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Shaktoolik Strategic Management Plan

Shaktoolik, Alaska

August 2016

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Shaktoolik Strategic Management Plan

Prepared for the State of Alaska
Department of Commerce, Community, and Economic Development (DCCED)
Division of Community and Regional Affairs
on behalf of the Community of Shaktoolik
by HDR with RIM First People

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The project team would like to extend our sympathies to Michael Sookiayak's loved ones and the Community of Shaktoolik. In Michael's role as Community Coordinator, he was of invaluable assistance to the project team during development of this Strategic Management Plan.

With special acknowledgement to the residents of Shaktoolik, the community leadership, and the participants in the Shaktoolik Interagency Working Group.

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- City of Shaktoolik
- Native Village of Shaktoolik Indian Reorganization Act (IRA) Council
- Shaktoolik Native Corporation

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Executive Summary

Shaktoolik, a community on the eastern edge of Norton Sound, faces considerable threats from erosion and flooding. Government agencies consider Shaktoolik to be one of four communities in immediate need of relocation (GAO 2009), and the State of Alaska Immediate Action Workgroup included it in the six top-priority communities referenced in this document as "at-risk communities."[1] A clear plan of action with widespread community and agency support will increase Shaktoolik's chances of receiving future funding.

Erosion, flooding, and severe storms are significant concerns to the community. Winters in Shaktoolik have been getting shorter and temperatures are increasing. Norton Sound is freezing up later, and so shore ice forms later. This shore ice provides an important barrier between the community and fall storms, so its lack has made the community more vulnerable to the storms. Recent storms have resulted in damage to community infrastructure and erosion at the old village site. During the storms, waves have brought driftwood and other debris into the community. If waves and storm surges increase, it could have a catastrophic impact on Shaktoolik.

The community has recently decided to take a "defend in place" approach to erosion, which would allow residents to remain at the current village site for the immediate future. The community has indicated they are interested in eventually relocating.

What is resilience?

This *Strategic Management Plan* (SMP) will provide the "blueprint" for how the community and agencies will proceed to make Shaktoolik a more resilient community and to support their "defend in place" efforts.

The term "resilience" is defined for the purposes of the SMP as the following (DCCED 2012):

> *Resilience is the capability to anticipate risk, limit impact, and bounce back rapidly through survival, adaptability, evolution, and growth in the face of turbulent change. A resilient community is not only prepared to help prevent or minimize the loss or damage to life, property and the environment, but also it has the ability to "bounce back," i.e., quickly return citizens to work, reopen businesses, and restore other essential services needed for a full and swift economic recovery.*

[1] The Immediate Action Workgroup is a workgroup of the Alaska Governor's Sub-Cabinet on Climate Change.

Creating a resilient community requires developing a new way of approaching issues, engaging a diverse range of stakeholders, integrating the planning process across disciplines and levels of government, and coordinating available funding with resilience needs. A resilient community has five basic dimensions:

- **Political and government** systems that promote leadership, inclusive decision making, stakeholder engagement, and integrated planning;
- **Environment** that provides resources, does not worsen hazards, and enhances quality of life;
- **Social/culture** connection that creates a community identify, ties community residents together, honors their heritage, and a willingness to accept other cultures;
- **Robust economy** that provides employment opportunities, financial well-being and economic prosperity; and
- **Infrastructure** that meets basic needs, provides critical community services, reduces community vulnerability, and is within the community's ability to operate and maintain.

SMP Planning Process

The SMP provides a framework to accomplish Shaktoolik's goal of a more resilient community. The SMP process was performed in two phases. Phase 1 focused on issue identification, review of background information, development of guiding principles, and the creation of a *Background Planning Report*. Phase 2 focused on identifying the strategic action plan of resiliency-related activities to address the issues identified in Phase 1. Phase 2 is documented in the SMP.

Many residents of Shaktoolik, along with representatives from local, regional, state, and federal agencies and organizations, contributed to the creation of this SMP. They participated in community meetings and agency meetings, completed surveys, and provided feedback to community leadership. A list of those invited to participate in the Shaktoolik Interagency Working Group can be found in Appendix A. Additional information about community involvement can be found in Appendix B.

Vision

During Phase 1, based on community input, the following Vision Statement was developed to provide direction to the SMP process.

> *Shaktoolik is a safe and resilient community. We want to stay and defend our community from erosion and reduce our risk from hazards. We will work together and with partners to develop projects and policies to protect our residents, infrastructure, natural environment, and subsistence resources. We will increase resiliency while respecting our traditional values. We will preserve and enhance our community for us and future generations.*

Guiding Principles

Guiding principles provide the overall direction for the Shaktoolik SMP. Combined with the Vision Statement, they are the foundation for the SMP and provide a context for decision-making so that limited capital resources can be maximized. As part of the Shaktoolik Adaptation Plan, the guiding principles were developed based on information from a literature review and community input. These

principles will be used to help Shaktoolik achieve its goals, as well as to evaluate potential actions, which should be consistent with the guiding principles.

The Adaptation Plan's guiding principles are:

- The most important concern is to protect lives during a catastrophic flood event.
- Low-cost approaches that involve local resources and labor will be given priority.
- Opportunities to partner with agencies and organizations will be encouraged.
- A reasonable likelihood exists that the measure can be funded.
- Monitoring impacts from future storms, including flood levels and erosion, will provide important information for future planning efforts.

Additional guiding principles are:

- Keep residents safe from natural hazards and growing threats of flooding and erosion.
- Continue to be proactive as a community.
- Include local input into the process.
- Protect the natural environment.
- Continue the collaboration between the City Council, Indian Reorganization Act (IRA) Council, and the Shaktoolik Native Corporation board.
- Respect our traditional culture.
- Use funds wisely.
- Develop in a manner that strengthens the community.

Development of Strategic Action Plan

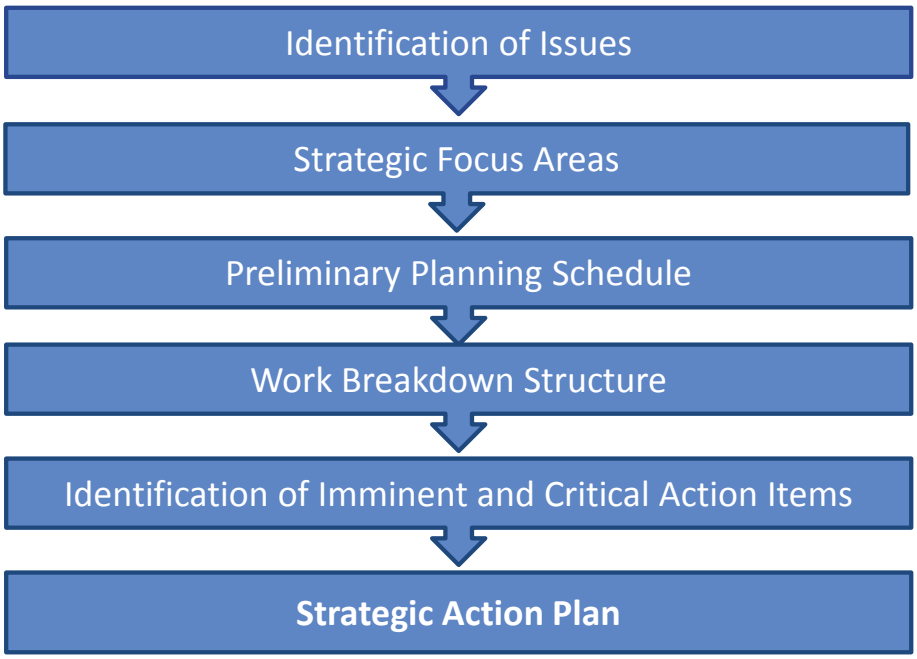
A strategic action plan was developed to help Shaktoolik identify what activities the community needs to pursue, who is responsible for each action item, when an action item should occur, what scale of financial resources are needed, and what entities can assist with implementation of the action item. Reasons to develop a strategic action plan include:

- **Establish priorities** – What should we be working on and what should we work on first?
- **Simplify decision making** – When faced with new ideas and potential projects, community leadership can use the action plan to determine if an idea or project helps implement the vision and is consistent with guiding principles.
- **Maintain focus** – This makes it easier to say no to items that may distract from the community's objectives.
- **Lend credibility to the actions** – The SMP and its strategic action plan demonstrate that the community and other stakeholders are organized and have thought about their future. Funding entities often want to see this.
- **Enhance communication** – The strategic action plan allows everyone to see where the community is going and how the action items will be achieved.
- **Promote efficiency** – Efficiency will save time, energy, and resources in the long run.

- **Create accountability** – Accountability shows what entity is responsible for each item.

The process used to develop the strategic action plan for the Shaktoolik SMP included the five steps outlined below.

Development of Strategic Action Plan



Identification of Issues

The development of the action plan started with the identification of issues in Phase 1 of the project. The key resiliency-related issues identified in Shaktoolik include:

- Lack of capital funds
- Lack of community infrastructure
- Poor community morale
- Lack of housing/Overcrowding
- Need for long-term objectives
- Lack of refuge during extreme events

Strategic Focus Area

Based on the issues identified in Phase 1, strategic focus areas were identified. Strategic focus areas expand on the vision and start to create a structure for how to achieve the vision. The following strategic focus areas were identified:

- Adaptable Built Environment
- Safe and Healthy Housing
- Jobs and Economic Development

- Proactive Emergency Management
- Strengthened Traditional Culture
- Leadership for the Future
- Relocation
- Other

Preliminary Planning Schedule

Based on the strategic focus areas and the known issues, a preliminary planning schedule was created. First, the project team identified action items that helped implement the vision and were consistent with guiding principles. Each action item was then identified as short-term, medium-term, or long-term depending on when the action was likely to be needed and the likely availability of funding. The preliminary planning schedule was then refined based on community and agency input.

Work Breakdown Structure

The preliminary planning schedule was refined into a comprehensive work breakdown structure (WBS) framework as a means to implement Shaktoolik's resiliency vision and allow them to "defend in place." A WBS is used to break down a project into manageable actions. It helps with project organization, assists with assigning responsibilities, helps with estimating costs and scheduling, and can help project stakeholders by providing further definition and detail of each task.

The WBS includes a discussion of strategic focus areas and lays out action items that should be undertaken by the community and their partners over the next 20 years.

Identification of Imminent and Critical Actions

In an emergency, the highest priority is the health and safety of community residents. This involves making sure procedures, training, and equipment are available for a safe evacuation or to shelter in place. Imminent actions are those actions the community needs in place today to protect people from harm during a hazard event. The imminent action identified for Shaktoolik is:

Conduct Emergency Planning and Drills

Shaktoolik needs to update their emergency plans and educate residents on what to do during an emergency. They also need to conduct a drill so people have the opportunity to practice the plans, become familiar with what is expected of them during an emergency, and identify whether the plan meets community needs or if changes need to be made.

Critical actions are those action items that, if not completed in 5 years, will result in a negative impact on community safety. Implementation of critical actions should be undertaken immediately with a goal of completing or substantially completing the action within 5 years. The identified critical actions are actions that are especially important for increasing community resiliency now. Criteria for identifying critical actions were:

- Does it save lives?
- Does it protect property?

- Can it be re-used or re-purposed in another location?

Additional considerations for identifying critical actions were:

- Does it address immediate priorities (e.g., food, water, energy, shelter)?
- How does it reflect community priorities? Does it support "Shelter in Place?"
- Is there funding available?
- Can it be fully implemented within the next 5 years?

The critical actions identified are summarized below. For information on the other action items identified, see Section 3 of the SMP.

CRITICAL ACTION – Develop a Road to the Foothills Area

Shaktoolik needs a road to the Foothills area. This road would provide access to their preferred relocation site, a gravel site, and additional subsistence resources. This route has been consistently identified as one of Shaktoolik's highest priority capital projects. It is estimated to cost approximately $50 million.

CRITICAL ACTION – Water and Wastewater Improvements

The community indicated that water and wastewater improvements are critical for the village. In particular, protection of the water source and a new water tank are essential. Residents are concerned that erosion along Tagoomenik River, Shaktoolik's water source, could allow ocean water into the river, making it unsuitable for drinking. They are also concerned that the river could be contaminated from other sources such as the dump. Protecting the existing water source is vital because of the time and financial resources it would take to develop an alternative source. A new water tank is also needed because the existing tank is in poor condition.

CRITICAL ACTION – Improve the Fuel Tank Farm

While one fuel tank farm was upgraded in 2015, many of the other remaining fuel tanks are in poor condition and are vulnerable to erosion. The community needs improvements to the remaining fuel tanks because, if they are damaged, the community may not be able to operate the power plant and there may be significant environmental impacts or negative impacts to subsistence resources.

CRITICAL ACTION – Replace the Health Clinic

The Shaktoolik Health Clinic is undersized and is vulnerable to extreme storms. A new clinic is needed to preserve the health of community residents.

CRITICAL ACTION – Improve Housing

Access to safe, quality, and affordable housing is vital for any community. Community residents have expressed a need to improve the housing in Shaktoolik to address overcrowding, energy efficiency, affordability, and poor structural conditions.

CRITICAL ACTION – Build an Evacuation Center

One of the biggest concerns in Shaktoolik is having a safe place to be during storms. Flooding events are expected to inundate the community with 1–3 feet of water, and there is no existing location within the

community that would be above the water level. The school has been expanded and reinforced to use as a storm shelter; however, it is located on the coast and is not elevated high enough, which makes it vulnerable to coastal storms. The school is also not large enough to house the residents during a storm. Residents need an evacuation center so they have a place to use during and after a storm or other emergency.

CRITICAL ACTION – Reinforce the Berm

In 2014, Shaktoolik constructed a 1-mile coastal berm to help protect against fall storm surges. The berm needs to be reinforced to be long-lasting and sustainable.

CRITICAL ACTION – Continue the Planning Committee

To assist with their resiliency efforts, Shaktoolik has a Planning Committee consisting of three members from the Shaktoolik City Council, Native Village of Shaktoolik IRA Council, and Shaktoolik Native Corporation board. Continuation of this committee would allow the community to develop a unified response and approach to resiliency-related issues and to support communication between the three entities.

CRITICAL ACTION – Escape Route Lighting

The community would like to purchase floodlights and lighted buoys to assist with navigation during poor weather conditions.

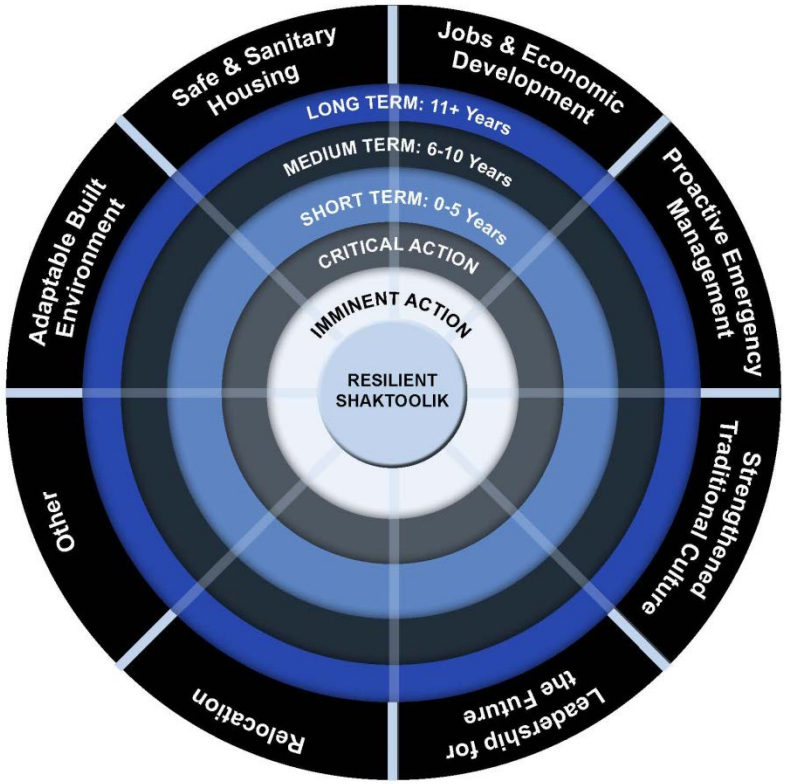
Each critical action is described in additional detail in the action plan.

