. Each of the incorporated cities in the LPB, including Community of Port Alsworth, will also have a HMP developed as part of the update process.

The HMP 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 include relocating or elevating buildings, replacing insufficiently sized culverts, using alternative construction techniques, or developing, implementing, or enforcing building codes, and education.

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. The LPB plans to apply for mitigation funds after our plan is complete.

A FEMA approved and community adopted HMP 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 HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria and other applicable laws and regulations may be found at: <http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to include and document the following topics:

- ❑ New Planning Team membership and processes
- ❑ HMP update participation and plan reviewers,
- ❑ Identify new hazards not formerly addressed,
- ❑ Help us explain your hazard impacts since 2009,
- ❑ Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area,
- ❑ Determine their "estimated" replacement costs,
- ❑ Define the community's population risk and critical facility vulnerabilities,
- ❑ Review current and update the existing hazard mitigation goals if applicable,
- ❑ Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.
- ❑ Update the HMP Maintenance section to reflect how the (Community or Borough) completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.
- ❑ Provide a copy of the community's HMP Adoption Resolution

FEMA has prepared Local Planning Review Guide available at:

http://emilms.fema.gov/is318/assets/local_mtgtn_plan_guidance_0708.pdf. It explains how the HMP Update meets each of the DMA2000 requirements.

We are currently in the very beginning stages of preparing the plan update. We will be conducting a

Planning Team Meeting to introduce the project and planning team, to gather comments from community residents update hazards lists, and collect data to refine the vulnerability assessment.

We Need Your Help

Please use the following table to confirm the hazards AND identify new hazards not formerly addressed.

Port Alsworth Hazard Worksheet		
Hazard	2009 Plan	Still Valid Yes/No
Earthquake (EQ)	No	
Flood (Erosion) (FL)	Yes	
Ground Failure (GF) Includes: Avalanche, Landslide, Permafrost, and/or Subsidence	No	
Severe Weather (SW)	Yes	
Tsunami & Seiche (TS)	No	
Volcano (VO)	No	
Wildland Fire (WF)	Yes	

The 2009 HMP identified critical facilities within LPB, but the list needs to be reviewed and updated and the estimated value and location (latitude/longitude) determined.

In addition, the number and value of structures, and the number of people living in each structure will need to be documented. A newsletter will be sent to each of the incorporated cities in the LPB with a table of their critical facilities to review. Once this information is collected we will determine which critical facilities, residences, and populations are vulnerable to specific hazards in the LPB.

Critical Facility	Current Natural Hazards		
	FL	SW	WF
Fire Station	X	X	X
Airport	X	X	X
Port Alsworth School	X	X	X
Offices	X	X	X
Post Office	X	X	X
Lake Clark Bible Church	X	X	X
Teachers Quarters	X	X	X
Community Hall/School Gym	X	X	X
Satellite, ACS/GCI	X	X	X
Telephone, ACS/GCI	X	X	X
Generator, Backup	X	X	X
Fuel Storage Tanks (>500gal)	X	X	X
Power Generation Facility	X	X	X
Park Service Sewage Lagoon	X	X	X
Landfill/Incinerator, Class III Muni	X	X	X
Satellite, School	X	X	X

Planning Team

Matters of the Hazard Mitigation Plan will be brought to the Borough Planning Commission through the LPB Community Development Planner, Ranya Aboras.

AECOM will be developing materials and leading the planning process with guidance from the Planning Commission and Borough Planner.

Public Participation

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 and to guide the community.

We encourage you to take an active part in preparing the LPB 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. Please contact your Borough Community Development Planner Ranya Aboras; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for more information:

Lake and Peninsula Borough Community Development Planner

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COMMUNITY OF PORT ALSWORTH HAZARD MITIGATION PLAN (HMP)

April 2015

Newsletter 2

This newsletter discusses the preparation of the Community of Port Alsworth (Port Alsworth) Hazard Mitigation Plan. It has been prepared to inform interested agencies, stakeholders, and the public about the project and to solicit comments. This newsletter can also be viewed on the State of Alaska Division of Homeland Security and Emergency Management Website at: <http://www.ready.alaska.gov/plans/localhazmitplans.htm>.

HMP Development

Port Alsworth was one of 21 communities selected by the State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) for a Hazard Mitigation Planning (HMP) development project. The plan identifies natural hazards that affect the community including earthquake, erosion, flood, ground failure, severe weather, and tundra/wildland fire. The HMP also identifies the people and facilities potentially at risk and potential actions to mitigate community hazards. The public participation and planning process is documented as part of the project.

What is Hazard Mitigation?

Across the United States, natural disasters have increasingly caused injury, death, property damage, and business and government service interruptions. The toll on individuals, families, and businesses can be very high. The time, money, and emotional effort required to respond to and recover from these disasters take public resources and attention away from other important programs and problems.

People and property throughout Alaska are at risk from a variety of hazards that have the potential for causing human injury, property damage, or environmental harm.

The purpose of hazard mitigation is to implement projects that reduce the risk severity of hazards on people and property. Mitigation programs may include short-term and long-term activities to reduce hazard impacts or exposure to hazards. Mitigation could include education, construction or planning projects. Hazard mitigation activity examples include relocating buildings, developing or strengthening building codes, and educating residents and building owners.

Why Do We Need A Hazard Mitigation Plan?

A community is only eligible to receive grant money for mitigation programs by preparing and adopting a hazard mitigation plan. Communities must have an approved mitigation plan to receive grant funding from the Federal Emergency Management Agency (FEMA) for eligible mitigation projects.

The Planning Process

There are very specific federal requirements that must be met when preparing a HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria may be found on the Internet at: <http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to document the following topics:

- ☐ Planning process
- ☐ Community Involvement and HMP review
- ☐ Hazard identification
- ☐ Risk assessment
- ☐ Mitigation Goals
- ☐ Mitigation programs, actions, and projects
- ☐ A resolution from the community adopting the plan

FEMA has prepared a Local Planning Review Guide) and (available at:

<http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=4859>). It explains how the HMP meets each of the DMA2000 requirements. FEMA has prepared and “Mitigation Planning Guidance” and “How to Guides” (available at: <http://www.fema.gov/hazard-mitigation-planning-resources>). Port Alsworth’s Hazard Mitigation Plan will follow those guidelines.

The planning process kicked-off on February 14, 2015 by establishing a local planning team, distributing Newsletter #1 and holding a planning team meeting. The planning team examined the full spectrum of hazards listed in the State Hazard Mitigation Plan and identified natural hazards the HMP would address.

Port Alsworth, AECOM and the public began identifying critical facilities, compiling the hazard profiles, assessing capabilities, and conducting the risk assessment for the identified hazards. Critical facilities are facilities that are critical to the recovery of a community in the event of a disaster. After collection of this information, AECOM helped to determine which critical facilities and estimated populations are vulnerable to the identified hazards in Port Alsworth.

A mitigation strategy was the next component of the plan to be developed. Understanding the community's local capabilities and using information gathered from the public and the local planning committee and the expertise of the consultants and agency staff, a mitigation strategy was developed. The mitigation strategy is based on an evaluation of the hazards, and the assets at risk from those hazards. Mitigation goals and a list of potential actions/projects were developed as the foundation of the mitigation strategy.

Mitigation goals are defined as general guidelines that explain what a community wants to achieve in terms of hazard and loss prevention. Goals are positively stated future situations that are typically long-range, policy-oriented statements representing community-wide visions. Mitigation actions and projects are undertaken in order to achieve your stated objectives.

On March 24, 2015 the planning team identified projects and/or actions for each hazard that focus on six categories: prevention, property protection, public education and awareness, natural resource protection, emergency services,

and structural projects. The mitigation actions identified by the planning team are explained in more detail in the plan.

The selected projects and/or actions will potentially be implemented over the next five years as funding becomes available. A maintenance plan was also been developed for the hazard mitigation plan. It outlines how the community will monitor progress on achieving the projects and actions that will help meet the stated goals and objectives, as well as an outline for continued public involvement.

The draft plan is available in the Port Alsworth Improvement Corporation offices for public review and comment. Comments should be made via email or phone to Eileen Bechtol (contact information listed below) and be received no later than June 15, 2015.

Sample of Port Alsworth Mitigation Actions. Review the draft HMP for a complete list.		
Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.	Obtain wood chipper for disposal of slash.
Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.	Develop alternative energy source	Construction of fire breaks around community and structures.