Strategic Action Plan

The strategic action plan is organized by strategic focus area. Within each focus area, critical action items are identified first, followed by short-, medium-, and long-term action items. For each action item, the following details were identified:

- **Responsible Party** – Which agency or organization has the primary responsibility for championing the action?
- **Potential Partners/Coordination** – What entities may be willing to partner with the responsible party and how can the partnership be coordinated?
- **Timeframe for Implementation** – When is the action item needed?
- **Estimated Cost** – What is the planning level cost estimate (when available)?
- **Current Status** – What is the current status of the project?
- **Reference** – What is the source of the action item, if it originated from another community plan?

Strategic Action Plan Overview



The action items have been identified through the *Background Planning Report* and the first two Interagency Working Group Meetings. Completing the items on the list does not automatically mean Shaktoolik is a resilient community; resilience is a process of continual improvement. The strategic action plan is a work in progress, and should be kept visible and revised periodically to meet changing community needs. As the community makes progress on current action items, the SMP and its strategic action plan should be updated to remove completed action items and add new ones.

Actions will trigger other actions and opportunities to defend in place. The timelines are not meant to be a mandatory schedule; they are guidelines for future planning efforts. Implementation of actions will depend on availability of resources and community priorities.

Next Steps

The next step is for the community to lead the implementation of the SMP. Specific steps include:

- **Accountability** – Having a plan is not the same as implementing the plan. To be successful, Shaktoolik needs to identify specific people to be responsible for each action item. These individuals should report back to the community on a regular basis.
- **Monitoring** – Shaktoolik should decide how they want to monitor and update the SMP. The SMP is a living document to help the community become more resilient. The community should work

with their partners to assess the plan and update it at least annually. Keep the plan fluid – adapt to changes. Don't be afraid to change the plan if needed.

- **Support** – Gain support to implement action items from existing and new partners.
- **Communication** – Keep people informed of progress. Shaktoolik should share with residents and agency partners the progress they have made in implementing the plan.
- **Celebration** – As action items are completed, or at substantial milestones, celebrate these accomplishments. Celebrations can help keep everyone excited and engaged.

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Abbreviations

ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
AEA	Alaska Energy Authority
AHFC	Alaska Housing Finance Corporation
ANTHC	Alaska Native Tribal Health Consortium
ATV	All-Terrain Vehicle
AVEC	Alaska Village Electric Cooperative
BSSD	Bering Strait School District
CAA	Clean Air Act
CCHRC	Cold Climate Housing Research Center
DCCED	Alaska Department of Commerce, Community, and Economic Development
DCRA	Division of Community and Regional Affairs
DHS&EM	Division of Homeland Security and Emergency Management
DHSS	Department of Health and Social Services
DOT&PF	Alaska Department of Transportation and Public Facilities
DPS	Distinct Population Segment
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species List
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
GAO	Government Accountability Office
HIP	Housing Improvement Program
HUD	Department of Housing and Urban Development
ICDBG	Indian Community Development Block Grant
ICS	Incident Command System
IRA	Indian Reorganization Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NSEDC	Norton Sound Economic Development Corporation
NSHC	Norton Sound Health Corporation
RurAL CAP	Rural Alaska Community Action Program, Inc.
SCERP	Small Community Emergency Response Plan
SHPO	State Historic Preservation Officer
SMP	Strategic Management Plan
SNC	Shaktoolik Native Corporation
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VPSO	Village Public Safety Officer
VSW	Village Safe Water

1 Introduction

Shaktoolik, a community on the eastern edge of Norton Sound, faces considerable threats from erosion and flooding. The Government Accountability Office (GAO) found that at least 184 of Alaska's 214 villages have experienced some degree of erosion or flooding (GAO 2003).[1] Government agencies consider Shaktoolik to be one of four communities in immediate need of relocation (GAO 2009), and the State of Alaska Immediate Action Workgroup included it in the six top-priority communities referenced in this document as "at-risk communities."[2] A clear plan of action with widespread community and agency support will increase Shaktoolik's chances of receiving future funding.

Erosion, flooding, and severe storms are significant concerns to the community. Winters in Shaktoolik have been getting shorter and temperatures are increasing. Norton Sound is freezing up later, and so shore ice forms later. This shore ice provides an important barrier between the community and fall storms. The lack of shore ice has made the community more vulnerable to the storms. Recent storms have resulted in damage to community infrastructure and erosion at the old village site. During the storms, waves have brought driftwood and other debris into the community. If waves and storm surges increase, it could have a catastrophic impact on Shaktoolik.

The community has recently decided to take a "defend in place" approach to erosion, which would allow residents to remain at the current village site for the immediate future. The community has indicated they are interested in eventually relocating.

1.1 What is resilience?

This *Strategic Management Plan* (SMP) will provide the "blueprint" for how the community and agencies will proceed to make Shaktoolik a more resilient community and to support their "defend in place" efforts.

There is no universal definition of resilience. The term "resilience" has emerged from the field of ecology. It describes the capacity of a system to maintain or recover functionality after a disruption or disturbance. For the purposes of the SMP, the following definition is used (DCCED 2012):

> *Resilience is the capability to anticipate risk, limit impact, and bounce back rapidly through survival, adaptability, evolution, and growth in the face of turbulent change. A*

[1] The Government Accountability Office is an investigative arm of Congress that was requested to study erosion and flooding in Alaska villages.
[2] The Immediate Action Workgroup is a workgroup of the Alaska Governor's Sub-Cabinet on Climate Change.

> *resilient community is not only prepared to help prevent or minimize the loss or damage to life, property and the environment, but also it has the ability to "bounce back," i.e., quickly return citizens to work, reopen businesses, and restore other essential services needed for a full and swift economic recovery.*

Creating a resilient community is not about following a series of defined action items; rather, it requires developing a new way of approaching issues. It requires engaging a diverse range of stakeholders, integrating the planning process across disciplines and levels of government, and coordinating available funding with resilience needs (see Figure 1). A resilient community has five basic dimensions:

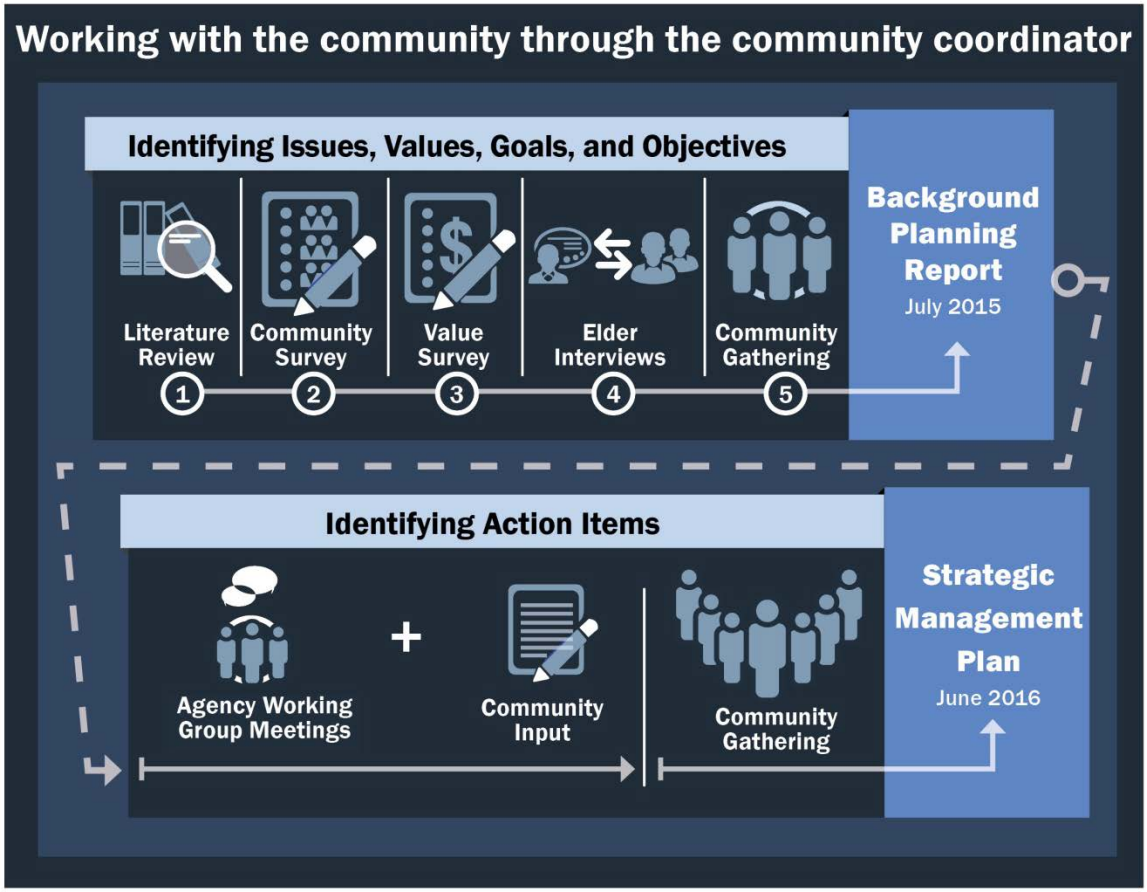
- **Political and government** systems that promote leadership, inclusive decision making, stakeholder engagement, and integrated planning;
- **Environment** that provides resources, does not worsen hazards, and enhances quality of life;
- **Social/culture** connection that creates a community identify, ties community residents together, honors their heritage, and a willingness to accept other cultures;
- **Robust economy** that provides employment opportunities, financial well-being and economic prosperity; and
- **Infrastructure** that meets basic needs, provides critical community services, reduces community vulnerability, and is within the community's ability to operate and maintain.

Figure 1. Resiliency Relationships

1.2 SMP Planning Process

The SMP provides a framework to accomplish Shaktoolik's goal of a more resilient community. The SMP process was performed in two phases. Phase 1 focused on issue identification, review of background information, development of guiding principles, and the creation of a *Background Planning Report*. Phase 2 focused on identifying the action plan of resiliency-related activities to address the issues identified in Phase 1. Phase 2 is documented in this *Strategic Management Plan*. The process used to develop the *Background Planning Report* and *Strategic Management Plan* is shown in Figure 2.

Figure 2. Planning Process



Many residents of Shaktoolik, along with representatives from local, regional, state, and federal agencies and organizations, contributed to the creation of this SMP. They participated in community meetings and agency meetings, completed surveys, and provided feedback to community leadership. A list of those invited to participate in the Shaktoolik Interagency Working Group can be found in Appendix A. Additional information about community involvement can be found in Appendix B.

1.3 Vision

During Phase 1, based on community input, the following Vision Statement was developed to provide direction to the SMP process.

> *Shaktoolik is a safe and resilient community. We want to stay and defend our community from erosion and reduce our risk from hazards. We will work together and with partners to develop projects and policies to protect our residents, infrastructure, natural environment, and subsistence resources. We will increase resiliency while respecting our traditional values. We will preserve and enhance our community for us and future generations.*

1.4 Guiding Principles

Guiding principles provide the overall direction for the Shaktoolik SMP. The guiding principles, combined with the Vision Statement, are the foundation for the SMP and provide a context for decision-making so that limited capital resources can be maximized. As part of the Shaktoolik Adaptation Plan, the community of Shaktoolik developed a set of guiding principles for climate change adaptation. Based on information from a literature review and community input, additional guiding principles were developed. These principles will be used by the community and agencies in helping Shaktoolik achieve its goals, as well as to evaluate potential actions. If actions are not consistent with the guiding principles, they should not be undertaken. It is the hope and intent of residents that partners working to make Shaktoolik more resilient will respect and promote these principles.

The Adaptation Plan's guiding principles are:

- The most important concern is to protect lives during a catastrophic flood event.
- Low-cost approaches that involve local resources and labor will be given priority.
- Opportunities to partner with agencies and organizations will be encouraged.
- A reasonable likelihood exists that the measure can be funded.
- Monitoring impacts from future storms, including flood levels and erosion, will provide important information for future planning efforts.

Additional guiding principles are:

- Keep residents safe from natural hazards and growing threats of flooding and erosion.
- Continue to be proactive as a community.
- Include local input into the process.
- Protect the natural environment.
- Continue the collaboration between the City Council, Native Village of Shaktoolik Indian Reorganization Act (IRA) Council, and the Shaktoolik Native Corporation board.
- Respect our traditional culture.
- Use funds wisely.
- Develop in a manner that strengthens the community.

2 Development of Strategic Action Plan

To help Shaktoolik implement their vision and increase resiliency, a strategic action plan was developed. Essentially, a strategic action plan is a list of everything that needs to be done. The strategic action plan identifies what activities the community needs to pursue, who is responsible for each action item, when an action item should occur, what scale of financial resources are needed, and what entities can assist with implementing the action item.

Reasons to develop a strategic action plan include:

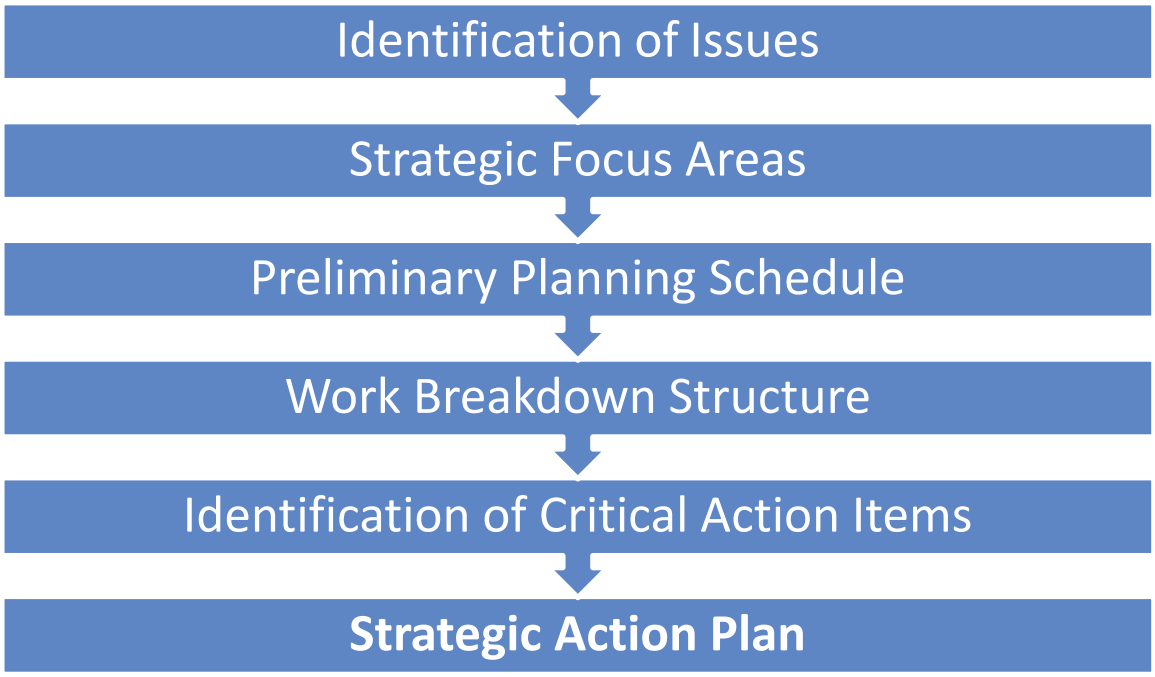
- Establish priorities
- Simplify decision making
- Maintain focus
- Lend credibility to the actions
- Enhance communication
- Promote efficiency
- Create accountability

Reasons to develop a strategic action plan include:

- **Establish priorities** – What should we be working on and what should we work on first?
- **Simplify decision making** – When faced with new ideas and potential projects, community leadership can use the strategic action plan to determine if an idea or project helps implement the vision and is consistent with guiding principles.
- **Maintain focus** – This makes it easier to say no to items that may distract from the community's objectives.
- **Lend credibility to the actions** – The SMP and its strategic action plan demonstrate that the community and other stakeholders are organized and have thought about their future. Funding entities often want to see this.
- **Enhance communication** – The strategic action plan allows everyone to see where the community is going and how the action items will be achieved.
- **Promote efficiency** – Efficiency will save time, energy, and resources in the long run.
- **Create accountability** – Accountability shows what entity is responsible for each item.