We encourage you to take an active part in the Port Alsworth 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. Please contact your Borough Community Development Planner Ranya Aboras; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for information.

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**LAKE AND PENINSULA BOROUGH
MULTI-JURISDICTIONAL Hazard Mitigation Plan Update**

City of Port Heiden, Alaska Hazard Mitigation Plan



Port Heiden Coastline (Photo: Marv Smith)

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City of Port Heiden Hazard Mitigation Plan Update

1. Community Description

Section One provides the Port Heiden location, geography, history, and demographic information.

1.1 Location, Geography and History

The City of Port Heiden, population 114 (DCRA 2014 estimate) is located 424 miles southwest of Anchorage at the mouth of the Meshik River on the north side of the Alaska Peninsula at approximately 56.948390° North Latitude and -158.62902° (West) Longitude (Sec. 27, T037S, R059W, Seward Meridian.)

The area encompasses 50.7 sq. miles of land and 0.7 sq. miles of water.

Port Heiden has a maritime climate, with cool summers, relatively warm winters, and rain. Snowfall averages 58 inches per year. January temperatures average 25 degrees, and July temperatures average 50 degrees.

The old village of Meshik was located at the current site of Port Heiden. Influenza epidemics during the early 1900s forced residents to relocate to other villages.

During World War II, Fort Morrow was built nearby, and 5,000 personnel were stationed at the base. The Fort was closed after the war. A school was established in the early 1950s, which attracted people from surrounding villages. The old village of Meshik was located at the current site of Port Heiden. Influenza epidemics during the early 1900s forced residents to relocate to other villages. During World War II, Fort Morrow was built nearby and 5,000 personnel were stationed at the base. The fort was closed after the war. A school was established in the early 1950s, which attracted people from surrounding villages. Port Heiden incorporated as a city in 1972. The community relocated inland, because storm waves had eroded much of the old townsite and threatened to destroy community buildings.

Port Heiden lies within the Lake and Peninsula Borough (LPB) and incorporated as a second-class city in 1972. The Native Village of Port Heiden is the federally recognized tribe and is governed by the Port Heiden Village Council.

Approximately 83% are Alaska Native or part Native. Total housing units number 56 with 35 households occupied year-round. Vacant housing units number 21. Transportation facilities in Port Heiden include a state-owned airport with a gravel runway, a natural boat harbor but no dock, a boat haul-out, and beach off-loading area. There are no road or ferry connections to the community.

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Lake and Peninsula Borough Communities



Figure 1 Port Heiden and the LPB Region

City of Port Heiden Hazard Mitigation Plan Update

2. Planning Process

Section Two provides an overview of the planning process; identifies the Planning Team Members and key stakeholders; documents public outreach efforts; and summarizes the review and incorporation of existing plans, studies, and reports used to develop this MJHMP. Outreach support documents and meeting information regarding the Planning Team and public outreach efforts are provided in the Lake & Peninsula Borough (LPB) Multi-Jurisdictional Hazard Mitigation Plan.

2.1 Planning Process Overview

The State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) provided funding and project oversight to AECOM Corporation to facilitate and guide Planning Team development and MJHMP development.

In summary, the following five-step process took place from November 11, 2014 through May 2015.

1. 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 hazard mitigation plan.
2. Monitor, evaluate, and update the plan: The Planning Team developed a process to ensure the plan was monitored to ensure it was used as intended while fulfilling community needs. The team then developed a process to evaluate the plan to compare how their decisions affected hazard impacts. They then outlined a method to share their successes with community members to encourage support for mitigation activities and to provide data for incorporating mitigation actions into existing planning mechanisms and to provide data for the plans five-year update.
3. Assess risks: The Planning Team identified the hazards specific to the Borough and with the assistance of a hazard mitigation planning consultant (AECOM), developed the risk assessment for seven identified hazards. The Planning Team reviewed the risk assessment, including the vulnerability analysis, prior to and during the development of the mitigation strategy.
4. 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.
5. Develop a mitigation strategy: After reviewing the risks posed by each hazard, the Planning Team developed a comprehensive range of potential mitigation goals and actions. Subsequently, the Planning Team identified and prioritized the actions for implementation.

2.2 Planning Teams

The Borough planning team was developed and comprised of Ranya Aboras (Planning Team Leader) and representatives from each of the incorporated cities and Port Alsworth.

City of Port Heiden Hazard Mitigation Plan Update

Table 1 LPB Planning Team Members

Team Member	Title	Involvement
Ranya Aboras	LPB Community Development Planner	MJHMP Team Leader, data gathering and plan review
LPB Planning Commission	Planning Commissioners	MJHMP plan review
Becky Bottcher	City Clerk/Treasurer	Port Heiden plan
Don Strand	City Manager	Port Heiden plan
Greg Anelon	City Manager	Newhalen plan
Carrie Harried	City Manager	Nondalton plan
Barbara Chestler	City Manager	Port Heiden plan
Angela Simpson	City Administrator	Port Heiden plan
Beth Hill	Port Alsworth Improvement Corporation	Port Alsworth plan
Scott Simmons	AECOM, Project Manager	MJHMP update manager, lead writer, and MJHMP project coordination.
Eileen Bechtol	BP&D/Community Planner	MJHMP update, project planner

Each community organized their own Planning Team; Port Heiden's Planning Team is shown on Table 2 below.

Table 2 Port Heiden Planning Team

Team Member	Title	Involvement
Angela Simpson	City Manager	Planning Team Leader
Scott W. Anderson	Mayor	Plan Review
Ranya Aboras	LPB Community Development Planner	MJHMP Team Leader, data gathering and plan review
Scott Simmons	AECOM, Project Manager	MJHMP update manager, lead writer, and MJHMP project coordination.
Eileen Bechtol	BP&D/Community Planner	MJHMP update, project planner

2.3 Public Involvement & Opportunity for Interested Parties to participate

AECOM extended an invitation to all individuals and entities identified on the project mailing list described the planning process and announced the upcoming communities' planning activities. The announcement was emailed to relevant academia, nonprofits, and local, state, and federal agencies on November 20, 2014. The list of the agencies and organization is invited to participate and review the MJHMP.

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Table 3 lists the community's public involvement initiatives focused to encourage participation and insight for the MJHMP effort.

Table 3 Public Involvement Mechanisms

Mechanism	Description
Newsletter #1 Distribution (February 2015)	In February and March 2015, the jurisdiction distributed a newsletter introducing the upcoming planning activity. The newsletter encouraged the community to provide hazard and critical facility information. It was posted at the City offices, bulletin boards, and Borough website to enable the widest dissemination.
Agency Involvement eMail (November 20, 2014)	Invited agencies to participate in mitigation planning effort and to review applicable newsletters located on the DHS&EM Local/Tribal All Hazard Mitigation Plan Development website at: http://ready.alaska.gov/plans/localhazmitplans.htm
Planning Team Meeting (March 27, 2015)	Finalized infrastructure table and reviewed mitigation plans.
Newsletter #2 Distribution (April 2015)	In April 2015, the jurisdiction distributed a second newsletter describing the MJHMP and the community specific draft plan availability and present potential MJHMP projects for review. The newsletter encouraged the community to provide comments or input. It was posted at the City or community office, and disseminated.
Public Meeting (April 6, 2015 LPB PC Meeting)	Notice of the April 6, 2015 meeting to introduce the MJHMP was posted at Borough Hall, and distributed to communities using their usual public notice procedures.
Public Meeting (May 11, 2015 LPB PC Meeting)	Notice of the May 11, 2015, meeting was posted at Borough Hall, and distributed to communities using their usual public notice procedures.

2.4 Review and analysis of the Legacy 2009 MJHMP.

The Legacy 2009 Port Heiden portion of the MJHMP was revised as described below.

- Section 1. **Community Description:** reviewed and updated community information.
- Section 2. **Planning Process:** updated this section to reflect 2015 public process including newsletters, public meetings and 2015 Planning Team.
- Section 3. **Plan Adoption:** 2015 resolutions and dates.
- Section 4. **Hazard Identification & Risk Assessment:** reviewed hazard identification and risk assessment adding 2009 to 2015 descriptions and data.
- Section 5. **Vulnerability Analysis:** added a new section to analyze vulnerability with 2015 critical facilities and infrastructure tables.
- Section 7. **Mitigation Strategy:** reviewed 2009 mitigation goals and actions and added new goals and action for the 2015 Mitigation Action Plan.