The process used to develop the strategic action plan for the Shaktoolik SMP is shown in Figure 3.

Figure 3. Development of Strategic Action Plan



2.1 Identification of Issues

The development of the strategic action plan started with the identification of issues in Phase 1 of the project. The key resiliency-related issues identified in Shaktoolik include:

- Lack of capital funds
- Lack of community infrastructure
- Poor community morale
- Lack of housing/Overcrowding
- Need for long-term objectives
- Lack of refuge during extreme events

Additional information about the issues can be found in Section 6 of the *Background Planning Report*.

2.2 Strategic Focus Area

Based on the issues, strategic focus areas were identified. Strategic focus areas expand on the vision and start to create a structure for how to achieve the vision. Based on the issues identified in the *Background Planning Report*, the following strategic focus areas have been identified:

- Adaptable Built Environment
- Safe and Healthy Housing
- Jobs and Economic Development
- Proactive Emergency Management

- Strengthened Traditional Culture
- Leadership for the Future
- Relocation
- Other

2.3 Preliminary Planning Schedule

Based on the strategic focus areas and the known issues, a preliminary planning schedule was created. First, the project team identified action items that helped implement the vision and were consistent with guiding principles. Each action item was then identified as short-term, medium-term, or long-term depending on when the action was likely to be needed and the likely availability of funding. The preliminary planning schedule was then refined based on community and agency input. The resulting preliminary planning schedule is shown in Appendix C.

2.4 Work Breakdown Structure

The preliminary planning schedule was refined into a comprehensive work breakdown structure (WBS) framework as a means to implement Shaktoolik's resiliency vision and allow them to "defend in place." A WBS is used to break down a project into manageable actions. A WBS is often used to make complex projects more manageable because it helps with project organization, assists with assigning responsibilities, helps with estimating costs and scheduling, and can help project stakeholders by providing further definition and detail of each task.

This work breakdown structure includes a discussion of strategic focus areas and lays out action items that should be undertaken by the community and their partners over the next 20 years. For each focus area, several strategies have been identified to provide additional guidance and focus. The implementation of the strategies through action items is how Shaktoolik will become a more resilient community.

The SMP WBS overview is shown in Appendix D.

2.5 Identification of Imminent and Critical Actions

In an emergency, the highest priority is the health and safety of community residents. This involves making sure procedures, training, and equipment are available for a safe evacuation or to shelter in place. Imminent actions are those actions the community needs in place today to protect people from harm during a hazard event. The imminent action identified for Shaktoolik is:

Conduct Emergency Planning and Drills

Shaktoolik needs to update their emergency plans and educate residents on what to do during an emergency. They also need to conduct a drill so people have the opportunity to practice the plans, become familiar with what is expected of them during an emergency, and identify whether the plan meets community needs or if changes need to be made.

Implementation of critical actions should be undertaken by the community and their partners immediately with a goal of completing the project (or substantial completion of) within the next 5 years. The identified critical actions are actions that are especially important for increasing community

resiliency now. Critical projects are those projects that, if not completed in 5 years, will result in a negative impact on community safety.

Criteria for identifying critical actions were:

- Does it save lives?
- Does it protect property?
- Can it be re-used or re-purposed in another location?

Additional considerations for identifying critical actions were:

- Does it address immediate priorities (e.g., food, water, energy, shelter)?
- How does it reflect community priorities? Does it support "Shelter in Place?"
- Is there funding available?
- Can it be fully implemented within the next 5 years?

The critical actions identified for Shaktoolik are:

- **Develop a Road to the Foothills Area** – Shaktoolik needs a road to the Foothills area. This road would provide access to their preferred relocation site, a gravel site, and additional subsistence resources. This route has been consistently identified as one of Shaktoolik's highest priority capital projects. It is estimated to cost approximately $50 million.
- **Water and Wastewater Improvements** – The community indicated that water and wastewater improvements are critical for the village. In particular, protection of the water source and a new water tank are essential. Residents are concerned that erosion along Tagoomenik River, Shaktoolik's water source, could allow ocean water into the river, making it unsuitable for drinking. They are also concerned that the river could be contaminated from other sources such as the dump. Protecting the existing water source is vital because of the time and financial resources it would take to develop an alternative source. A new water tank is also needed because the existing tank is in poor condition.
- **Improve the Fuel Tank Farm** – While one fuel tank farm was upgraded in 2015, many of the other remaining fuel tanks are in poor condition and are vulnerable to erosion. The community needs improvements to the remaining fuel tanks because, if they are damaged, the community may not be able to operate the power plant and there may be significant environmental impacts or negative impacts to subsistence resources.
- **Replace the Health Clinic** – The Shaktoolik Health Clinic is undersized and is vulnerable to extreme storms. A new clinic is needed to preserve the health of community residents.
- **Improve Housing** – Access to safe, quality, and affordable housing is vital for any community. Community residents have expressed a need to improve the housing in Shaktoolik to address overcrowding, energy efficiency, affordability, and poor structural conditions.
- **Conduct Emergency Planning and Drills** – Shaktoolik needs to update their emergency plans and educate residents on what to do during an emergency. They also need to conduct a drill so people have the opportunity to practice the plans, become familiar with what is expected of

them during an emergency, and identify whether the plan meets community needs or if changes need to be made.

- **Build an Evacuation Center** – One of the biggest concerns in Shaktoolik is having a safe place to be during storms. Flooding events are expected to inundate the community with 1–3 feet of water, and there is no existing location within the community that would be above the water level. The school has been expanded and reinforced to use as a storm shelter; however, it is located on the coast and is not elevated high enough, which makes it vulnerable to coastal storms. The school is also not large enough to house the residents during a storm. Residents need an evacuation center so they have a place to use during and after a storm or other emergency.
- **Berm Improvements** – In 2014, Shaktoolik constructed a 1-mile coastal berm to help protect against fall storm surges. The berm needs to be improved to be long-lasting and sustainable. Potential improvements include reinforcing the berm, vegetating the berm, and reducing the loss of gravel.
- **Continue the Planning Committee** – To assist with their resiliency efforts, Shaktoolik has a Planning Committee consisting of three members from the Shaktoolik City Council, Native Village of Shaktoolik IRA Council, and Shaktoolik Native Corporation board. Continuation of this committee would allow the community to develop a unified response and approach to resiliency-related issues and to support communication between the three entities.
- **Escape Route Lighting** – The community would like to purchase floodlights and lighted buoys to assist with navigation during poor weather conditions.

Each critical action is described in additional detail in the strategic action plan.

3 Strategic Action Plan

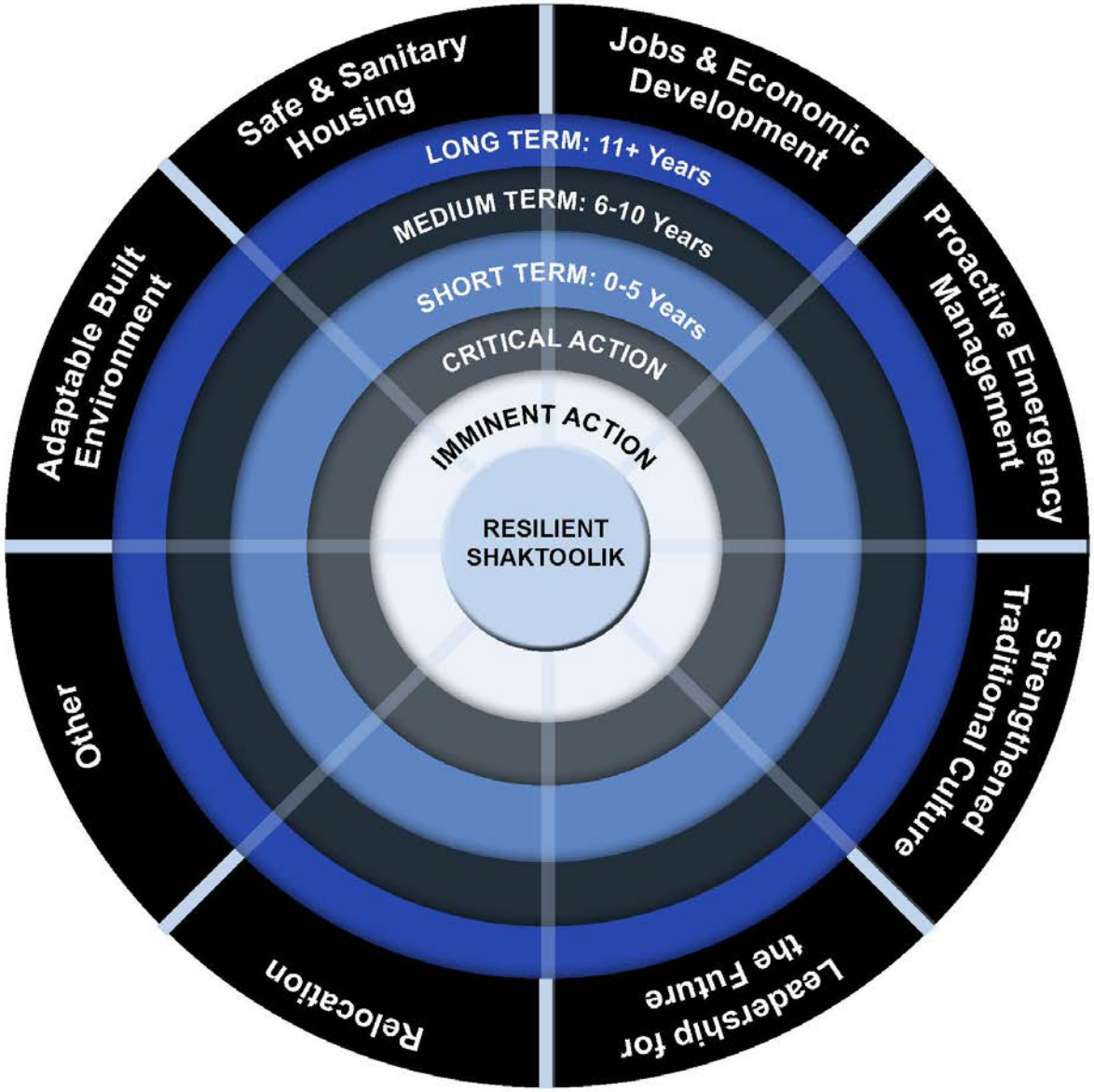
The strategic action plan is organized by strategic focus area. Within each focus area, critical action items are identified first, followed by short-, medium-, and long-term action items (see Figure 4).

For each action item, the following details were identified:

- **Responsible Party** – Which agency or organization has the primary responsibility for championing the action?
- **Potential Partners/Coordination** – What entities may be willing to partner with the responsible party and how can the partnership be coordinated?
- **Timeframe for Implementation** – When is the action item needed?
- **Estimated Cost** – What is the planning level cost estimate (when available)?
- **Current Status** – What is the current status of the project?
- **Reference** – What is the source of the action item, if it originated from another community plan?

For critical actions, potential funding sources have been identified. Appendix E contains additional funding sources that could be used to implement the strategic action plan. It is important to remember that funding levels can vary year to year and funding sources can change over time. It is also important for Shaktoolik to regularly review the strategic action plan in light of funding changes and changing needs to ensure the strategic action plan remains relevant.

Figure 4. Strategic Action Plan Overview



As the community makes progress on current action items, they should update the SMP and its strategic action plan to remove completed action items and add new ones. That way, the action plan remains current and useful. The strategic action plan is always a work in progress. It should be kept visible and revised periodically to meet changing community needs.

These action items have been identified through the *Background Planning Report* and the Interagency Working Group Meetings. It is important to note that the action items identified in this SMP are not intended to serve as a checklist. That is, completing the items on the list does not automatically mean Shaktoolik is a resilient community. Resilience is a process of continual improvement, and plan updates are essential to keep moving down that path.

The SMP is meant to be a living document that needs to be reviewed and updated frequently in order to remain relevant. Actions will trigger other actions and opportunities to defend in place. In addition, the timelines are not meant to be a mandatory schedule. They are guidelines for future planning efforts. Implementation of actions will depend on availability of resources and community priorities.

A strategic action plan is always a work in progress. It is not something you can write, put on a shelf, and forget about. Keep it visible. Display it prominently. As your organization changes and grows, you will want to continually (usually monthly) revise your strategic action plan to fit the changing needs of your group and community.

3.1 Adaptable Built Environment

Essentially, the term "built environment" refers to the structures and infrastructure built by people. Examples of the built environment include roads, schools, water systems, landfills, clinics, and government facilities. The built environmental plays an important role in the daily activities of all residents of Shaktoolik.

There are strong ties between a community's built environment and its resiliency. Where we build, what we build, and how it is built is essential to the resiliency of the built environment. For example, building in hazard prone areas, facilities that take too much money to operate, and buildings that cannot withstand high winds show how a community is more vulnerable because of decisions regarding the built environment. Infrastructure that is kept in good condition often reduces operating costs. In addition, Shaktoolik needs its infrastructure to be functional and operational during an emergency, as this will allow the community to respond, recover, and bounce back better from an emergency.

The main strategies for Shaktoolik to have an adaptable built environment are:

- Reliable and affordable infrastructure
- Strong, safe, and healthy environment
- Responsible growth
- Strategic, collaborative partnerships

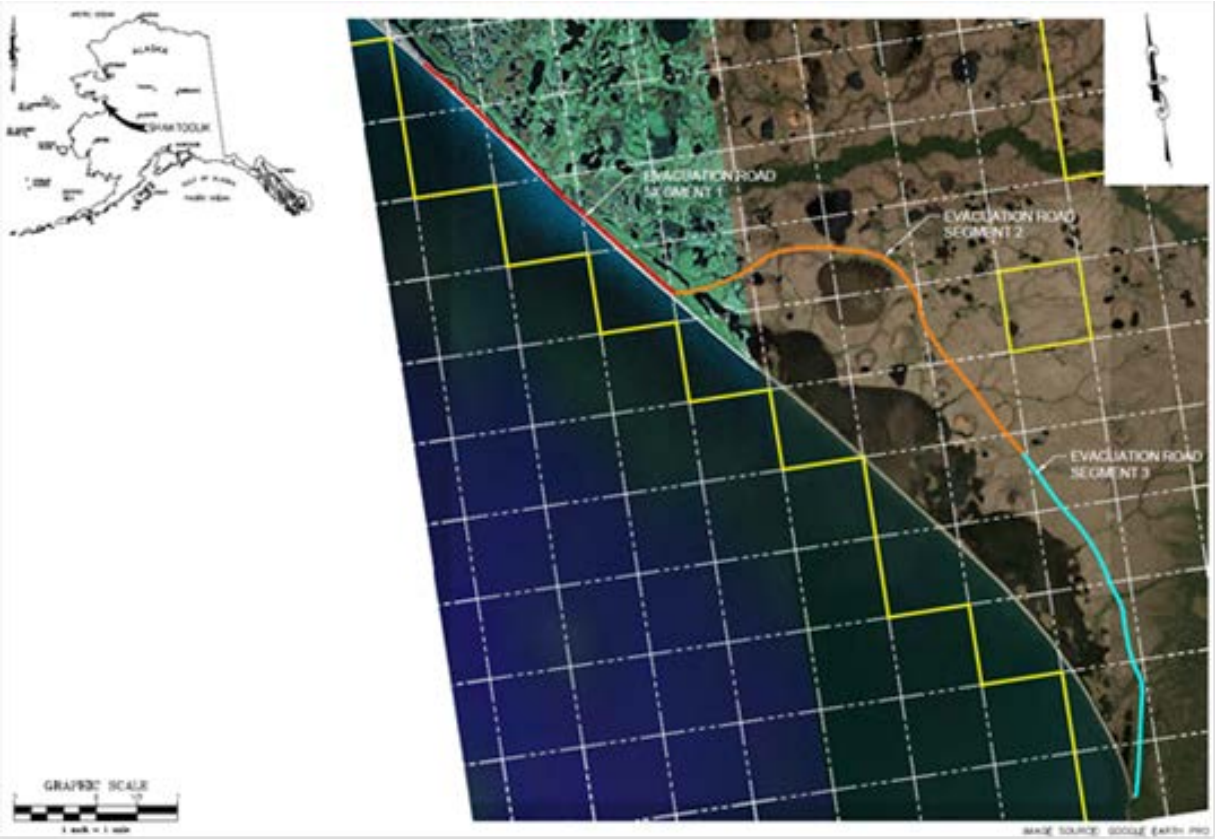
3.1.1 CRITICAL ACTION – Develop a Road to the Foothills Area

The community has expressed a strong desire to develop a road to the Foothills area (approximately 14.5 miles from the existing community). There is a gravel source at the Foothills, and access to the gravel would help Shaktoolik develop protective structures as well as other infrastructure projects. A road to the Foothills would also open new opportunities for subsistence fishing and hunting. The Foothills area is also considered a favored spot for the eventual relocation of the village. This road would provide access to the new site and assist with the relocation process.

In the Shaktoolik *2007 Long-Range Transportation Plan*, this road is one of the community's top priorities. At that time, this road was being pursued as an evacuation road to the Foothills area to provide residents a dependable route out of Shaktoolik in the event of an emergency.

To further the road efforts, a Route Reconnaissance Study was developed. The study identified a 14.6-mile road that heads southeast of the existing town site. The proposed evacuation route was divided into three segments, which were evaluated (see Figure 5). Segment 1 (4.2 miles) begins near the existing school site, heading south through the old Shaktoolik town site and follows the shoreline. Segment 2 (5.7 miles) deviates from the shoreline, heading southeast for approximately 2.7 miles before it swings to the south, paralleling Beeson Slough for approximately 3 miles. Segment 3 (4.7 miles) traverses to higher ground on the southern end of Beeson Slough for approximately 3.3 miles before it turns west to terminate at an existing gravel source near Norton Sound. The bay has a sandy gravel shore, which could potentially be used for barge landings. Additional information on the required preliminary right-of-way and engineering work is described in greater detail in the Route Reconnaissance Study.

Figure 5. 2008 Evacuation Road Reconnaissance's Proposed Route



However, since the Route Reconnaissance Study was prepared, storm surges in the community have increased, and the proposed road location is no longer considered safe due to erosion and potential inundation during a storm. As a result, the route is not considered safe for an evacuation because it would put people at risk. With some modifications, the proposed road would still support access to the gravel source, access to additional subsistence lands, and the eventual relocation of the community to the Foothills site.

Next Steps

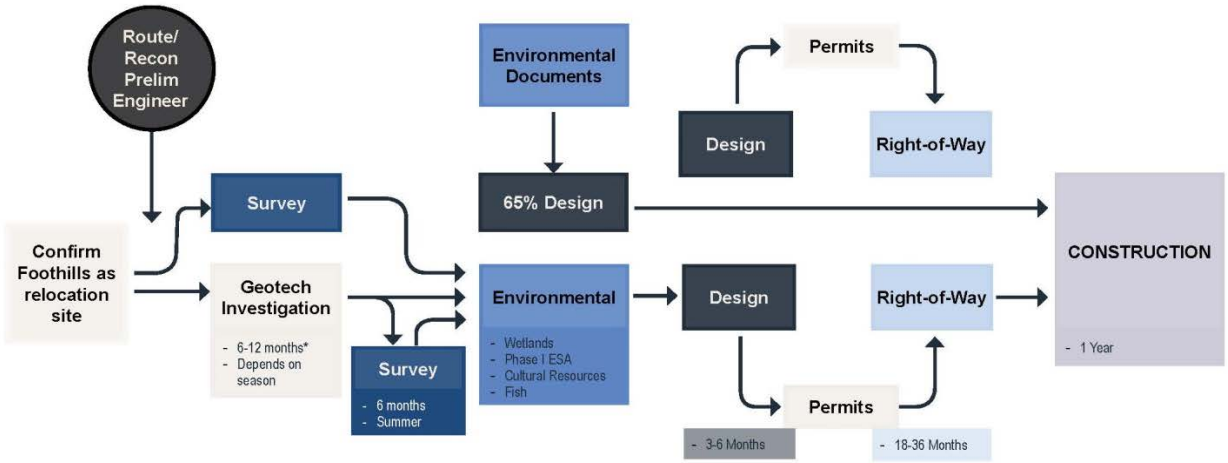
To advance the Foothills road project, the immediate next step for the community is to officially decide as a community that they would like to pursue the eventual relocation of the village to the Foothills site. While most people have indicated that the Foothills is their preferred relocation site, some have expressed concern about being able to access the water. Specifically, they are concerned about being able to receive goods by barge, finding storage for their boats, and maintaining access to subsistence resources.

Other next steps include:

- **Updating Route Reconnaissance Study** – The original study was performed in 2008. This study needs to be updated to reflect changed conditions and the changed primary purpose of the road. This study would also include updated project costs. Due to the importance of this road to the community, residents have expressed an interested in building a temporary road using geoblocks, durabase, portable bridges, and similar materials. This study should consider the feasibility of building a pioneer-style road to meet the community's short-term needs.
- **Geotechnical Investigations** – The potential gravel source should be studied to confirm that the available resource is suitable for construction purposes. The study should also determine if there is any permafrost or other soils conditions that are not suitable for the construction of a village site or road. This process typically takes 6–12 months.
- **Survey** – The potential road corridor needs to be surveyed to document the existing landscape in order for the road design to be accurate and appropriate for the site. The survey can typically take 6 months to complete.
- **Design** – The design process identifies the road criteria such a lane width, shoulder width, and number of lanes. The design process also lays out where the road should be constructed. The road design process is typically done in stages. A 65% design is usually developed to provide the necessary information for the environmental and permitting process. The design process typically takes 6–12 months. As part of the design process, best practices for dust control, and other issues should be reviewed and incorporated into the design as appropriate.
- **Environmental Studies** – Once preliminary information about the road is available, an environmental document, and field studies if needed, are prepared. Environmental documents are required if federal or state funding is used and to issue certain permits. Environmental documents disclose the impacts of the project to the environment. They also inform the design process so the design can be modified to avoid sensitive environmental areas. Types of environmental studies include wetland delineation, a Phase 1 Environmental Site Assessment, and Section 106 consultation. The environmental process can range from a few months to a few years.
- **Permits** – As part of the road development process, permits for various construction activities need to be acquired. A summary of the permits that would likely be required for the road to the Foothills is provided under "Potential Permits," below.
- **Right-of-Way** – Acquiring title, or an easement, to the land the road will be built upon is another essential step. Depending on the land owner, purchasing the needed land can take 18–36 months.
- **Construction** – The last step is the construction of the road. Construction of the road to the Foothills may be completed in 1 year.

These steps are summarized in Figure 6.

Figure 6. Road Development Process



Potential Permits

Permit applications are required and must be filed for certain projects. The following is each permit anticipated to be required during the permitting process of the Foothills road construction project.

- **Section 404(b)** – Section 404 refers to the Section 404 of the Clean Water Act, which established a program that regulates the discharge of dredged or filled material into waters of the United States, which include wetlands. This permit is required for projects such as infill development, water resources projects, or mining. The proposed activity is regulated through a permit review process and is reviewed by the U.S. Army Corps of Engineers (USACE). An *individual permit* is required for potentially significant impacts. A *general permit* may be more suitable for most discharges that only have minimal adverse effects.
- **Section 401 Water Quality Certification Permit** – The Section 401 Water Quality Certification Permit allows the Alaska Department of Environmental Conservation (ADEC) to review and approve, waive, or deny projects that require a federal license or permit that may result in a discharge into U.S. waters. In many cases, this refers to the Section 404 dredge and fill permit. Applicants must apply and obtain a Certificate of Reasonable Assurance from the ADEC to conduct a regulated activity. Any condition imposed by the State of Alaska in its Section 401 Permit certification then automatically becomes conditions of the Section 404 permit that is issued by USACE.
- **Title 16 Fish Habitat Permit** – The Alaska Department of Fish and Game (ADF&G) requires a Title 16 Fish Habitat Permit for any activity that disturbs fish habitat. The permit addresses land use activities in fish-bearing streams and in the state's legislatively designated refuges, critical habitat areas, and sanctuaries through a project review and permitting process. A Fish Habitat Permit is required before any action is take to (1) construct a hydraulic project; (2) use, divert, pollute, or change the natural flow or bed of specified river, lake, or stream; (3) use wheeled or tracked excavating equipment or log-dragging equipment in the bed of specified river, lake, or stream.

- **State Cultural Resource Permit** – A State Cultural Resource permit is required through Section 106 Consultation with the Alaska State Historic Preservation Officer (SHPO) for any agency or person that proposes to conduct a cultural resource investigation on state lands, including tidelands and submerged lands. A permit is required regardless of the level of proposed work (i.e., site evaluation or full construction redevelopment).
- **Airspace Obstruction Evaluation** – The Federal Aviation Administration's (FAA's) Airspace Obstruction Evaluation program determines standards and certain requirements for objects that affect navigable airspace. Communities must notify the FAA and identify aeronautical hazards in advance to prevent or minimize the adverse impacts to help keep airspace safe.
- **Incidental Harassment Authorization** – An Incidental Harassment Authorization through the National Marine Fisheries Service (NMFS) allows for monitoring and minimizing impacts to marine mammals and the use of marine mammals for subsistence users. NMFS may issue an Incidental Harassment Authorization for a period of up to 1 year. An incidental take is identified if the take would be of small numbers, have no more than "negligible impact" on marine mammals or stocks, and not have an "immitigable adverse impact" on the availability of the species or stock for subsistence uses.

Potential Funding Sources

Potential funding sources for a road to the Foothills include:

- DOT&PF
- State Legislative Grant
- Kawerak, Inc.
- Indian Reservation Road funds
- Denali Commission

Responsible Party: DOT&PF, City, and Native Village of Shaktoolik (Tribe)
Potential Partners/Coordination: DOT&PF, Kawerak, Denali Commission, Bering Straits Regional Corporation, Bureau of Indian Affairs, USACE, USFWS, SHPO, ADEC, ADF&G, FAA, Alaska Division of Commerce, Community, and Economic Development (DCCED), Bering Straits Health Corporation, Division of Homeland Security and Emergency Management (DHS&EM), U.S. Environmental Protection Agency (EPA)
Timeframe for Implementation: Critical Action
Estimated Cost: $50 million
Current Status: planning
Reference: *Shaktoolik IRA Council Long Range Transportation Plan*

3.1.2 CRITICAL ACTION – Water and Waste Water Improvements

The community indicated that water and waste water improvements are critical for the village. In particular, protection of the water source and a new water tank are essential. Other water and waste water improvements are listed in Section 3.1.6.

3.1.2.1 Protection of Water Source

The community water source is the Tagoomenik River. The water source needs to be protected from contamination. The primary concern is that erosion occurring south of the village could allow ocean water from Norton Sound to breach the River making it unsuitable for drinking water. There is also concern that the dump could contaminate the water source. Other activity, such as ATV usage could also cause contamination of the water source. Any of these contaminates could lead to increased treatment of the water or the need for a new water source. Both of these would require substantial capital improvements and could take years to develop.

To prevent erosion at the water source, a protective structure is needed. The community should work with agencies to determine if an extension of the existing berm would be suitable to protect the water source or if a different structure would be required.

Responsible Party: City and Tribe
Potential Partners/Coordination: Shaktoolik Native Corporation (SNC), VSW, DOT&PF, DCCED, USACE, NOAA, EPA
Timeframe for Implementation: Critical Action
Estimated Cost: To be Determined
Current Status: New
Reference: N/A

3.1.2.2 Water Storage Tank Replacement

Having a sufficient supply of clean drinking water is essential for all communities' health and quality of life. Shaktoolik's existing welded steel water storage tank was designed and constructed in the late 1970s and has a capacity of approximately 794,000 gallons. The roof surface once had urethane insulation, but it blew off due to heavy storms, exposing the steel to rust. The interior roof truss system shows signs of rust, as do the exterior edge of the tank roof and the tank's interior walls. The tank replacement should be designed to have a minimum design life of 40 years. The tank should also be raised to the elevation of the water plant, which would help drain water collected at the bottom.

Partial View of Shaktoolik's Water Tank

Responsible Party: VSW
Potential Partners/Coordination: City, Tribe, AVEC, VSW, SNC
Timeframe for Implementation: Critical Action
Estimated Cost: $2,361,000
Current Status: Planned

Reference: *Shaktoolik Sanitation Facilities Master Plan* and *Shaktoolik Local Economic Development Plan 2013-2018*

3.1.3 CRITICAL ACTION – Fuel Tank Farm

Protection of the fuel tank farms from coastal storms was also identified as a critical action. The community's bulk fuel tanks are located near the coastline. Recent storms have washed ashore driftwood which ended up just feet away from bulk fuel tanks. If the fuel tanks are damaged, the community may not be able to operate the power plant and there may significant environmental impacts or negative impacts to subsistence resources.

In addition to their close proximity to the water, the tanks are also in need or repair or replacement. There are four tank farms in the community, two of which are bulk fuel facilities. The tank farms receive gasoline and diesel twice per year – spring and fall – from the fueling barge.

Tank Farm 1 is a series of facilities owned and operated by the City of Shaktoolik, Bering Straits School District (BSSD), and the Shaktoolik Native Corporation. Shaktoolik Native Corporation is in charge of operating and distributing diesel and gasoline to customers. The Corporation operates 13 tanks (6 gasoline tanks and 7 diesel tanks), BSSD owns 8 tanks, and the City owns 3 tanks. There are 24 tanks in total, but 21 tanks are currently used. The Corporation is the only recipient of gasoline in the community. BSSD is in the process of upgrading to new tanks near the school. This facility needs to be replaced as the tanks are over 30 years old, are in poor condition. The site does not have adequate secondary containment and is threatened by coastal erosion.

Tank Farm 1

Tank Farm 2 is owned by Alaska Village Electric Cooperative (AVEC) and contains nine storage tanks for diesel storage. In 2015, AVEC completed upgrades to Tank Farm 2 that included repainting and reusing existing tanks along with installation of several tanks to increase capacity. A new secondary containment cell was built, and fencing was installed around the facility.

Tank Farm 2

Tank Farm 3 consists of BSSD's fuel tank. The tank lies adjacent to the school building and supported by steel skids. The fuel tank provides fuel for the school mechanical room for space heating and emergency power. The BSSD has also recently installed two additional 25,000-gallon wall tanks. Tank Farm 3 is in good overall condition but the issues identified in the Bulk Fuel Assessment Report should be addressed. These issues include fencing the facility, installing fire extinguishers, and repairing electrical wiring.

Tank Farm 4 is operated by the Shaktoolik Native Corporation and is located south of the AVEC Tank 2 Farm in the old armory building. The tank farm provides diesel for heating the building space during community-wide events. The tank needs to be replaced as it is more than 25 years old and has significant corrosion.