The Planning Team did not complete their designated annual HMP reviews or plan maintenance activities. Therefore it became a primary consideration to update the existing 2009 HMP to include hazards that have, or could potentially have, impacted the community during the legacy HMP's 5-year lifecycle.

City of Port Heiden Hazard Mitigation Plan Update

Planning Team identified HMP components that necessitated information update. The Team determined how community changes, construction and infrastructure conditions, climate change impacts, and population increases or decreases have influenced hazard risks and/or facility vulnerabilities.

The 2015 HMP Update process included inviting new and existing stakeholders to review the existing HMP to determine what was accomplished versus what was intended to accomplish.

2.5 Incorporation of Existing Plans and Other Relevant Information

During the planning process, the Planning Team reviewed and incorporated information from existing plans, studies, reports, and technical reports into the MJHMP.

LPB MJHMP Table 3-3 lists existing plans and other documents that were available regarding the LPB and Port Heiden and were reviewed and used as references for the jurisdiction information and hazard profiles in the risk assessment of the MJHMP for the Borough and Port Heiden.

2.6 Plan Maintenance

This section in the MJHMP describes a formal plan maintenance process to ensure that the MJHMP remains an active and applicable document. It includes an explanation of how the Borough's Planning Team intends to organize their efforts to ensure that improvements and revisions to the MJHMP occur in a well-managed, efficient, and coordinated manner.

The following three process steps are addressed in detail in the Borough Plan:

1. Implementation into existing planning mechanisms
2. Continued public involvement
3. Monitoring, reviewing, evaluating, and updating the MJHMP

The City will follow the same procedure as set forth in the LPB MJHMP.

3. Plan Adoption

Section Three is included to fulfill the City of Port Heiden MJHMP adoption requirements.

3.1 Adoption by Local Governing Bodies and Supporting Documentation

The requirements for the adoption of this MJHMP by the local governing body, as stipulated in the DMA 2000 and its implementing regulations are described below.

The Borough is represented in this MJHMP and meets the requirements of Section 409 of the Stafford Act and Section 322 of DMA 2000, and 44 CFR §201.6(c)(5).

The LPB Borough Assembly and cities' council's formal adoption resolutions and Port

Allworth's letter stating compliance with MJHMP initiatives were submitted with the final draft MJHMP to FEMA for formal approval.

A scanned copy of the Borough's and Cities formal adoption resolutions are included in Appendix C of the LPB MJHMP.

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4. Hazard Identification and Risk Assessment

Section Four identifies and profiles the hazards that could affect the City of Port Heiden.

Site visits (in 2008); public meetings, and evaluation of historical information indicate that earthquake, flooding (particularly erosion), volcano, weather (severe) and wildland fire natural hazards are present in the community of Port Heiden.

Hazard identification and risk assessment for these natural hazards are contained in this section, specific to Port Heiden. The City does not have a risk of ground failure or tsunami.

The hazards profiled in the LPB MJHMP and the Port Heiden HMP indicates that the entire City is at risk for each of the profiled hazards.

4.1 Earthquake

4.1.1 History

The following Table 4 lists 11 historical earthquakes over M5 with the largest one (M6.4) occurring on May 20, 1979. Source: USGS *NEIC Historic Earthquake Search*

Table 4 1978 to 2015 Historical Earthquakes in Port Heiden

Date	Time	Latitude	Longitude	Depth	Magnitude
05/20/79	8:14:00	56.647	-156.725	71	6.4
01/27/04	9:50:52	56.806	-156.757	75.6	5.6
12/22/00	0:40:37	56.82	-158.341	105.9	5.6
09/26/83	23:52:53	57.445	-156.395	84.8	5.4
12/28/85	7:44:38	56.58	-156.509	58.5	5.3
04/19/88	22:05:04	56.446	-156.378	76.5	5.2
01/07/06	18:55:39	56.319	-157.396	59.3	5.1
05/05/01	5:48:48	56.448	-156.609	61.9	5.1
09/05/94	2:59:41	55.987	-158.436	61.7	5.1
06/05/84	1:44:21	56.901	-157.262	94	5.1
08/15/81	10:30:57	56.378	-156.776	53	5.1

The City does not have any recorded instances of earthquake impacts in Port Heiden during the Legacy 2009 HMP cycle.

4.1.2 Location, Extent, Impact and Probability of Future Events

Location

The entire community of Port Heiden is at risk for earthquake damages.

City of Port Heiden Hazard Mitigation Plan Update

Extent

Based on historic earthquake events and the criteria identified in the LPB MJHMP Table 5-2, the magnitude and severity of earthquake impacts in the Borough are considered “Limited” with potential injuries and/or illnesses that do not result in permanent disability; critical facilities could expect to be shut-down for more than two weeks; and more than 10 percent of property severely damaged with limited long-term damage to transportation, infrastructure, or the economy.

Impact

Impacts to the community such as significant ground movement that may result in infrastructure damage are not expected. Minor shaking may be seen or felt based on past events. Impacts to future populations, residences, critical facilities, and infrastructure are anticipated to remain the same. Damage could be caused to homes and the City infrastructure such as the City Dock, which could halt the use of the dock and supply of resources during summer months.

Probability of Future Events

Probability of earthquake with $M > 5.0$ within 50 years & 50 km

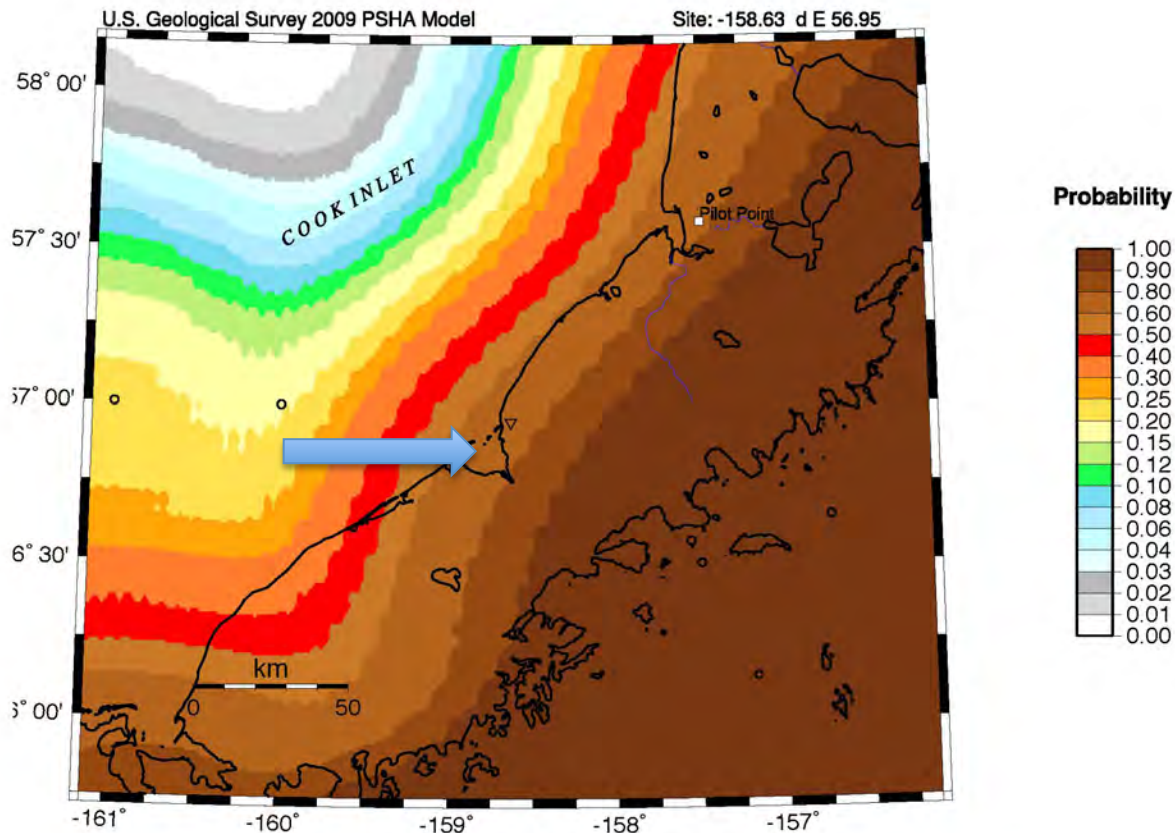


Figure 2 Probability of earthquake in Port Heiden Probability (USGS 2015)

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Based on past events and the USGS Shake Map above, the probability of an event occurring is “Highly Likely”. The event is probable within the calendar year and has up to a 1 to 1 year chance of occurring (1/1=100 percent). History of events is great than 33 percent likely per year. Event is “Highly Likely” to occur.