The Alaska Energy Authority's (AEA's) bulk fuel program aims to upgrade non-compliant bulk fuel facilities in rural communities across the state of Alaska through funding provided by the Alaska State Legislature and the Denali Commission. The program helps in design/engineering, business planning, and construction management of the tank farm upgrades and ensures that the building is compliant with bulk fuel tank farm standards in rural communities. Piping systems to, from, and within tank farms in many communities need to be retrofitted. Upgrading these facilities will help decrease potential of fuel leaks and spills and will bring these facilities into compliance.

As of February 2016, Shaktoolik is in phase 1 of AEA and AVEC's bulk fuel program. AVEC self-funded a project on AVEC owned and operated Tank Farm 2 in 2015, which consisted of reusing the existing tanks along with installing a few others to increase capacity. A new secondary containment cell was built and fencing was installed for the life extension project. No other recent upgrades have been done on other tank farms. Currently there are no funds to move to the second phase of the project, according to AEA.

Responsible Party: City, Tribe, SNC, BSSD, AVEC
Potential Partners/Coordination: AEA, FAA, DCCED, DHS&EM, USCG, Denali Commission, Norton Sound Health Corporation (NSHC)
Timeframe for Implementation: Critical Action
Estimated Cost: To be determined
Current Status: New
Reference: *Shaktoolik Bulk Fuel Assessment, Shaktoolik Adaptation Plan,* and *Shaktoolik Local Economic Development Plan 2013-2018*

3.1.4 CRITICAL ACTION – Shaktoolik Health Clinic

The Shaktoolik Health Clinic is part of the North Sound Health Corporation and operates year-round. The clinic was constructed in 1999 and consists of five offices, one exam room, and a trauma room. The total floor area is 1,792 square feet. The clinic is operated 8 hours per day, 5 days per week.

The clinic currently lacks space for major services, including the following:

- Chairs and desks with drawers that work
- A gurney – Trauma patients are put on the floor because there is no space for them
- Vehicle for clinic – Health aides use personal vehicles because the clinic's four-wheeler needs repair
- More space for patients and visiting practitioners
- Enough qualified staff to provide stable services to residents in the face of frequent staff turnover.

The clinic is also located right next to the beach, where it is vulnerable to extreme storms. Other concerns with the clinic are that the building uses too much fuel for electricity and the sewer lines can freeze during the winter.

In August 2005, Shaktoolik received a grant from the Denali Commission to build a new clinic. The design for the new clinic was completed in 2007, but the facility has not been constructed. The community indicated that the clinic project was stopped because of erosion and storm surge issues and the potential relocation of the community.

For the immediate future, Shaktoolik has decided to "defend in place" and need an adequate health clinic to preserve the health of community residents. The community should work with the NSHC, the Denali Commission, and other partners to obtain funding for the construction of a new clinic or an expansion/renovation of the existing clinic.

Responsible Party: NSHC, City, and Tribe
Potential Partners/Coordination: Alaska Office of Rural Health, Denali Commission, Kawerak, SNC, Alaska Native Tribal Health Consortium (ANTHC), USDA Rural Development
Timeframe for Implementation: Critical Action
Estimated Cost: $2.5 million
Current Status: Inactive

Reference: *Shaktoolik Local Economic Development Plan 2013-2018*

3.1.5 Energy

3.1.5.1 Energy Audit

An energy audit assesses various energy needs and efficiencies of a building or buildings. An energy audit can include unplugging electronics in a room, low wattage lighting, window coverings that minimize cold air drafting, sinks that have no leaks, and more insulation for the house to minimize heat loss and energy output. Energy audits can be done on many buildings, including the school, health clinic, and private homes. In Shaktoolik, energy audits have been completed for the water treatment plant, health clinic, and tribal office, as well as the school. Energy audits should be conducted for the remaining structures in the community.

Responsible Party: Facility operators, individuals, Alaska Housing Finance Corporation
Potential Partners/Coordination: U.S. Department of Energy, AEA, Alaska Housing Finance Corporation, CCHRC, RuralCAP
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Various
Current Status: New
Reference: N/A

3.1.5.2 Implement results of Health Clinic Energy Audit

An energy audit was done for the Shaktoolik Health Clinic by ANTHC. By following audit recommendations, the community can potentially save money spent on high fuel oil prices and electricity costs that keep the local clinic running. The audit recommended several measures, such as retrofitting the boiler, implementing a setback thermostat, adding more insulation to the attic space, and tightening spaces between windows and doors to reduce air leakage. Additional efficiency steps can be found in the *Comprehensive Energy Audit for Shaktoolik Health Clinic*. With all recommended measures implemented, the community could potentially have more than $5,000 in energy savings per year with a 2.5-year pay-back period to offset the installation costs.

Responsible Party: NSHC, City, Tribe
Potential Partners/Coordination: U.S. Department of Energy, AEA, ANTHC, SNC, CCHRC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: $13,352 for installation
Current Status:
Reference: *Comprehensive Energy Audit for Shaktoolik Health Clinic*

3.1.5.3 Reduce Energy Costs

The high cost of energy is one of the biggest issues facing rural Alaska. The *Bering Strait Regional Energy Plan* documents the current status of energy resources in the Bering Strait Region and includes a prioritized list of projects and strategies for reducing energy costs while maintaining or improving the existing level of service. Potential projects to reduce energy costs in Shaktoolik include installation of a

heat recovery system, completion of a surplus wind energy study for water system heat, and development of a biomass project.

Responsible Party: Facility operators, Individuals
Potential Partners/Coordination: U.S. Department of Energy, AEA, Alaska Housing Finance Corporation, Bering Straits Development Company, ANTHC, AVEC, City, Tribe, SNC, CCHRC
Timeframe for Implementation: Ongoing
Estimated Cost: Varies
Current Status:
Reference: *Bering Strait Regional Energy Plan*

3.1.5.4 Wind Feasibility Study

A wind feasibility study looks at the possibilities of a proposed wind project, and whether completing the project is a viable option. The wind feasibility study looks at the strengths and weaknesses of harboring wind power for energy purposes and where potential sites could be located depending on the available land area, exposure to the wind, existing land uses, and proximity to the local residents. This feasibility study would help the local community find energy alternatives to fuel that is freighted in. The USACE has done a study of flooding risks in the Norton Sound and used historic wind, wave, and storm-surge water level data. Data from this study may also be used for an additional Wind Feasibility Study in the future.

Wind Generators in Shaktoolik

Responsible Party: AEA
Potential Partners/Coordination: USACE, Bering Strait Development Corporation, City, Tribe, SNC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: $50,000–$150,000
Current Status: New
Reference: N/A

3.1.6 Water/Wastewater

3.1.6.1 Water Source Protection Ordinance

A water source protection ordinance is legislation or a ruling applied by the local authorities to protect the water sources within the village's boundaries. The ordinance should outline practices and activities that should be followed by community residents to prevent pollution of ground water and streams. For example, the ordinance could limit refueling of an all-terrain vehicle (ATV) within 100 feet of the water source to reduce the potential impact from a fuel spill, or prevent any major traffic or garbage dumping occurring near the water site. An ordinance should be written protecting the Tagoomenik River, the

town site's primary water source. This water source is being threatened by the erosion occurring south of the village, which could result in contamination of the fresh water source with ocean water.

Responsible Party: City and Tribe
Potential Partners/Coordination: EPA, ADEC, VSW, SNC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Under $10,000
Current Status: New
Reference: N/A

3.1.6.2 Upgrade Winter Pump House

The winter pump house is a 5-foot by 8-foot structure that contains control equipment, alarms, meters, and check valves for the pumps. In order to reach the winter water supply, the pump operator cuts a hole in the Tagoonmenik River and places the pump in the river. The winter pump station pumps are currently not used because the pump station control panel is not functioning. Several upgrades are needed to keep the winter pump house in working order. Screens, as well as a new door, electrical panel, arctic pipe connection between pump house and water intake, new pumps, and new heater are necessary.

Responsible Party: City and Tribe
Potential Partners/Coordination: AVEC, VSW, SNC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: $50,000
Current Status: Planned
Reference: *Shaktoolik Sanitation Facilities Master Plan*

3.1.6.3 Summer/Winter Intake Screens

Summer and winter intakes do not currently meet Surface Water Treatment standards. A new inlet screen for the summer and winter is needed at the water intake because the current intake gets plugged by fish swimming into the raw water intake. The intake screens will also reduce the amount of brackish water entering the pump.

Responsible Party: City and Tribe
Potential Partners/Coordination: VSW, SNC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: $20,000
Current Status: Planned
Reference: *Shaktoolik Sanitation Facilities Master Plan*

3.1.6.4 Replace Summer Raw Water Main

The summer raw water main intake needs several upgrades on the line. Various alternatives were being considered for the summer intake improvements, including moving the existing pumps, installing renewable energy systems for pump operation, and burying summer intake in the ground along easement. Some individuals haul water by choice during the summer months from a location 1 mile

upstream of the summer drinking water intake because of "better choice." Moving the line up to this location is also an alternative being considered.

Responsible Party: City and Tribe
Potential Partners/Coordination: VSW, AVEC, SNC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: $1,462,500
Current Status: Planned
Reference: *Shaktoolik Sanitation Facilities Master Plan*

3.1.6.5 Summer Intake Wind Generator

The summer intake wind generator is meant to replace the existing diesel pump. The wind turbine at the summer intake would require battery storage, diversion load, and a pump controller. The intake pump would run 1 week at a time, while the wind turbine would provide power and battery storage for the summer intake.

Responsible Party: City and Tribe
Potential Partners/Coordination: AVEC, VSW, Tribal Energy Program, AEA, SNC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: $140,000
Current Status: Planned for 2016
Reference: *Shaktoolik Sanitation Facilities Master Plan*

3.1.6.6 Water Treatment Plant Improvements

The water treatment plant provides treated water for the community. The water is filtered, chlorinated, fluoridated, and then stored in the steel holding tank. Several improvements are needed to meet regulatory requirements for the water treatment process at the water plant. A study needs to be done through water sampling and core samples of existing filters before a recommendation can be developed and the most cost-effective solution is found.

Responsible Party: City and Tribe
Potential Partners/Coordination: VSW, AVEC, SNC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: $609,000
Current Status: Planned
Reference: *Shaktoolik Sanitation Facilities Master Plan*

3.1.6.7 Replace Water Treatment Plant Windows

There are high energy costs related to maintaining heat in the water treatment plant and keeping the water circulating in the water storage tank. Replacement of existing windows would contribute to increasing the energy efficiency of the building. Window replacement is the most cost-effective option.

Responsible Party: City and Tribe
Potential Partners/Coordination: VSW, AVEC, SNC

Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: $35,000
Current Status: Planned
Reference: *Shaktoolik Sanitation Facilities Master Plan*

3.1.6.8 New Septage Pumper Trailer

The community needs a new septage trailer or truck for septic sludge removal. The current pumper trailer is 20 years old. The septage trailer can handle approximately 300 gallons, but the average size of a residential septic tank is 1,500 to 3,000 gallons. A larger, newer septage pumper trailer would help increase pumping rate.

Responsible Party: City and Tribe
Potential Partners/Coordination: VSW, SNC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: $65,000
Current Status: Planned
Reference: S*haktoolik Sanitation Facilities Master Plan*

3.1.6.9 Septage Disposal Site Fencing

The community's current septage disposal site is a concern, as it could harm the Shaktoolik river water source and the site does not meet the ADEC standards. The disposal site is located nearly 3,000 feet from the water treatment plant. It is recommended that fencing be installed around the septage disposal site to enclose the area and prevent possible animal or human disturbance of the disposal site.

Responsible Party: City and Tribe
Potential Partners/Coordination: VSW, SNC
Timeframe for Implementation: Short-term (0–5 years)
Estimated Cost: $30,000
Current Status: Planned
Reference: *Shaktoolik Sanitation Facilities Master Plan*

3.1.6.10 Update Sanitation Facilities Master Plan

A *Sanitation Facilities Master Plan* is a planning document that identifies the existing conditions of a community's water and wastewater system and includes a description of the issue to be addressed through the planning process. It can also be known as a feasibility study or a preliminary engineering report.. It usually identifies alternatives, determines costs, recommends a preferred alternative, and identifies possible constraints associated with constructing the recommended alternative (e.g., environmental or site control issues).

During the next update, the *Master Plan* should analyze the increased erosion occurring south of the village; the water that is treated and stored could be breached by the ocean water. Moving this system to an area farther away from the Norton Sound may help prevent water source contamination. It should also look at relocating the leach pits as several of them were clogged when a storm backwashed sand into them.

Responsible Party: Village Safe Water
Potential Partners/Coordination: City and Tribe
Timeframe for Implementation: Medium term (6–10 years)
Estimated Cost: $100,000–$300,000
Current Status: New
Reference: *Shaktoolik Sanitation Facilities Master Plan*

3.1.6.11 Rainwater Capture and Reuse Program

Rain water capture and reuse can help alleviate the stress put on the community's water supply. Under this program, community residents would collect rainwater and use it instead of piped water for certain activities such as watering plants or dust suppression. Benefits of using rainwater include saving the water in the storage tanks for consumption purposes and saving the community money by having to treat less water.

It is important to note that in general, rainwater should not be used for drinking or cooking purposes. If rainwater is going to be used for drinking or cooking purposes, the water catchment system needs to be designed in a way that the water does not come into contact with materials that could contaminate the water.

Responsible Party: Individuals
Potential Partners/Coordination: City, Tribe, Cold Climate Housing Research Center (CCHRC) VSW, EPA
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Under $10,000
Current Status: New
Reference: N/A

3.1.7 Transportation

3.1.7.1 Update Long Range Transportation Plan

A Long Range Transportation Plan documents the existing transportation system and guides future transportation investments. The City is responsible for maintaining the roads in the boundaries of the municipality, but the DOT&PF holds responsibility for maintaining the road to the airport runway. The Tribe is responsible for any future road projects constructed under the Indian Reservation Roads program. The transportation plan update prioritizes the building of several roads, including an emergency response road to the Foothills, 13 miles south of the community, which has a road and gravel source. The Tribe and City have developed an updated list of inventory roads that the community feels are needed over the next 20 years. Updating plans for road improvements will increase employment and enhance public safety in the community.

Responsible Party: Kawerak
Potential Partners/Coordination: DOT&PF, City, Tribe, FAA, BIA, SNC, Denali Commission
Timeframe for Implementation: Medium term (5–10 years)
Estimated Cost: Under $250,000
Current Status: New

Reference: *Shaktoolik IRA Council Long Range Transportation Plan*

3.1.7.2 Access Road – West Side

The development of a new road would provide more alternatives for getting around the community on the west side. The access road would also help prevent water, logs, and ice from reaching west end residential areas during heavy storms. The road could be used for emergency purposes and be a barrier from elements.

Responsible Party: Kawerak, Tribe, City
Potential Partners/Coordination: DOT&PF, USACE, USFWS, NOAA, USCG, DCCED, ADF&G, EPA, DHS&EM, BIA, DNR, SNC, Denali Commission
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: $3 million
Current Status: Planning
Reference: *Shaktoolik IRA Council Long Range Transportation Plan*

3.1.7.3 Upgrade Community Streets

Established local streets within the boundaries of the City are in need of surface upgrades and various improvements. Better streets would help control dust problems in the community during dry months. The new streets would also require less maintenance and improved travel for ATVs as well as decrease the potential for pedestrian accidents or problems. In particular, community residents indicated a need to upgrade the main road to the airport.

Responsible Party: Kawerak, City, Tribe
Potential Partners/Coordination: DOT&PF, ADEC, BIA, EPA, SNC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: $4 million
Current Status: Planning
Reference: *Shaktoolik IRA Council Long Range Transportation Plan*

3.1.7.4 Snow Fencing along Community Routes

Snow fencing along community routes within the village would lower maintenance costs because there would be less snow on local streets. The fencing would also help prevent animals from entering town and thereby increase safety. The fencing would also help protect local roads and routes for pedestrian and four-wheeler use.

Responsible Party: Kawerak, City, Tribe
Potential Partners/Coordination: DOT&PF, EPA, BIA, USFWS, ADF&G, DNR, SNC
Timeframe for Implementation: Long-term (11+ years)
Estimated Cost: $200,000 per mile of road with fencing
Current Status: Planning
Reference: *Shaktoolik IRA Council Long Range Transportation Plan* and *Shaktoolik Local Economic Development Plan 2013-2018*

3.1.7.5 Construct Proposed Subsistence and Economic Routes

The community is currently surrounded by unimproved routes that lead to seasonal camps, reindeer corrals, and subsistence areas. Additional subsistence and economic routes, such as roads that provide access to neighboring villages like Unalakleet and Koyuk, would increase trading and partnership among communities and a defined road would increase safety for travelers year-round.

Responsible Party: Kawerak, City, Tribe
Potential Partners/Coordination: DOT&PF, USACE, BIA, USFWS, ADF&G, DNR, SNC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: $980 million
Current Status: Planning
Reference: *Shaktoolik IRA Council Long Range Transportation Plan*

3.1.7.6 Construct a Road to Swallows

Swallows is one of two construction material sites close to the community (the other is the Foothills). A constructed road to Swallows would provide access to various material sources and could be concurrently used for subsistence access off the road.

Responsible Party: Kawerak, City, Tribe
Potential Partners/Coordination: DOT&PF, USACE, BIA, EPA, USFWS, ADF&G, DGGS, SNC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: $64 million
Current Status: Planning
Reference: *Shaktoolik IRA Council Long Range Transportation Plan*

3.1.7.7 Dust Suppression Program

Large amounts of dust can be created from berm construction or other relocation processes. Dust can be kicked up by four-wheelers traveling around town during the summer months or on the roads leading out of town. Dust poses a health threat, especially for children, causing problems such as asthma. Dust mites can also flourish and cause allergies and other health problems for humans. A dust suppression program improves visibility and road safety, and provides cleaner air and homes. Implementing a program would reduce dust-related risks such as major allergy reactions, pneumonia, or asthma attacks. Some solutions include watering roads regularly prior to conduction and during and after earth-moving operations, establishing vegetation right after the process, sweeping roads or water flushing, washing wheels after construction use, and staying on established routes during construction.

Responsible Party: City and Tribe
Potential Partners/Coordination: ADEC Division of Air Quality, Alaska Office of Rural Health, EPA, BIA, FAA, DOT&PF, ANTHC, SNC
Timeframe for Implementation: Medium term (6–10 years)
Estimated Cost: Varies
Current Status: New

Reference: *Shaktoolik IRA Council Long Range Transportation Plan* and *Shaktoolik Local Economic Development Plan 2013-2018*

3.1.7.8 Boat Harbor

Shaktoolik does not currently have a boat harbor. Developing a small harbor with boat ramp and dock facilities would increase commercial fishing benefits for the community. The community's skiffs are regularly damaged on the gravel shoreline from the landing and launching, especially during adverse weather conditions. Families rely on their skiffs for subsistence purposes, and protected moorage would decrease damage to the boats. The boats would last longer and hunters would have higher subsistence benefits.

Responsible Party: City and Tribe
Potential Partners/Coordination: USACE, Denali Commission, Kawerak Transportation Program, USDA, BIA, USFWS, ADF&G, EPA, USGC, DNR, SNC
Timeframe for Implementation: Medium term (6–10 years)
Estimated Cost: $800,000
Current Status: New
Reference: *Shaktoolik Local Economic Development Plan 2013-2018* and *Shaktoolik IRA Council Long Range Transportation Plan*

3.1.7.9 Construction and Upgrades to Marine Facilities

The community would like to see construction and upgrades to marine facilities such as harbors, ports, barge landings, and breakwater structures.

Responsible Party: Kawerak, City, Tribe
Potential Partners/Coordination: DOT&PF, USACE, SNC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: $7 million
Current Status: Planning
Reference: *Shaktoolik IRA Council Long Range Transportation Plan*

Boat Stored in Village

3.1.7.10 Winter Travel Improvements

Provide route staking, shelter cabins, navigational upgrades, and signage to the *2007 Long-Range Transportation Plan* inventory routes to improve safety during winter travel, reduce disorientation, and assist in rescue operations.

Responsible Party: City and Tribe
Potential Partners/Coordination: DOT&PF, Kawerak, BIA, SNC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: Approximately $100,000 per mile
Current Status: Planning

Reference: *Shaktoolik IRA Council Long Range Transportation Plan*

3.1.7.11 Airport Shelter

Provide a shelter at the airport so people waiting for flights do not have to wait outdoors.

Responsible Party: DOT&PF
Potential Partners/Coordination: Kawerak, City, Tribe, SNC, FAA
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: Unknown
Current Status: New
Reference: N/A

3.1.8 Education

3.1.8.1 Early Childhood Education Building

Shaktoolik's Head Start pre-school building does not have capacity to serve the number of children in the community. The building was made from two combined trailers in 1976 and has historically had freezing and heating problems. A new building should be large enough for all students, be energy-efficient, and have fire-safety features.

Melodie

Responsible Party: City, Tribe, SNC
Potential Partners/Coordination: Kawerak, Department of Education & Early Development, Rural Alaska Community Action Program, Inc. (RurAL CAP), First Start
Timeframe for Implementation: Medium term (6–10 years)
Estimated Cost: $1.5 million
Current Status: Project Review Phase
Reference: *Shaktoolik Local Economic Development Plan 2013-2018*

3.1.9 Other

3.1.9.1 Adaptable Infrastructure Policy

Eventually, Shaktoolik would like to relocate to the Foothills area. In support of those efforts, the community should develop an adaptive infrastructure policy that requires the community to consider ways to make all new or substantially renovated structures in the community, or systems within those structures, relocatable to the new village site. For example, the policy could require new homes to be on moveable foundations. Other structures could be built in modules so they can eventually be taken apart and reconstructed elsewhere.

The policy needs to acknowledge that this many not be possible with all facilities. The purpose of this policy should be to evaluate whether a facility should be built in this way.

Educating residents and agencies are an important component of this policy. They need be to be aware of changing regulations and build in a way that is consistent with the policy.

Responsible Party: City, Tribe
Potential Partners/Coordination: Kawerak, SNC, DCCED, DOT&PF, CCHRC, EPA, ANTHC, NSHC, Denali Commission
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.1.9.2 Teen Center

The community has indicated that they would like a teen center to give teenagers a safe place to socialize and hang out.

Responsible Party: City, Tribe
Potential Partners/Coordination: Kawerak, SNC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: Unknown
Current Status: New
Reference: N/A

3.1.9.3 Additional Recreational Facilities

The community has indicated that additional recreational facilities such as a basketball court, playground, baseball field, and pool are desired to give kids a place to play and to encourage everyone to remain physically active.

Responsible Party: City, Tribe
Potential Partners/Coordination: Kawerak, SNC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: Unknown
Current Status: New
Reference: N/A

3.2 Safe and Sanitary Housing

Housing and housing affordability are major challenges in rural Alaska. Housing is expensive because of Shaktoolik's remote location and the high cost of transporting construction materials. Shaktoolik, like many other communities, does not have enough housing to meet the community's need. Many of the existing housing units are overcrowded and need major repairs.

The lack of affordable housing can have a negative impact on a community. Without sufficient and affordable housing, residents may choose to leave Shaktoolik to seek better housing elsewhere.

To address housing for a resilient Shaktoolik, there are several factors to consider:

- **Local environmental conditions** – A house that is not designed for cold weather, high winds, or other such conditions is harder to maintain and more likely to fall into disrepair. Housing design needs to be appropriate for the local conditions and include features such as extra insulation, adjustable foundations, self-contained sewer systems, and solar energy.
- **Energy costs** – Homes should be built using techniques and materials that reduce energy costs.
- **Location** – New homes should be located in less vulnerable locations when possible.
- **Affordability** – Homes should be affordable to construct and maintain.

Key housing-related strategies for increasing Shaktoolik's resiliency include:

- Affordable and diverse housing options
- Safe and healthy housing
- Accessible housing options

3.3 CRITICAL ACTION – Housing Improvements

Access to safe, quality, and affordable housing is vital for any community. Community residents have expressed a need to improve the housing in Shaktoolik for a variety of reasons, including:

- **Overcrowding** – Studies have shown that overcrowding can have a negative impact on people and their quality of life. People who live in overcrowded conditions often have higher levels of anxiety, stress, and depression. The quality of interpersonal relationships suffers because of a lack of privacy. Children lack enough space to play and study. There is a lack of storage space for subsistence food and emergency supplies.
- **Inefficient and expensive energy use** – Housing units in rural Alaska use more energy than housing units in other areas to heat their homes. This is partially due to the colder conditions found in many rural communities, but it is also because most homes are not energy efficient. In addition, many homes rely on fuel oil, which is often more expensive than other sources of electricity.
- **Affordability** – Housing costs in Shaktoolik are high and households often have to spend more than the federally suggested maximum of 30 percent of their total income on housing costs.
- **Poor conditions** – Many homes in Shaktoolik have mold and mildew problems due to poor ventilation and air circulation. This results in poor indoor air quality-related problems, which in

turn can lead to respiratory health issues. Building structures are often exposed to high humidity and condensation, which can lead to the deterioration of the structure. This is often worse in homes that do not have washing facilities and hang wet clothes inside to dry. Residents have also indicated there are problems with rotting floors and the bathrooms being cold.

Making housing improvements in rural Alaska is often challenging due to the lack of available construction materials, high cost of materials, and availability of skilled workers such as electricians and plumbers. In Shaktoolik, there is also a lack of land for new housing.

Poor housing conditions such as structural problems, chronic dampness, and poor ventilation can cause injury and illness, and increase energy consumption for the home. Health benefits of having an energy-efficient and safe home can reduce the potential for medical problems and bills associated with illnesses and other health impacts associated with poor housing conditions.

Homes in Shaktoolik

RurAL CAP helped with weatherization projects in Shaktoolik by providing venting fans to increase air circulation in 2012. Opportunities for weatherizing homes have been limited, as some residents do not qualify for weatherization grants, yet do not make enough to money to afford weatherization projects on their homes.

In 1976, the Bering Straits Housing Authority constructed 30 homes when the community relocated. In the 40 years since the relocation, the community has only added 30 homes to the community, with most residential homes being constructed as two- to four-bedroom houses.

Potential Funding Sources

Potential funding sources for housing improvement include:

- **Bering Straits Regional Housing Authority Housing Preservation Grant Program** – The housing preservation grant is a forgivable loan for up to $30,000 to allow low-income, Alaska Native home owners the opportunity to perform repairs to their homes. Eligibility guidelines include proof that the applicant is American Indian or Alaska Native, proof of low income status, proof of home ownership, and can provide a detailed description of improvements needed with an estimate of project costs. For more information: http://www.bsrha.org/#!housing-preservation-grant/c28u

- **United States Department of Agriculture Single Family Housing Repair Loans and Grants** – Also known as the Section 504 Home Repair Program, this program provides loans to very low-income homeowners to repair, improve, or modernize their homes or grants to elderly very low-income homeowners to remove health and safety hazards. A maximum loan is $20,000 with a 1 percent interest rate. Maximum grant is $7,500 and must be repaid if the property is sold in less than 3 years. Home loans are available year-round as long as funding is available, and applications are processed in a rolling basis. For more information: http://www.rd.usda.gov/programs-services/single-family-housing-repair-loans-grants
- **Alaska Housing Finance Corporation (AHFC) Weatherization at No-Cost Program** – Individuals who meet income limits can apply for the weatherization program, which provides services at no cost to qualified applicants. Residential dwellings can participate in one of the following AHFC programs: Home Energy Rebate, New Home Rebate, or Weatherization program. For more information: https://www.ahfc.us/efficiency/energy-programs/weatherization/
- **RurAL CAP Weatherization Program** – RurAL CAP provides a number of services, including determining causes of household drafts; providing cost reducing energy tips, home improvements for winter months, including heat, safety, and health related improvements, and proper ventilation to improve air quality; testing and tuning heating systems; air-sealing homes; sealing heating ducts; and installing smoke and carbon monoxide detectors in houses. For more information: http://ruralcap.com/weatherization/rural-weatherization/
- **Department of Housing and Urban Development (HUD) Section 184 of the Indian Home Loan Guarantee Program** – The Section 184 Indian Home Loan Guarantee Program is a home mortgage specifically designed for American Indian and Alaska Native families. Loans can be used for new construction, rehabilitation, purchasing an existing home, or refinancing. To help increase Native access to financing, Section 184 home mortgage loans are guaranteed to Native borrowers. Maximum loan limit for 2015 in the Nome Borough was $482,000 for a single unit. For more information: http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/ih/homeownership/184

  HUD's Indian Community Development Block Grant (ICDBG) Mold Remediation and Prevention – The ICDBG provides funding for mold remediation for Native American and Alaska Native organizations and tribal governments. The program awards 16 grants with a maximum of $800,000 for mold remediation and prevention in and on housing units owned and operated by tribes and tribally designated housing entities. For more information: http://www.federalgrants.com/Community-Development-Block-Grant-ICDBG-Program-for-Indian-Tribes-and-Alaska-Native-Villages-Mold-Remediation-and-Prevention-50827.html

  HUD's ICDBGs are used for two purposes: single purpose and imminent threat. Single purpose grants are competitively awarded to provide funds for activities designed to meet a specific community development need and must primarily benefit low- or moderate-income families. Imminent threat grants are awarded if the funding will provide a solution to an urgent problem that requires immediate action or if an emergency will exist if the problem is not addressed. The

grants provide a solution to urgent problems that were not evident in time to apply for ICDBG single-purpose funding.

- **BIA's Housing Improvement Program (HIP)** – The HIP is a home repair, renovation, replacement, and new housing grant program for American Indians and Alaska Native individuals and families who have no immediate resource for standard housing. HIP is a secondary, safety-net housing program that seeks to eliminate substandard housing and homelessness by helping those who need it most to obtain decent, safe, and sanitary housing for themselves and their families. HIP is administered by BIA and federally recognized Indian tribes. For more information: http://www.bia.gov/WhoWeAre/BIA/OIS/HumanServices/HousingImprovementProgram/
- **ANTHC's Air and Healthy Homes Program** – The Air and Healthy Homes Program works with Tribal partners to address air quality and healthy homes issues in their communities. The Tribal Air Quality program works with communities to increase public awareness of air quality issues and to enhance tribal capacity to address local air quality concerns. The program offers mini grants to fund locally managed air quality projects and provides technical assistance and support in the development and implementation of air quality projects. The Healthy Homes program provides education and tools to help residents improve their home environment by improving indoor air quality and reducing indoor air pollutants. In collaboration with local environmental departments, the Healthy Homes program also provides technical support, education and training, and air monitoring equipment. For more information: http://anthc.org/what-we-do/community-environment-and-health/healthy-homes/
- **EPA's Tribal Air Grants** – The EPA is committed to working with tribes to develop and implement Clean Air Act (CAA) programs. One of EPA's primary tools in this effort is to award CAA grants in order to help build tribal knowledge and increase tribe's capacity to manage air quality issues. For more information: https://www.epa.gov/tribal-air/tribal-air-grants-framework-menu-options

Responsible Party: Individuals, City, Tribe
Potential Partners/Coordination: SNC, Bering Straits Regional Housing Authority, AHFC, HUD, RurAL CAP, Denali Commission, EPA, CCHRC
Timeframe for Implementation: Critical Action (0–5 years)
Estimated Cost: Varies
Current Status: New
Reference: N/A

3.3.1 Housing Needs Assessment

A housing needs assessment is a study of the structural characteristics and conditions of dwellings, the demographic structure of the community, and local housing and other issues related to housing in the area. It allows a community to develop an understanding of their housing issues and their most critical local housing issues. A housing needs assessment is helpful to Shaktoolik to quantify the number of

additional housing units needed in the community, a comprehensive list of needed repairs, and identification of barriers to housing assistance.