4.2 Flood

4.2.1 History

While most of the community is widely spread inland from the ocean and safe from erosion, the constant, steady erosion of the shoreline threatens cemeteries, supply lines, the fuel farm, and the one remaining residence of the old townsite. The community of Port Heiden has experienced tremendous beach erosion over the last two decades. Local residents report the loss of over 200 feet of shoreline in one section of the community. Recent community profile maps show 26 surveyed lots that are now completely under water or have lost significant sections to erosion (information verified by GPS Inc. of Anchorage).

Historical graves in the Old Village Cemetery have been eroded to the point that they are almost exposed on the beach side. This mass gravesite will soon erode into the ocean, most likely resulting in the skeletal remains of past residents being scattered on the beach.

The community was forced to move underground electrical and telephone lines away from the beach, however even the relocated are now exposed, presenting a safety hazard and leaving the community vulnerable to interruptions in services.

4.2.2 Location, Extent, Impact and Probability of Future Events

Location

Based on previous occurrences, annual fall storms and heavy rain events will continue to pose a threat to the community of Port Heiden due to the exposed nature of the coastline. The entire community of Port Heiden is particularly vulnerable to flooding caused by storm surges because of its low-lying location and its exposure to Bristol Bay.

Extent

Erosion due to storm surges and wave action has resulted in visible damages to the community at all waterfront areas. Residents report more loss of oceanfront than in recent memory. Heavy storms cause rapid erosion and have created hazards for drivers.

All areas intersecting a body of water are vulnerable to erosion damages. Annual fall storms and heavy rain events will continue to pose a threat to Port Heiden due to the exposed nature of the coastline.

Based on past winter storm flooding from the Bristol Bay, high water flow event history and the criteria identified in Table 5-2, the extent of flooding and resultant damages to infrastructure and their protective embankments in the Borough are considered “Limited” where critical facilities would shut-down for more than one week or less with more than 10 percent of property severely damaged.

Impact

Impacts from erosion include loss of land and any development on the land. Erosion can cause

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increased sedimentation of harbors and river deltas and hinder channel navigation, affecting marine transport. Other impacts include reduction in water quality due to high sediment loads, loss of native aquatic habitats, damage to public utilities, and economic impacts associated with costs trying to prevent or control erosion sites.

Probability of Future Event

With the increase of intensified fall sea storms taken place yearly, it is “likely” a flood event may occur within the next three years (event has up to 1 in 3 chance of occurring). Based on the probability matrix on the history of the event occurring is more than 20% but less than or equal to 33% in a calendar year. Event is likely to occur.

4.3 Volcano

4.3.1 History

Residents indicate that the proximity to active volcanoes is the hazard they are most concerned about. Port Heiden lies in the shadow of Aniakchak and Ukinrek Maars, two volcanoes active in the past 70 years. Given the unstable nature of the rupture zone between the North American Plate and the Pacific Plate, this area will remain volcanically vulnerable.

4.3.2 Location, Extent, Impact and Probability of Future Events

Location

The entire City of Port Heiden is at risk of impacts from volcanic ash fall out.

Extent

Based on the devastation of past volcanic events in the world and the criteria identified in Table 5-2, the magnitude and severity of impacts in the Borough are considered critical in that more 25 percent of property could be damaged. Injuries and/or illnesses result in permanent disability and complete shutdown of critical facilities for at least two weeks.

Impact

Not only can secondary effects such as ash fall cause temporary aviation access delays, but the ash fall could cause harm to the king salmon fishery near the village. Port Heiden’s isolated location places the community at risk by disrupting travel should any eruption take place. The impacts of a volcanic event could make the community vulnerable to economic losses through closure of businesses and government facilities, disruption in communications, disruption of the provision of utilities such as water and sewer services.

Probability of Future Events

Volcanoes can erupt at any time, but the AVO monitors all active volcanoes sufficiently to allow enough warning time for communities to be prepared.

Volcanic eruptions can occur at any time and, because of the existence of so many active volcanoes within the Borough, can be considered a certainty.

Based on the history of volcanoes in the Borough area and applying the criteria identified in Table 5-3, it is possible a tsunami event will occur within in the next five years. The event has up to 1 in 5

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years chance of occurring (1/5=20 percent) and the history of events is equal to or over 10 percent but less than or equal to 20 percent likely each year. Event is “Possible”.

4.4 Weather (Severe)

4.4.1 History

The community experiences severe weather in the form of annual blizzards and high winds. Heavy snow is problematic for the community because the homes are so far apart. It is beyond the community’s capability to keep the roads plowed during periods of heavy snow. As a consequence, residents are essentially trapped in their homes and, should power be lost, can be cut off from communications with other residents. These storms have the power to disrupt air and boat travel and power generation in this isolated community with gusts of 140 mph.

4.4.2 Location, Extent, Impact and Probability of Future Events

Location

The entire City of Port Heiden is at risk of a severe winter event.

Extent

Based on past severe weather events and the criteria identified in LPB MJHMP Table 5-2, the extent of severe weather in the Borough are considered limited where injuries do not result in permanent disability, complete shutdown of critical facilities occurs for more than one week, and more than 10 percent of property is severely damaged.

Impact

The intensity, location, and the land’s topography influence a severe weather event’s impact within a community. Hurricane force winds, rain, snow, and storm surge can be expected to impact the entire Borough.

Heavy snow can immobilize a community by bringing transportation to a halt. Until the snow can be removed, airports and roadways are impacted, even closed completely, stopping the flow of supplies and disrupting emergency and medical services. Accumulations of snow can cause roofs to collapse and knock down trees and power lines. Heavy snow can also damage light aircraft and sink small boats. A quick thaw after a heavy snow can cause substantial flooding.

The cost of snow removal, repairing damages, and the loss of business can have severe economic impacts on cities and towns. Injuries and deaths related to heavy snow usually occur as a result of vehicle and or snow machine accidents. Casualties also occur due to overexertion while shoveling snow and hypothermia caused by overexposure to the cold weather.

Extreme cold can also bring transportation to a halt. Aircraft may be grounded due to extreme cold and ice fog conditions, cutting off access as well as the flow of supplies to communities. Long cold spells can cause rivers to freeze, disrupting shipping and increasing the likelihood of ice jams and associated flooding.

Extreme cold also interferes with the proper functioning of a community's infrastructure by causing fuel to congeal in storage tanks and supply lines, stopping electric generation. Without electricity, heaters and furnaces do not work, causing water and sewer pipes to freeze or rupture. If extreme cold conditions are combined with low or no snow cover, the ground's frost depth can increase, disturbing buried pipes. The greatest danger from extreme cold is its effect on people. Prolonged exposure to the

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cold can cause frostbite or hypothermia and become life threatening. Infants and elderly people are most susceptible. The risk of hypothermia due to exposure greatly increases during episodes of extreme cold, and carbon monoxide poisoning is possible as people use supplemental heating devices.

Probability of Future Events

Based on previous occurrences and the criteria identified in LPB MJHMP Table 5-3, it is likely a severe storm event will occur in the next three years (event has up to 1 in 3 years chance of occurring) as the history of events is greater than 20 percent but less than or equal to 33 percent likely per year. Event is “Likely”.

4.5 Wildland Fire

4.5.1 History

The community is not heavily forested and is relatively safe from forest fires, but citizens are still concerned about the probability of tundra fires making this a serious concern. Residents are concerned about wildfires because of increasing dry vegetation. Dry grasses and brush produce very fast-moving fires. They report that more fires are occurring, and they are concerned that a wildfire could be driven by high winds, which could endanger the community.

4.5.2 Location, Extent, Impact and Probability of Future Events

Location

Wildfires have not been documented within the boundaries of Port Heiden; however there is always the possibility that a fire from burning trash could spark a brushfire, aided by strong winds that could quickly consume the whole village. Under certain conditions wildland fires may occur in any area with fuel surrounding the community of Port Heiden. Since fuels data is not readily available, for the purposes of the plan, all areas outside the community are considered to be vulnerable to wildland tundra fire impacts.

Extent

Based on the number of past wildland fire events and the criteria identified in LPB MJHMP Table 5-2 and the magnitude and severity of impacts in the City are considered critical in that more 10 percent of property could be damaged.

Impact

Impacts of a wildland fire that interfaces with the population center of Port Heiden could grow into an emergency or disaster if not properly controlled. A small fire can threaten lives and resources and destroy property. In addition to impacting people, wildland fires may severely impact livestock and pets. Such events may require emergency watering and feeding, evacuation, and alternative shelter. Indirect impacts of wildland fires can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soil erodes quickly and enhances siltation of rivers and stream, thus increasing flood potential, harming aquatic life, and degrading water quality. The impacts of a wildland tundra fire event could make the community vulnerable to economic losses through closure of businesses and government facilities, disruption in communications, disruption of the provision of utilities such as water and sewer services.

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Future Event Probability

Important issues related to the wildland or tundra fire probability are increased development along the community's perimeter, accumulation of hazardous wildfire fuels, and the uncertainty of weather patterns that may accompany climate change. These three combined elements are reason for concern and heightened mitigation management of each community's wildland interface areas, natural areas, and open spaces.

Based on the history of wildland fires in the Borough area and applying the criteria identified in LPB MJHMP Table 5-3, it is possible a wildland or tundra fire event will occur within the next three years. The event has up to 1 in 3 years chance of occurring (1/3=33 percent) and the history of events is equal to or over 20 percent but less than or equal to 33 percent likely each year. Climate change and flammable vegetation species are prolific throughout Alaska's forests and tundra locations. Fire frequency may increase in the future as a result. Event is "Likely".

5. Vulnerability Analysis

Section Five outlines the vulnerability process for determining potential losses for the community from various hazard impacts.

Table 5 lists City of Port Heiden infrastructures' hazard vulnerability.

Table 5 Port Heiden Infrastructures' hazard vulnerability.

Hazard	Area's Hazard Vulnerability			
	Percent of Jurisdiction's Geographic Area	Percent of Population	Percent of Building Stock	Percent of Critical Facilities and Utilities
Earthquake	100	100	100	100
Flood	100	100	100	100
Volcano	100	100	100	100
Weather	100	100	100	100
Wildland Fire	100	100	100	100

5.1 Existing Critical Facilities in Port Heiden

A critical facility is defined as a facility that provides essential products and services to the general public, such as preserving the quality of life in the City and fulfilling important public safety, emergency response, and disaster recovery functions. The critical facilities profiled in this plan include the following:

- Government facilities, such as city and tribal administrative offices, departments, or agencies
- Emergency response facilities, including police department and firefighting equipment
- Educational facilities, including K-12

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- Care facilities, such as medical clinics, congregate living health, residential and continuing care, and retirement facilities
- Community gathering places, such as community and youth centers
- Utilities, such as electric generation, communications, water and wastewater treatment, sewage lagoons, landfills.
- The City anticipates that impacts to future populations, residential structures, critical facilities, and infrastructure will be at the same historical impact level.

Table 6 is the critical facilities and infrastructure table for Port Heiden.

Table 6 Port Heiden Critical Facilities and Infrastructure

Facility Type	Estimated No. of Occupants	Facilities	Address	Latitude	Longitude	Estimated Value	Building Type	Earthquake	Flood	Volcano	Weather (Severe)	Wildland Fire
Government	City Hall and Tribal Offices are in Community Hall											
Transportation	1	Airport DOT	NA	56.95921	-158.62235	\$1,000,000	Gravel	X	X	X	X	X
		State shop, with an office	NA	56.95921	-158.62235	NA	S1	X	X	X	X	X
Emergency Response	0	Fire Station	NA	56.94917*	-158.62694*	\$1,000,000	W1	X	X	X	X	X
	5	Police Station, at Community Hall		56.94917	-158.62694		S2L	X	X	X	X	X
Education	17	Port Heiden School	NA	56.94917	-158.62694	\$15,500,000	W2	X	X	X	X	X
Medical Care	2	Health Center	NA	56.94917	-158.62694	\$300,000	W1	X	X	X	X	X
Community								X	X	X	X	X
	14	Community Hall	NA	56.94917	-158.62694	\$2,000,000	W2	X	X	X	X	X
	0	Cemetery 1	NA	56.94917	-158.62694	\$20,000		X	X	X	X	X
	0	Cemetery 2	NA	56.94917	-158.62694	\$20,000		X	X	X	X	X
	5	Post Office	NA	56.94917	-158.62694	\$400,000	W1	X	X	X	X	X
	3	Aleut Trading	NA	56.94917	-158.62694	NA	W1	X	X	X	X	X
	5	Teacher Housing (1 House=3 Apartments, 1 House=2 apartments	NA	56.94917	-158.62694	\$1,500,000	W1	X	X	X	X	X

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Facility Type	Estimated No. of Occupants	Facilities	Address	Latitude	Longitude	Estimated Value	Building Type	Earthquake	Flood	Volcano	Weather (Severe)	Wildland Fire
Utilities								X	X	X	X	X
	0	Fuel Storage Tank >500 gallons	NA	56.94917	-158.62694	NA	OTF	X	X	X	X	X
	0	Site A Industrial Landfill	NA	56.97768	-158.65167	\$1,500,000		X	X	X	X	X
	0	ACS Satellite	NA	56.97768	-158.65167	NA	SAT	X	X	X	X	X
	0	ARCS Satellite	NA	56.97768	-158.65167	NA	SAT	X	X	X	X	X
	0	GCI Satellite	NA	56.97768	-158.65167	NA	SAT	X	X	X	X	X
	1	City Maintenance Shop	NA	56.94917	-158.62694	\$3,000,000	S2L	X	X	X	X	X
	1	Recycling Building	NA	56.94917	56.94917	\$100,000	S1	X	X	X	X	X
	0	New (Fall 2015) Processing Plant Freezer	NA	56.94917	56.94917	\$5,000,000		X	X	X	X	X
	30 Seasonal	New (Fall 2015) Processing Plant	NA	56.94917	56.94917	\$15,000,000	Various	X	X	X	X	X
Total Occ	54				Total Damages:	\$46,340,000						

(City of Port Heiden) *Latitude and Longitude specific information not available, DCED used the city center

Summary of Table 6 is as follows.

- 117 people in 35 occupied residences (approximate value \$12,250,000)
- 19 people in one combination facility that includes City Hall, Tribal Offices, Fire Station, Police Department and Community Hall (approximate value \$2,000,000)
- 17 people in one school (approximate value \$15,500,000)
- 0 people in two transportation facilities (approximate value \$1,000,000)
- 2 people in one health center (approximate value \$300,000)
- 13 people in five community facilities (approximate value \$15,940,000)
- 2 people in eight utility facilities (approximate value 25,540,000)
- 30 (seasonal) people will be in one seafood processing facility in Fall 2015 (approximate value \$15,000,000)

5.2 Future and Planned Development in Port Heiden.

There are no significant future or planned development to record in Port Heiden.

The City anticipates that impacts to future populations, residential structures, critical facilities, and infrastructure will be at the same historical impact level.

Figure 3 is the land use map for Port Heiden.

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Figure 3 Port Heiden Land Use Map

5.3 NFIP Participation and Repetitive Loss Properties

The City of Port Heiden is not a participating community in the NFIP and therefore does not have any repetitive loss properties.

The Borough has participated in the NFIP since an emergency entry date of March 4, 2004 and a regular entry date of February 3, 2010.

The LPB has no repetitive loss properties and no claims for flood insurance.

6. Port Heiden Mitigation Strategy

Section Six outlines Port Heiden's mitigation strategy including:

1. Identifying the City's existing authorities for implementing mitigation action initiatives
2. Developing Mitigation Goals
3. Identifying Mitigation Actions
4. Evaluating Mitigation Actions

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5. Implementing the Mitigation Action Plan (MAP)

6.1 Port Heiden Capability Assessment

The City's capability assessment reviews the technical and fiscal resources available to the community.

This section outlines the resources available to the Borough for mitigation and mitigation related funding and training. Tables 7, 8, and 9 delineate the City's regulatory tools, technical specialists, and financial resource available for project management. Additional funding resources are identified in Appendix A.

Table 7 Port Heiden Regulatory Tools.