Responsible Party: Individual, City, Tribe
Potential Partners/Coordination: SNC, Bering Straits Regional Housing Authority, AHFC, HUD, EPA
Timeframe for Implementation: Short Term (0–5 years)
Estimated Cost:
Current Status: New
Reference: N/A

3.3.2 Develop Housing Strategy

A strategy to improve the existing housing stock and meet future housing needs will be developed as a result of the housing needs assessment. The housing strategy will lay out a plan on how to address various issues that currently exist, determine whether the options are feasible, identify appropriate housing types for the community, identify potential suitable locations for new housing, and identify a timeline for funding and construction. Specific issues that should be considered include ventilation systems that operate with very low maintenance and don't let cold air in as well as ways to increase storage. Food storage is of particular importance to avoid cross-contamination and spoilage. As a short term measure, storage sheds or a community storage facility may be an option.

The community and interested homeowners and renters should be involved in the strategy process, as this lays out the plan for housing in the village for the future. The housing strategy could be developed along with the needs assessment.

Responsible Party: City and Tribe
Potential Partners/Coordination: SNC, Bering Straits Regional Housing Authority, CCHRC, EPA
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: $100,000–$250,000
Current Status: New
Reference: N/A

3.3.3 Low-Income/Elder Housing

In additional to a general need for additional housing, Shaktoolik specifically identified a need for additional low-income and elder housing. High housing costs, combined with a lack of employment opportunities, means there are some residents in Shaktoolik who cannot afford housing.

In addition to needing affordable housing, many elders have other special requirements. For example, they have mobility issues that prevent them from walking long distances or using stairs, they may be unable to operate an ATV or snow machine, or they may need assistance with daily tasks. One issue of growing concern is the ability of elders to age in their village. Traditionally, they have relied on their families for any needed assistance. With more residents leaving the villages for more urbanized areas, elders may lack the support network they need in order to remain in Shaktoolik.

The community needs to work together and with housing providers to identify how to accommodate low-income and elder housing in the community. Specific issues that should be addressed include the appropriate location for each type of housing, how much of each type is needed, and how to fund these projects. In addition, the community should consider how best to address low-income and elder households in the community evacuation plan, as these households may lack access to transportation, which hinders their ability to evacuate if necessary.

Responsible Party: City and Tribe
Potential Partners/Coordination: SNC, Bering Straits Regional Housing Authority, AHFC, ICDBG, HUD, CCHRC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: Varies depending on number of housing units
Current Status: New
Reference: N/A

3.3.4 Housing Upgrades

To address the known issues and those identified in the needs assessment and housing strategy, many existing housing units need to be upgraded. Typical improvements that are needed include improving energy efficiency, addressing mold and mildew issues to improve indoor air quality, caulk and sealing doors and windows, along with structural improvements. These upgrades are needed to ensure residents have a place to live that does not negatively impact their health.

Responsible Party: Individuals, City, Tribe
Potential Partners/Coordination: SNC, Bering Straits Regional Housing Authority, CCHRC, EPA
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Varies
Current Status: New
Reference: N/A

3.3.5 Construct Additional Housing

Construction of additional housing would reduce the problems of overcrowding that currently persist in Shaktoolik. There are not enough homes for the growing population, and thus many multi-generational family members live together. Additional housing construction would provide some jobs in the local economy, provide new, energy-efficient homes, and solve problems of overcrowding. Shaktoolik should also consider alternative housing styles to the single family home. Multi-family housing, such as duplexes and mother-in-law suites, may be more suitable for the needs of some residents are they are better able to accommodate larger, multi-generational family units.

The City and Tribe can apply for funding opportunities from AHFC, RurAL CAP, Bering Straits Native Corporation, and Kawerak Corporation for the construction of additional housing in Shaktoolik.

Responsible Party: City, Tribe, Individuals
Potential Partners/Coordination: SNC, Bering Straits Regional Housing Authority, Bering Straits Native Corporation, Kawerak, AHFC, RurAL CAP, CCHRC

Timeframe for Implementation: Medium to long term (5+years)
Estimated Cost: $300,000–$500,000 per housing unit
Current Status: Planned (limited due to available land)
Reference: N/A

3.4 Jobs and Economic Development Opportunities

Jobs and economic development are important elements of resiliency. When residents have jobs that pay enough to meet their needs, they are able to stay in their community instead of moving elsewhere for employment. Residents are able to pay for their utilities, such as electricity, water, and sewer. Utility operators can then use those funds for system maintenance and upgrades. When people have money to spend locally, there is also a positive multiplier effect that benefits others in the community.

In short, communities that are economically resilient are better able to survive an emergency, can retain residents, and have a high quality of life.

The primary employment and economic development strategies to increase resiliency in Shaktoolik are:

- Residents have the skills necessary for jobs in the community.
- Economic diversity supports local businesses as well as new opportunities.
- Local residents have the right skills for jobs available in the community.
- Catalyst projects – berm, mound – can support local residents.

3.4.1 Community Asset Mapping

Community asset mapping is when a community looks at its assets and concentrates on internal problem-solving through local determination and creativity. This process can lead to community empowerment, as opposed to always looking at issues on a needs-based approach and relying on external services to provide for the community. Assets can include various skills, knowledge, talents, and experience of local residents, businesses, schools, churches, community organizations and associations, physical structures, and natural resources. Many residents have traditional, technical, mechanical, and practical skills that would be useful during an emergency and on a day-to-day basis. Mapping can help identify unknown talents and skills and eventually lead the community to feel more empowered and have a stronger sense of direction.

Responsible Party: City or Tribe
Potential Partners/Coordination: SNC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: under $50,000
Current Status: New
Reference: N/A

3.4.2 Grant Writing Workshop/Training

Grants are an important source of income for a rural community. A grant writing workshop will teach community members how to identify grant opportunities, write grant applications, follow up with grants, and understand how they can apply grants to benefit the community or themselves. Grant writing workshops can be provided by a non-profit organization or through other regional or state organizations. Shaktoolik could host a workshop or send people to workshops/training classes elsewhere as funding allows. Recurring training may have to be provided, depending on staff turnover. The EPA provides grants for such training through the Indian General Assistance Program.

Responsible Party: City, Tribe
Potential Partners/Coordination: SNC, HUD, DCCED, Kawerak, EPA
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Less than $50,000 per occurrence
Current Status: New
Reference: N/A

3.4.3 Develop Economic Diversification Strategy

An economic diversification strategy looks at ways the community can be more diverse in the economies that create jobs or earn income. Shaktoolik's current economy is primarily based on subsistence with part-time wages earned, but the local fishing industry is growing and also provides some income. More jobs may also be created from the development of the fish processing facility in the village. Questions to be addressed as part of the strategy include: What are some ways Shaktoolik can diversify its economy? Are there locally made products that could be sold to residents or exported to other villages or communities for trading and commerce purposes? How can existing opportunities generate additional income? Examples of economic diversification strategies Shaktoolik could employ are increased tourism, selling locally grown produce, and ensuring visitors know how to purchase art, jewelry, food, and other items locally.

Responsible Party: City, Tribe
Potential Partners/Coordination: Kawerak, SNC
Timeframe for Implementation: Short term (0–5 years). Strategy should be periodically reviewed and refreshed.
Estimated Cost:
Current Status: New
Reference: N/A

3.4.4 Teen Employment Strategy

Youth employment is beneficial for a community, as jobs can help teens develop their identities, have more autonomy with personal income, achieve new accomplishments, and obtain work experience while keeping youth out of trouble. This can be done by providing interesting opportunities for youth to perform outside training, summer exchange programs with nearby villages, work for the school or village council, and become acquainted with leadership positions to gain more responsibilities in the community. Local corporations and associations may also provide employment programs and opportunities for youth.

Responsible Party: City and Tribe
Potential Partners/Coordination: Bering Straits Native Corporation, Kawerak, SNC, Bering Strait School District
Timeframe for Implementation: Medium term (6–10 years). Strategy should be periodically reviewed and refreshed.
Estimated Cost: To be determined
Current Status: New

N/A
Reference: N/A

3.4.5 Develop Education and Training Programs

Residents may need additional education and training to be qualified for certain jobs in the community. Shaktoolik should develop education and training programs to ensure their residents have the right skills and certifications to quality for meaningful employment opportunities. Shaktoolik should consider bringing training opportunities to Shaktoolik (through distance learning or in-person training) as well as providing opportunities to send residents elsewhere for training.

Responsible Party: City, Tribe
Potential Partners/Coordination: Kawerak, Bering Strait School District
Timeframe for Implementation: Medium term (6–10 years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.4.6 Update Local Economic Development Plan

The local economic development plan provides a community inventory of demographics, social conditions, economic conditions, and public and private services, and provides the village of Shaktoolik with information on traditional resources and the planning process. The plan emphasizes the development goals for the economy and local resources and describes which capital improvement projects should be addressed. Updating the economic plan regularly will help ensure that the community keeps looking forward for more opportunities and adjusts the plan accordingly if there is a shift in perception and goals.

Responsible Party: City, Tribe, Bering Straits Development Council
Potential Partners/Coordination: Kawerak
Timeframe for Implementation: Ongoing (every 5 years)
Estimated Cost: Under $250,000
Current Status: Planning
Reference: *Shaktoolik Local Economic Development Plan 2013-2018*

3.4.7 Fish Processing Plant/Buying Station

Currently, Shaktoolik residents have to export all fish caught in the region to Unalakleet or Nome to the fish processing plant. The community has an existing processing plant, but it is inoperable due to the cost of producing ice. Having a new fish processing plant that is more affordable to operate would provide local employment and revenue to the community. The plant would also have the potential to process reindeer as well as fish harvests.

Responsible Party: City, Tribe
Potential Partners/Coordination: Bering Straits Development Council, Economic Development Administration, NSEDC
Timeframe for Implementation: Short term (0–5 years)

Estimated Cost: To be determined
Current Status: Planning
Reference: *Shaktoolik Local Economic Development Plan 2013-2018*

3.4.8 Scholarship Program

The community has expressed a desire to have a scholarship program that would allow people from Shaktoolik to pursue higher education. While developing a steady funding source for a scholarship, the community and school can work together to identify existing scholarships for which Shaktoolik residents can apply.

Responsible Party: Tribe and City
Potential Partners/Coordination: SNC, Kawerak, BSSD
Timeframe for Implementation: Long Term (11+ years)
Estimated Cost: Varies
Current Status: New
Reference: N/A

3.5 Proactive Emergency Management

Emergency management encourages safer communities with the capacity to cope with hazards. It includes all activities to build, sustain, and improve the ability to mitigate against, prepare for, respond to, and recover from disasters.

According to FEMA, emergency management must be:

1. **Comprehensive** – emergency managers consider and take into account all hazards, all phases, all stakeholders and all impacts relevant to disasters.
2. **Progressive** – emergency managers anticipate future disasters and take preventive and preparatory measures to build disaster-resistant and disaster-resilient communities.
3. **Risk-driven** – emergency managers use sound risk management principles (hazard identification, risk analysis, and impact analysis) in assigning priorities and resources.
4. **Integrated** – emergency managers ensure unity of effort among all levels of government and all elements of a community.
5. **Collaborative** – emergency managers create and sustain broad and sincere relationships among individuals and organizations to encourage trust, advocate a team atmosphere, build consensus, and facilitate communication.
6. **Coordinated** – emergency managers synchronize the activities of all relevant stakeholders to achieve a common purpose.
7. **Flexible** – emergency managers use creative and innovative approaches in solving disaster challenges.
8. **Professional** – emergency managers value a science and knowledge-based approach based on education, training, experience, ethical practice, public stewardship and continuous improvement.

Proactive emergency management means the community is planning ahead for anticipated disasters rather than just reacting should one occur. Shaktoolik knows they will be subjected to more coastal storms in the future. It's just a matter of when will the next one occur and how large will it be.

Key emergency management strategies for increasing Shaktoolik's resiliency include:

- Planning and Preparedness
- Education and Drills
- Protective Structures

3.5.1 IMMINENT ACTION – Emergency Drills and Exercises

Emergency drills and exercises provide an opportunity to practice something associated with an emergency plan. They are an important component of emergency preparedness because they help people become familiar with what is expected of them during an emergency and help identify whether the plan meets community needs or if changes need to be made.

3.5.1.1 Exercise Methodology

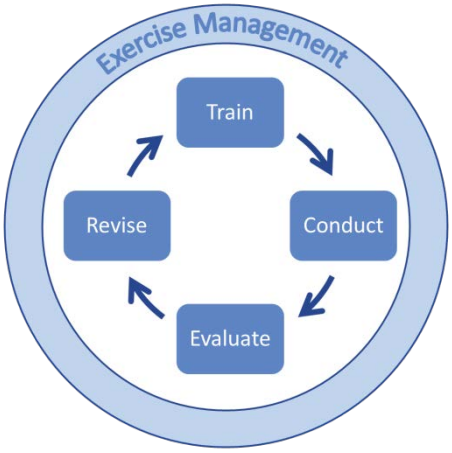
While there is great value in conducting emergency drills and exercises, there are other important components associated with a drill/exercise that allow the community to benefit the most.

The common planning methodology followed for all exercise types includes exercise program management, design and development, conduct, evaluation, and improvement planning applicable to management of exercise programs and execution of individual exercises—regardless of the scope or scale of the exercise.

Design and Development

When designing and developing individual exercises, exercise planning team members schedule planning meetings, identify and develop exercise objectives, design the scenario, create documentation, plan exercise conduct and evaluation, and coordinate logistics. At key points in this process, the exercise planning team engages elected and appointed officials to ensure that their intent is captured and that the officials are prepared to support the exercise as necessary.

Figure 7. Emergency Drill/Exercise Cycle



Conduct

After design and development activities are finished, the exercise is ready to occur. Activities essential to conducting individual exercises include preparing for exercise play, managing exercise play, and conducting immediate exercise wrap-up activities.

Evaluation

Evaluation is an essential component of an exercise and must be considered throughout all phases of the exercise planning cycle, beginning when the exercise planning team meets to establish objectives and initiate exercise design. Effective evaluation assesses performance against exercise objectives, and identifies and documents strengths and areas for improvement relative to core capabilities.

Revision

Based on what was learned during the evaluation phase, plans, policies, and other aspects are revised to better meet community and organizational needs.

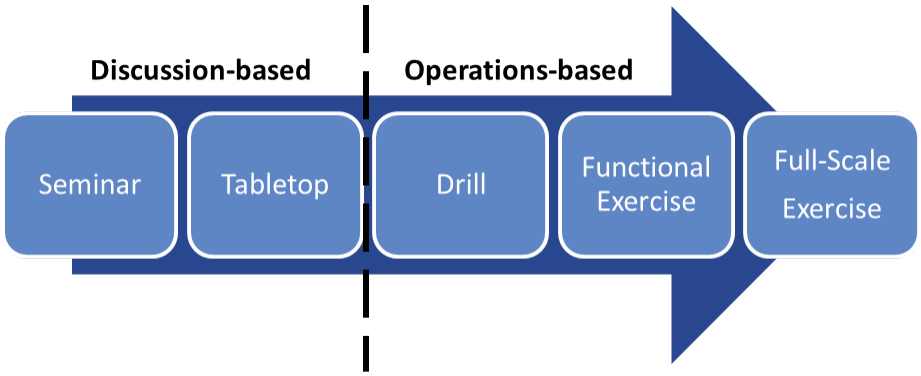
3.5.1.2 Building Block Approach

Before a drill or exercise is performed, the community needs to decide what needs to be practiced. That is, they need to decide the scope of the drill. Does the community need to practice emergency response activities? Evacuation efforts? Just one element of a plan?

While it is tempting to practice an entire plan, the community may find it easier to conduct drills in stages to keep the drill from becoming overwhelming. It is recommended that Shaktoolik use a building block approach to drills and exercises.