Regulatory Tools (ordinances, codes, plans)	Existing Yes/No?	Comments (Year of most recent update; problems administering it, etc.)
Comprehensive Plan	Yes	As part of the LPB plan, each community has a brief Community Action Plan.
Land Use Plan	Yes	Describes the City's community development goals and initiatives as part of the Comprehensive Plan – Community Action Plan
Tribal Land Use Plan	Yes	Describes the Village's community development goals and initiatives as part of the Comprehensive Plan – Community Action Plan
Emergency Response Plan	Yes	Emergency Operation Plan, 2010 (as part of the Borough Plan)
Wildland Fire Protection Plan	No	
Building code	No	The City can exercise this authority but is not required.
Zoning ordinances	No	The City can exercise this authority but is not required.
Subdivision ordinances or regulations	No	The City can exercise this authority but is not required.
Special purpose ordinances	No	The City can exercise this authority but is not required.

Local Resources

The City relies upon the LPB for most of their planning and land management tools that allow it to implement hazard mitigation activities. The resources available in these areas have been assessed by the hazard mitigation Planning Team, and are summarized below.

Table 8 Technical Specialists for Hazard Mitigation.

Staff/Personnel Resources	Yes / No	Department/Agency and Position
Development and land management practices	Yes	LPB Community Development Planner
Planner or engineer with an understanding of natural and/or human-caused hazards.	Yes	LPB Community Development Planner
Floodplain Manager	No	Not a NFIP participating community.
Surveyors	Yes	The City hires consultants when they need a surveyor.
Staff with education or expertise to assess the jurisdiction's vulnerability to hazards.	Yes	LPB Community Development Planner

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Personnel skilled in Geospatial Information System (GIS) and/or Hazards Us-Multi Hazard (Hazard-MH) software	Yes	LPB Community Development Planner
Scientists familiar with the hazards of the jurisdiction	No	The City works with U.S. Fish & Wildlife Service (USFWS) and Fish & Game (ADF&G), and the Alaska Department of Transportation and Public Facilities
Emergency Manager	Yes	LPB Community Development Planner
Finance (Grant writers)	Yes	LPB Community Development Planner and community representatives
Public Information Officer	Yes	The City Mayor, City Administrator, or Tribal President

Table 9 Port Heiden Financial Resources

Financial Resource	Accessible or Eligible to Use for Mitigation Activities
General funds	Can exercise this authority with voter approval
Municipal Energy Assistance Program (MEAP)	Provides operating support funding
Community Development Block Grants (CDBG)	Can exercise this authority with voter approval
Capital Improvement Project Funding	Can exercise this authority with voter approval
Authority to levy taxes for specific purposes	Can exercise this authority with voter approval
Incur debt through general obligation bonds	Can exercise this authority with voter approval
Incur debt through special tax and revenue bonds	Can exercise this authority with voter approval
Incur debt through private activity bonds	Can exercise this authority with voter approval
Financial Resource	Accessible or Eligible to Use for Mitigation Activities
Hazard Mitigation Grant Program (HMGP)	FEMA funding which is available to local communities after a Presidentially-declared disaster. It can be used to fund both pre- and post-disaster mitigation plans and projects.
Pre-Disaster Mitigation (PDM) grant program	FEMA funding which available on an annual basis. This grant can only be used to fund pre-disaster mitigation plans and projects only
Flood Mitigation Assistance (FMA) grant program	No, not a NFIP participating community.
United State Fire Administration (USFA) Grants	The purpose of these grants is to assist state, regional, national or local organizations to address fire prevention and safety. The primary goal is to reach high-risk target groups including children, seniors and firefighters.

6.2 Mitigation Goals

The Planning Team developed the mitigation goals and potential mitigation actions to address identified potential hazard impacts for the City within Section 4.

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The exposure analysis results were used as a basis for developing the mitigation goals and actions. Mitigation goals are defined as general guidelines that describe what a community wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing community-wide visions. As such, six goals were developed to reduce or avoid long-term vulnerabilities to the identified hazards (Table 10).

Table 10 City of Port Heiden Mitigation Goals

No.	Goal Description
Multi-Hazards (MH)	
MH 1	Promote recognition and mitigation of all natural and manmade hazards that affect Port Heiden.
Natural Hazards	
EQ 1	Reduce structural vulnerability to earthquake (ER) damage.
FL 2	Reduce flood and erosion (FL) damage and loss possibility.
VO 3	Reduce vulnerability, damage, or loss of structures from volcanic debris impacts
W(S) 4	Reduce structural vulnerability to severe weather (SW) damage.
WF 5	Reduce structural vulnerability to Tundra/Wildland Fire (WF) damage.

6.3 Identifying Mitigation Actions

The Planning Team assessed the potential mitigation actions to carry forward into the mitigation strategy. Mitigation actions are activities, measures, or projects that help achieve the goals of a mitigation plan. Mitigation actions are usually grouped into three broad categories: property protection, public education and awareness, and structural projects.

During the planning process November 2014 through May 2015 the Planning Team selected City natural hazard, mitigation actions for potential Mitigation Action Plan (MAP) implementation during the five-year life cycle of this HMP. The Planning Team placed particular emphasis on projects and programs that reduce the effects of hazards on both new and existing buildings and infrastructure as well as facilities located in potential flood zones to comply with NFIP requirements.

Table 11 breaks out the project criteria as considered, selected, and ongoing. The Planning Team considered projects from a comprehensive list for earthquake, flood, volcano, weather (severe) and wildfire. They identified numerous “ongoing” mitigation actions currently in process or those that were listed in other City planning documents. The Planning Team then selected “newly identified” actions identified through this plan development activity that would most benefit the community.

Table 11 City of Port Heiden Mitigation Plan and Potential Actions

Supports Goal No.	Description	Criteria <i>New Actions:</i> <i>Considered</i> <i>Selected</i> <i>Legacy Plan</i> <i>Actions:</i> <i>Ongoing</i> <i>Not Completed</i> <i>Completed</i> <i>Delete</i>	Description
MH 1	Promote recognition and mitigation of all	C-S	Improve ability to self-sustain during periods of isolation Store in town extra food, emergency back up generator,

City of Port Heiden Hazard Mitigation Plan Update

Supports Goal No.	Description	Criteria <u>New Actions:</u> <u>Considered</u> <u>Selected</u> <u>Legacy Plan</u> <u>Actions:</u> <u>Ongoing</u> <u>Not Completed</u> <u>Completed</u> <u>Delete</u>	Description
	natural and manmade hazards that affect the Lake and Peninsula (Borough).		and extra water.
EQ 1	<i>Reduce structural vulnerability to earthquake (ER) damage.</i>	C-S	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.
		C-S	Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.
FL 2	<i>Reduce vulnerability, damage, or loss of structures from erosion</i>	O-NC	Shoreline erosion protection <i>This action has not been accomplished; the community still wants this a potential project.</i>
		O-NC	Relocate at-risk structures <i>This action has not been accomplished; the community still wants this a potential project.</i>
VO 3	Reduce vulnerability, damage, or loss of structures from volcanic debris impacts	C-S	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.
SW 4	Reduce structural vulnerability to severe weather (SW) damage.	O-NC	Obtain adequate road- clearing equipment <i>This action has not been accomplished; the community still wants this a potential project.</i>
			Obtain adequate generators for personal residences. <i>This action has not been accomplished; the community still wants this a potential project.</i>
		O-NC	Develop emergency communication system for at-risk populations to call for help when needed during severe weather conditions <i>This action has not been accomplished; the community still wants this a potential project.</i>
		O-NC	Develop emergency communication system for at-risk populations to call for help when needed during severe weather conditions <i>This action has not been accomplished; the community still wants this a potential project.</i>
		O-NC	Develop alternative energy source <i>This action has not been accomplished; the community still wants this a potential project.</i>

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Supports Goal No.	Description	Criteria <u>New Actions:</u> <u>Considered</u> <u>Selected</u> <u>Legacy Plan</u> <u>Actions:</u> <u>Ongoing</u> <u>Not Completed</u> <u>Completed</u> <u>Delete</u>	Description
WF 5	Reduce structural vulnerability to Tundra/Wildland Fire (WF) damage.	C-S	Build firebreak around community.
		C-S	Removal of dead/dry fuels.

6.4 Mitigation Action Plan

Port Heiden’s Mitigation Action Plan, Table 12, depicts how each mitigation action will be implemented and administered by the Planning Team. The MAP delineates each selected mitigation action, its priorities, the responsible entity, the anticipated implementation timeline, and provides a brief explanation as to how the overall benefit/costs and technical feasibility were taken into consideration.

Table 12 City of Port Heiden Mitigation Action Plan (MAP)

Goal/ Action ID	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years 2-4 Years 3-5 Years)	Benefit-Costs (BC) / Technical Feasibility (T/F)
MH 1.1	Improve ability to self-sustain during periods of isolation Store in town extra food, emergency back up generator, and extra water.	High	City Manager LPB Planner	City LPB	1-3	B/C: This ongoing activity is essential for the Borough as there are limited funds available to accomplish effective mitigation actions. T/F: This activity is ongoing demonstrating its feasibility.
EQ 2.1	Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.	High	City Manager LPB Manager	City, LPB, HMA, NRCS, ANA, USACE, US USDA, Lindbergh	1-3 years	B/C: This project would ensure threatened infrastructures are available for use – their loss would exacerbate potential damages and further threaten survivability. T/F: This project is feasible using existing staff skills, equipment, and materials.
EQ 2.2	Install non-structural seismic	High	City Manager	City, LPB, ADOT, HMA,	1-3 years	B/C: Flood hazard mitigation is among FEMA's

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	restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.		LPB Manager	NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP		highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
FL 3.1	Shoreline erosion protection	High	City Manager LPB Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
FL 3.2	Relocate at-risk structures	High	City Manager LPB Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
VO 4.1	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.	Medium	City Manager LPB Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
SW 5.1	Obtain adequate road- clearing equipment	High	City Manager LPB Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	3-5 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need

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						to be contracted-out with materials and equipment barged in depending on the method selected.
SW 5.2	Obtain adequate generators for personal residences.	High	City Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	3-5 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
SW 5.3	Develop emergency communication system for at-risk populations to call for help when needed during severe weather conditions	High	City Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	3-5 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
SW 5.4	Develop alternative energy source	High	City Manager	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	3-5 years	B/C: Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action. Specialized skills may need to be contracted-out with materials and equipment barged in depending on the method selected.
WF 6.1	Build firebreak around community.	High	City Manager Volunteers	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: This action has a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action.
WF 6.2	Removal of dead/dry fuels.	High	City Manager Volunteers	City, LPB, ADOT, HMA, NRCS, USACE, USDA/EWP, USDA/ECP, DCRA/ ACCIMP	1-3 years	B/C: This action has a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The LPB has the skill to implement this action.

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7. References

Section Eight provides a comprehensive reference list used to develop the MJHMP.

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From: [Eileen Bechtol](#)
To: [Simmons, Scott](#)
Subject: FW: Port Heiden HMP Update
Date: Saturday, February 14, 2015 10:54:09 AM
Attachments: [2-12-15 Port Heiden Newsletter.pdf](#)

Sorry I forgot to copy you with this one.

Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work."

— Daniel Hudson Burnham (1846-1912)

Bechtol Planning & Development

Eileen R. Bechtol, AICP
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From: Eileen Bechtol <erbechtol@gmail.com>
Date: Saturday, February 14, 2015 at 10:49 AM
To: Scott Anderson <cityofpth@hotmail.com>
Subject: Port Heiden HMP Update

Hello Mr. Anderson:

I am writing to introduce myself, Eileen Bechtol, I am a subcontractor for Scott Simons, AECOM (formerly known as URS Corporation). AECOM contracted by the Division of Homeland Security and Emergency Management (DHS&EM) to develop a Hazard Mitigation Plan Update for ten Alaska jurisdictions. The City of Port Heiden is one of the selected jurisdictions.

Your name was provided as the community contact in the incorporated cities. If this something I should discuss with someone else please forward this email to that person. Thank you.

It is important to note that the City of Port Heiden does not have to pay anything for this project. This is an important project funded by FEMA through the DHS&EM. AECOM have worked with rural communities to assist them with their hazard mitigation plan development needs. In fact, URS has been developing HMPs nationwide since 2000. Our Alaska office has completed approximately 90 State, Borough (County) and local community, State reviewed, and FEMA approved Hazard Mitigation Plans to-date. I also have written several Hazard Mitigation Plans in Alaska.

HMP updates require reviewing current plans to identify how conditions have changed since the plan was last approved. For example, the current plan's plan development activities may change such as planning team membership; new plans, reports, and studies reviewed, new hazards identified and newly disaster impacts annotated. These changes could directly change identified planning community vulnerabilities and risks. This requires that the current Mitigation Strategy be reviewed and updated to identify current project's status. Were any projects completed or do they need to be modified, merged with similar initiatives for the same impact or location, deleted because they are no longer deemed the most appropriate mitigation initiative, or changed to reflect

new jurisdictional needs?

AECOM's role in this project is to ensure that the Updated HMP meets state and federal requirements -- part of this requirement is to describe the process in which the community was involved. We are at the beginning stages of this project.

Our task is to write the plan while guiding you through the HMP Update process; maximizing your local knowledge. AECOM will write the plan. Your input will assist the process by working with us to identify changes since the 2009 HMP implementation:

- <!--[if !supportLists]--> <!--[endif]-->HMP update participation and plan reviewers,
- <!--[if !supportLists]--> <!--[endif]-->Identify new hazards not formerly addressed,
- <!--[if !supportLists]--> <!--[endif]-->Help us explain your hazard impacts since 2009,
- <!--[if !supportLists]--> <!--[endif]-->Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area,
- <!--[if !supportLists]--> <!--[endif]-->Determine their "estimated" replacement costs,
- <!--[if !supportLists]--> <!--[endif]-->Define the community's population risk and critical facility vulnerabilities,
- <!--[if !supportLists]--> <!--[endif]-->Review current and update the existing hazard mitigation goals if applicable,
- <!--[if !supportLists]--> <!--[endif]-->Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.
- <!--[if !supportLists]--> <!--[endif]-->Update the HMP Maintenance section to reflect how the City completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.

There will be opportunities for the entire community to review the team's work during various public involvement processes because FEMA requires at least two public involvement activities. We will provide planning team meeting minutes and two newsletters for distribution or posting to enable community wide knowledge, providing information during City Council Meetings or other public meetings, and working with us over the phone as we capture needed information.

AECOM will provide two (2) newsletters. The first newsletter (attached) introduces the project and explains the planning process, encourages public involvement; and asks the community to identify known hazards, and to confirm their critical infrastructure as identified by DHS&EM's statewide small community Critical Facility Database. The second will introduce the updated draft HMP and encourage the community to review and provide comments to make the plan better or more usable to mitigate your hazards.

I would like to teleconference with you regarding the tables on Page 2 of the newsletter. Please let me know of a convenient time for me to call, during the upcoming week if possible. If you want to invite others to participate that would be great. Otherwise, you and I can go over the tables.

I look forward to working with you. Thank you for your time.

Eileen Bechtol

Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work."

— Daniel Hudson Burnham (1846-1912)

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PORT HEIDEN HAZARD MITIGATION PLAN UPDATE

Newsletter #1

February 2015

This newsletter describes the City of Port Heiden 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 State of Alaska Division of Homeland Security and Emergency Management Website at <http://ready.alaska.gov/plans/localhazmitplans>.

The State of Alaska, Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management (DHS&EM) was awarded a Pre-Disaster Mitigation Program grant from the Federal Emergency Management Agency (FEMA) to Update your 2009 Hazard Mitigation Plan (HMP).

AECOM was contracted to assist the Lake and Peninsula Borough (LPB) with preparing a 2015 FEMA approvable HMP update. Each of the incorporated cities in the LPB, including City of Port Heiden, will also have a HMP developed as part of the update process.

The HMP 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 include relocating or elevating buildings, replacing insufficiently sized culverts, using alternative construction techniques, or developing, implementing, or enforcing building codes, and education.

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. The LPB plans to apply for mitigation funds after our plan is complete.

A FEMA approved and community adopted HMP 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 HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria and other applicable laws and regulations may be found at: <http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to include and document the following topics:

- ❑ New Planning Team membership and processes
- ❑ HMP update participation and plan reviewers,
- ❑ Identify new hazards not formerly addressed,
- ❑ Help us explain your hazard impacts since 2009,
- ❑ Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area,
- ❑ Determine their "estimated" replacement costs,
- ❑ Define the community's population risk and critical facility vulnerabilities,
- ❑ Review current and update the existing hazard mitigation goals if applicable,
- ❑ Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.
- ❑ Update the HMP Maintenance section to reflect how the (City or Borough) completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.
- ❑ Provide a copy of the community's HMP Adoption Resolution

FEMA has prepared Local Planning Review Guide available at:

http://emilms.fema.gov/is318/assets/local_mtgtn_plan_guidance_0708.pdf. It explains how the HMP Update meets each of the DMA2000 requirements.

We are currently in the very beginning stages of preparing the plan update. We will be conducting a Planning Team Meeting to introduce the project and

planning team, to gather comments from community residents update hazards lists, and collect data to refine the vulnerability assessment.

We Need Your Help

Please use the following table to confirm the hazards AND identify new hazards not formerly addressed.

Port Heiden Hazard Worksheet		
Hazard	2009 Plan	Still Valid Yes/No
Earthquake (EQ)	Yes	
Flood (Erosion) (FL)	Yes	
Ground Failure (GF) Includes: Avalanche, Landslide, Permafrost, and/or Subsidence	No	
Severe Weather (SW)	Yes	
Tsunami & Seiche (TS)	No	
Volcano (VO)	Yes	
Wildland Fire (WF)	Yes	

The 2009 HMP identified critical facilities within LPB, but the list needs to be reviewed and updated and the estimated value and location (latitude/longitude) determined.

In addition, the number and value of structures, and the number of people living in each structure will need to be documented. A newsletter will be sent to each of the incorporated cities in the LPB with a table of their critical facilities to review. Once this information is collected we will determine which critical facilities, residences, and populations are vulnerable to specific hazards in the LPB.

Critical Facility	Current Natural Hazards				
	EQ	FL	SW	VO	WF
City and Tribal Offices	X		X		X
City Maintenance Shop	X		X		X
Airport	X		X		X
Police Station	X		X		X
Meshik School	X		X		X
Cemetery #1	X		X		X
Cemetery #2	X		X		X
Gift Shop	X		X		X

Critical Facility	Current Natural Hazards				
	EQ	FL	SW	VO	WF
Jacks Store	X		X		X
Jacks Grocery	X		X		X
Community Hall	X		X		X
Post Office	X		X		X
Non-Denominational Church	X		X		X
Teachers Quarters	X		X		X
Russian Orthodox Church	X		X		X
Satellite. ACS	X		X		X
Telephone, ACS	X		X		X
Satellite, ARCS	X		X		X
Telephone, GCI	X		X		X
LPB School District Reservoir/Water Supply	X		X		X
Fuel Storage Tanks (>500gal)	X		X		X
Power Generation Facility	X		X		X
Port Heiden Class III Muni Landfill	X		X		X
Port Heiden/DERA/COE - Site A Industrial Landfill	X		X		X
Port Heiden/DERA/COE - Site B Industrial Landfill	X		X		X
Port Heiden/USAF Industrial Landfill	X		X		X

Planning Team

The LPB Planning Team will be led by Ranya Aboras, Borough Planner with assistance from AECOM (contracted by DHS&EM). Matters of the Hazard Mitigation Plan will be brought to the Borough Planning Commission through the LPB Community Development Planner, Ranya Aboras. AECOM will be developing materials and leading the planning process with guidance from the Planning Commission and Borough Planner.

Public Participation

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 and to guide the community.

We encourage you to take an active part in preparing the LPB 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. Please contact your Borough Community Development Planner Ranya Aboras; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for more information:

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CITY OF PORT HEIDEN HAZARD MITIGATION PLAN (HMP)

April 2015

Newsletter 2

This newsletter discusses the preparation of the City of Port Heiden (Port Heiden) Hazard Mitigation Plan. It has been prepared to inform interested agencies, stakeholders, and the public about the project and to solicit comments. This newsletter can also be viewed on the State of Alaska Division of Homeland Security and Emergency Management Website at: <http://www.ready.alaska.gov/plans/localhazmitplans.htm>.

HMP Development

Port Heiden was one of 21 communities selected by the State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) for a Hazard Mitigation Planning (HMP) development project. The plan identifies natural hazards that affect the community including earthquake, erosion, flood, ground failure, severe weather, and tundra/wildland fire. The HMP also identifies the people and facilities potentially at risk and potential actions to mitigate community hazards. The public participation and planning process is documented as part of the project.

What is Hazard Mitigation?

Across the United States, natural disasters have increasingly caused injury, death, property damage, and business and government service interruptions. The toll on individuals, families, and businesses can be very high. The time, money, and emotional effort required to respond to and recover from these disasters take public resources and attention away from other important programs and problems.

People and property throughout Alaska are at risk from a variety of hazards that have the potential for causing human injury, property damage, or environmental harm.

The purpose of hazard mitigation is to implement projects that reduce the risk severity of hazards on people and property. Mitigation programs may include short-term and long-term activities to reduce hazard impacts or exposure to hazards. Mitigation could include education, construction or planning projects. Hazard mitigation activity examples include relocating buildings, developing or strengthening building codes, and educating residents and building owners.

Why Do We Need A Hazard Mitigation Plan?

A community is only eligible to receive grant money for mitigation programs by preparing and adopting a hazard mitigation plan. Communities must have an approved mitigation plan to receive grant funding from the Federal Emergency Management Agency (FEMA) for eligible mitigation projects.

The Planning Process

There are very specific federal requirements that must be met when preparing a HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria may be found on the Internet at: <http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to document the following topics:

- ☐ Planning process
- ☐ Community Involvement and HMP review
- ☐ Hazard identification
- ☐ Risk assessment
- ☐ Mitigation Goals
- ☐ Mitigation programs, actions, and projects
- ☐ A resolution from the community adopting the plan

FEMA has prepared a Local Planning Review Guide) and (available at: <http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=4859>). It explains how the HMP meets each of the DMA2000 requirements. FEMA has prepared and “Mitigation Planning Guidance” and “How to Guides” (available at: <http://www.fema.gov/hazard-mitigation-planning-resources>). Port Heiden’s Hazard Mitigation Plan will follow those guidelines.

The planning process kicked-off on February 14, 2015 by establishing a local planning team and holding a public meeting. The planning team examined the full spectrum of hazards listed in the State Hazard Mitigation Plan and identified natural hazards the HMP would address.

Port Heiden staff, AECOM and the public began identifying critical facilities, compiling the hazard profiles, assessing capabilities, and conducting the risk assessment for the identified hazards. Critical facilities are facilities that are critical to the recovery of a community in the event of a disaster. After collection of this information, AECOM helped to determine which critical facilities and estimated populations are vulnerable to the identified hazards in Port Heiden.

A mitigation strategy was the next component of the plan to be developed. Understanding the community’s local

capabilities and using information gathered from the public and the local planning team and the expertise of the consultants and agency staff, a mitigation strategy was developed. The mitigation strategy is based on an evaluation of the hazards, and the assets at risk from those hazards. Mitigation goals and a list of potential actions/projects were developed as the foundation of the mitigation strategy.

Mitigation goals are defined as general guidelines that explain what a community wants to achieve in terms of hazard and loss prevention. Goals are positively stated future situations that are typically long-range, policy-oriented statements representing community-wide visions. Mitigation actions and projects are undertaken in order to achieve your stated objectives.

On March 27, 2015 the planning team identified projects and/or actions for each hazard that focus on six categories: prevention, property protection, public education and awareness, natural resource protection, emergency services,

and structural projects. The mitigation actions identified by the planning team are explained in more detail in the plan.

The selected projects and/or actions will potentially be implemented over the next five years as funding becomes available. A maintenance plan was also been developed for the hazard mitigation plan. It outlines how the community will monitor progress on achieving the projects and actions that will help meet the stated goals and objectives, as well as an outline for continued public involvement.

The draft plan is available in the City offices for public review and comment. Comments should be made via email or phone to Eileen Bechtol (contact information listed below) and be received no later than June 15, 2015. The plan will be provided to DHS&EM and FEMA for their preliminary approval and returned to the city council for formal adoption.

Sample of the City of Port Heiden's Mitigation Actions. Review the draft HMP for a complete list.

Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.	Shoreline erosion protection	Prepare community for significant interruptions in transportation, supplies, and services due to ash fall by early warning and encouraging stockpiles of items to last for several days.
Build firebreak around community	Relocate at-risk structures	Obtain adequate road- clearing equipment

We encourage you to take an active part in the Port Heiden 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. Please contact your Borough Community Development Planner Ranya Aboras; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for more information:

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