In the building block approach, activities are progressive in nature so participants build on skills and experiences from other activities. Participants start with basic specific, lower cost, and theoretical elements and then move onto bigger, more complex, more involved realistic exercises (see Figure 10).

Figure 8. Building Block Approach to Emergency Drills and Exercises



Discussion-based activities familiarize people with current plans, policies, agreements, and procedures, or may be used to develop new plans, policies, agreements, and procedures. They can include seminars, or similar training sessions, and tabletop exercises. Seminars and other training activities are opportunities for people to learn about existing or new plans, policies, operations, and procedures. These activities are designed to increase people's knowledge in a low-stress situation and encourage participant interaction. Tabletop exercises involve emergency responders and others discussing hypothetical emergency scenarios in an informal setting. Tabletop exercises can be used to assess plans, procedures, or systems; promote an understanding of concepts; identify strengths and gaps; and achieve changes in approach to a particular situation.

Operations-based exercises are typically designed to test actual reactions to a simulated emergency, identify gaps in resources, improve individual and team performance, and include the mobilization of resources and personnel. During an operations-based exercise, participants must act out their response instead of just talking about how they would respond to mirror real events. As they are more complex, operations-based exercises typically take more time to plan and are more expensive to conduct.

Three types of operations-based exercises include:

- **Drill** – a coordinated, supervised exercise activity, normally used to test a single specific operation or function.

- **Functional Exercise** – an exercise is designed to validate and evaluate individual capabilities, multiple functions, activities within a function, or interdependent groups of functions.
- **Full-Scale Exercise** – multi-agency, multi-jurisdictional, multi-organizational exercises that validate many facets of preparedness.

It can typically take 2–4 months to prepare for a table top exercise and up to 1 year for a full-scale exercise. The community should work with DHS&EM to develop a multi-year training and exercise plan to ensure community needs are being met.

Responsible Party: City, Tribe
Potential Partners/Coordination: DHS&EM, Kawerak, DCCED, AVEC, Village Public Safety Officer (VPSO), NSHC, BSSD, FEMA, DOT&PF, NOAA, VSW, ANTHC
Timeframe for Implementation: Ongoing (annually)
Estimated Cost: Under $50,000 (each occurrence)
Current Status: New
Reference: N/A

Reasons Exercises Fail

- Scenarios are not tailored to the local area
- Scenarios are too complex to manage successfully
- Inadequate time is allocated for exercise
- There is no honest critique of the exercise afterwards
- Safety issues are not addressed properly
- Exercise is planned and initiated too quickly
- Some essential agencies are not included
- Results of evaluation are not implemented

3.5.2 CRITICAL ACTION – Evacuation Center

One of the biggest concerns in Shaktoolik is having a safe place to be during storms. With flooding events expected to inundate the community with 1-3 feet of water, there is no existing location within the community that would be above the water level. An evacuation road was previously studies and was found to be impractical due to the cost, potential flooding of the evacuation road, lack of transportation for residents, and need for a shelter at the road terminus.

Recently, the community received funding to expand and reinforce the school to use as a storm shelter. However, the school is located on the coast and is not elevated high enough making it vulnerable to coastal storms. The school is also not large enough to house the residents during a storm.

The community has indicated that have a critical need for an evacuation center which would be a central point where everyone in the community convenes during an emergency. The evacuation center should be built within the community in a location that is away from the coastline. The structure also needs to be elevated to be out of the floodwater. The community should evaluate making the facility relocatable.

The evacuation center needs to be self-sufficient during an emergency. The center will need to have a generator, water supply, and sewage lagoon as well as enough emergency supplies (e.g., food, water, emergency communication devices, medical supplies, sleeping cots, and blankets) to last for several

days. The community will also have to develop and practice a plan to open and run the emergency shelter.

Responsible Party: City, Tribe
Potential Partners/Coordination: SNC, Kawerak, Bering Straits Native Corporation, Federal Emergency Management Agency (FEMA), USACE, DCCED, NSHC, BSSD, DHHS, VSW, ANTHC, NOAA, CCHRC, EPA, DOT&PF, DSH&EM
Timeframe for Implementation: Critical Action
Estimated Cost: $10 - $40 million
Current Status: New
Reference: N/A

3.5.3 CRITICAL ACTION – Escape Route Lighting

Currently, the community has indicated that they would evacuate the village using boats during a fall storm. Residents would like to equip boats with flood lights, which are essential to help boaters navigate the flooded river safety. The community would also like to install lighted buoys along the Shaktoolik River to guide boaters to safety. During the winter, the flood lights can be used by Search and Rescue teams during searches. The buoys could also be redeployed to guide snowmachines and ATVs in and around town.

Responsible Party: City, Tribe and SNC
Potential Partners/Coordination: DCCED, Denali Commission, Kawerak, DOT&PF, Bering Straits Native Corporation, ADEC, FAA, BIA
Timeframe for Implementation: Ongoing
Estimated Cost: Under $20,000
Current Status: New
Reference: N/A

3.5.4 CRITICAL ACTION – Reinforce Existing Berm

In 2014, Shaktoolik constructed a 1-mile coastal berm to help protect against fall storm surges. The community needs to reinforce the existing berm because storm weathering would cause the berm to be less effective in the long term. The community is interested in vegetating the berm as the roots would help bind the berm together. The community is also interested in adding gravel to the berm to help reinforce it.

The priority is to obtain funding for the work. Most, if not all, of the work can be done with existing heavy equipment and local labor.

Responsible Party: City and Tribe
Potential Partners/Coordination: SNC, DOT&PF, DCCED, USACE
Timeframe for Implementation: Critical Action
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.5.5 Update Emergency Operations Plan

The emergency operations plan (EOP) provides a strategy and outline of action steps that should be taken during an emergency event. The updated emergency operations plan should address preparedness, mitigation, evacuation, response, and recovery. The plan accommodates for the range of needs and issues of diverse community members, including children, Elders, and people with disabilities. The plan will need a regular review and revision cycle, and the community must hold a meeting to educate everyone on the plan. How will the village communicate to other community residents? To other levels of government? Who does the village call? Coordinated with other groups? School? Clinic?

As an alternative, the community should consider developing a Small Community Emergency Response Plan (SCERP). A SCERP is intended for small communities (under 2,000) and acts a quick response reference tool to assist the community's response during a disaster. A SCERP is not intended to replace an EOP; rather it is intended to supplement the EOP and assist during an emergency. Due to the nature of the SCERP, it is typically easier to update and keep current than the EOP.

Responsible Party: City and Tribe
Potential Partners/Coordination: SNC, DHS&EM, FEMA, American Red Cross
Timeframe for Implementation: Ongoing (should be reviewed annually to determine if updates are required)
Estimated Cost: under $50,000
Current Status: Planned
Reference: *Shaktoolik Emergency Operations Plan*

Evacuation Guidelines

- Know the evacuation routes
- Know where to go
- Leave early enough to avoid being trapped by bad weather
- Listen to VHF/radio for updates
- Wear sturdy clothing
- Bring emergency kit
- If you don't have ATV or boat, make arrangements for transportation

3.5.6 Update Emergency Plan

Shaktoolik's emergency plan, appended to their EOP, describes conditions in which an evacuation will be necessary or when to shelter-in-place, what routes and exits are in the area, how to assist family, friends, and coworkers to evaluate, and how to account for everyone after the evacuation process. Specific issues that should be included in the plan are evacuation routes, location of emergency shelters, who will assist residents with special needs or no transportation, and how to ensure all residents are accounted for.

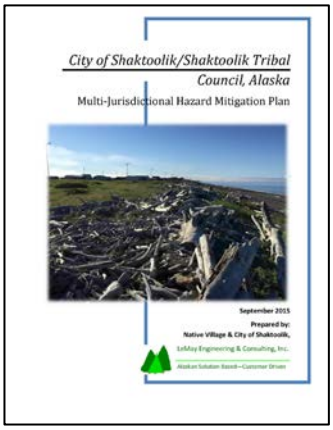
The community has an emergency plan, but it has not been implemented thoroughly or practiced by local community members. The school may be a resource in guiding the emergency plan and drills for the students and their families.

Responsible Party: City, Tribe, and SNC
Potential Partners/Coordination: DHS&EM, BSSD
Timeframe for Implementation: Ongoing (should be reviewed annually to determine if updates are needed)
Estimated Cost: under $50,000

Current Status: New
Reference: N/A

3.5.7 Update Local Hazard Mitigation Plan

The *Shaktoolik Local Hazard Mitigation Plan* contains information that will assist local government and residents with planning to avoid potential future disaster losses. The plan provides information on natural hazards that affect the village. There is a list of past disasters and projects that may help the community prevent disaster loss. Updating the local hazard mitigation plan regularly adds new information on ongoing projects or whether other disasters need to be added to the list of events. Updated information will also help the community make decisions regarding natural hazards that affect the village. The more knowledge compounded into the hazard mitigation plan, the more knowledgeable policy makers will be on making decisions for their community.



Local hazard mitigation plans are to be updated every 5 years. As Shaktoolik's plan was last updated in 2015, the next update should be completed in 2020. The community should consider updating the plan early if there are significant changes to the plan to ensure it reflects community needs and priorities.

Responsible Party: City, Tribe
Potential Partners/Coordination: SNC, FEMA, DHS&EM, DGGS, NOAA
Timeframe for Implementation: Ongoing (FEMA requires the mitigation plan to be updated every 5 years
Estimated Cost: Less than $50,000
Current Status: Planned
Reference: *Shaktoolik Local Hazard Mitigation Plan*

3.5.8 Emergency Preparedness Education

Information brochures are quick guides that can provide general information in a fast reading format. The goal of informational brochures is to share the information in the most direct and succinct manner. Information brochures would be accessible to community members at no cost and can be placed readily throughout the household, school, or office if necessary. The information brochures should have specific guidelines to follow during an emergency activity and information on how to prepare for unexpected events.

Responsible Party: City and Tribe
Potential Partners/Coordination: DHS&EM
Timeframe for Implementation: Short term (0–5 years)
Current Status: New
Reference: N/A

3.5.9 Early Warning System

An early warning system can issue advance warnings of an incoming storm, which alert people to be prepared and save lives. A warning system can be put together in cooperation with the National

Weather Service and the local radio/walkie talkie network. The community should establish an early warning system and apply for funding of a project. Regular tests and alerts should also be conducted in conjunction with regular drills. Make sure people know what the signal is and how to respond. Make sure there is a way to include people with specific challenges such as cognitive, physical, or other disabilities, or lack of transportation. The storm warning system should have a way to alert people who are not within hearing range – people out hunting or doing other activities.

Responsible Party: City and Tribe
Potential Partners/Coordination: SNC, NOAA, DGGS, FEMA, DHS&EM, DCCED, BSSD, National Weather Service
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.5.10 Develop Adequate First Response Capacity

Developing a first-response capacity in the local community is important so that individuals in the community can help prevent fatalities during a catastrophe. Members of the community can get trained with emergency first response by various organizations and online as well. When more people are trained and aware, the faster the community can recover from a disaster or emergency. Trainings can also be done for youth in the school classroom through a variety of student training modules available from the Red Cross. The community is currently working on building VPSO housing and trying to get a VPSO located at Shaktoolik. The VPSO can be a source of guidance and also provide trainings to the locals on first response.

Responsible Party: Individuals, City, Tribe
Potential Partners/Coordination: DHS&EM, FEMA, DCCED, American Red Cross, NSHC, VPSO, DPS, Kawerak
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Varies
Current Status: New
Reference: N/A

3.5.11 Work with Local Businesses

Businesses will also need to have personal emergency action plans that address what workers can do to protect themselves and their customers during an unexpected event. What can local businesses contribute during an emergency? Will they have special needs? Do they need a business continuity plan after an emergency occurs? Management courses on saving for the future emergencies?

Responsible Party: City, Tribe, local businesses
Potential Partners/Coordination: Alaska Partnership for Infrastructure Protection, DHS&EM
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Under $10,000

Current Status: New
Reference: N/A

3.5.12 Utility Assessments

Utilities include electricity, water, landfill, fuel tank farm, and sewage systems that are consumed or used by the public. The community should work with the service providers to conduct a utility assessment of these systems to determine how well the system would perform in an emergency. Questions to be asked as part of a utility assessment include: Will it survive an emergency? Do people know who to contact if there is an emergency? The utility assessment and inventory will help answer pertinent questions related to emergency strategy and planning. Each utility assessment should include a list of recommended projects and an implementation plan.

Responsible Party: City and Tribe
Potential Partners/Coordination:
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.5.13 Emergency Energy Backup Plan

An emergency energy backup plan enlists strategies and information on accessing backup energy and fuel during an emergency. This plan lists basic energy sources in the village—water, fuel, generators—and how to access these sources. What are the backup energy options in important community facilities such as the school, village council building, and store? Do families keep extra wood for wood burning stoves? What are backup options for fuel and heating in homes in case of emergencies?

Responsible Party: AVEC
Potential Partners/Coordination: Individuals, businesses, school, Tribe, City, NSHC, AEA, DHS&EM, FEMA
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Under $10,000
Current Status: New
Reference: N/A

3.5.14 Family Evacuation and Disaster Communication Plans

Family evacuation plans are created by families according to their own needs, addressing what to do in the face of an emergency. The community can encourage each family to have an evacuation and disaster communication plan. The family evacuation plan can also outline out what to do when there are family members out of the village and beyond communication reach; i.e., during subsistence hunting. It can identify a safe place to meet, who to contact, a list of important contact information, a list of other important information (e.g., Social Security numbers, bank account numbers), and locations of spare warm clothing, money, and food stashed in the house so the entire family is informed in case of major or long-term emergencies.

Responsible Party: Individuals, DHS&EM
Potential Partners/Coordination: City, NATIVE VILLAGE OF SHAKTOOLIK
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Under $10,000
Current Status: New
Reference: N/A

3.5.15 Personal Emergency Kits

Personal emergency kits contain a small number of items that may be helpful during an emergency. Everyone in the village should have a kit created with enough food, water, and essential supplies to last for at least 72 hours. The kit can be used at home, in the evacuation shelter, or during an evacuation. The kit should contain warm clothing, a space blanket, socks, a hat, gloves, extra food, Band-Aids or other emergency supplies, medicine, a flashlight, gauze, and more. A grant may provide funding for emergency kits. Further research is needed.

Responsible Party: Individuals
Potential Partners/Coordination: City, Tribe, DHS&EM, FEMA, American Red Cross (ARC), Private Sources
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Varies
Current Status: New
Reference: N/A

3.5.16 Smoke and Fire Detectors

Smoke detectors indicate when there is a fire in a building, and an alarm will be activated if the detector senses smoke or fire, alerting people to evacuate the building. The city and council should encourage residents to have working smoke and fire detectors in every home and building in the community, as this increases safety and reduces the likelihood of fires causing significant damage. A grant may need to be pursued from the Red Cross or FEMA to acquire necessary material. An informational meeting on the use and maintenance of smoke detectors may be needed to acquaint residents with the value of fire alarms to homes.

Responsible Party: Individuals, City, Tribe
Potential Partners/Coordination: FEMA, ARC, DHS&EM, Private Sources
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Varies
Current Status: New
Reference: N/A

3.5.17 Household Emergency Lighting

Many storms and other hazardous events occur when at night or in the winter when there is not sufficient daylight. Each home should have emergency lighting to allow people to remain safe during a

power outage. Emergency lighting can range from a working flashlight or candles with matches to emergency lighting powered by backup generators.

Responsible Party: Individuals, City, Tribe
Potential Partners/Coordination: FEMA, ARC, DHS&EM, Private Source
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Varies
Current Status: New
Reference: N/A

3.5.18 Storm Surge Mound

A storm surge mound is an artificial structure that can be used as a refuge from tsunamis and storm surges in flat coastal communities where there is no high ground available nearby. A storm surge mound constructed above the estimated 500-year flood elevation is likely to provide a cost-effective option to protect people from a severe storm. The *Shaktoolik Adaptation Plan* indicated that the mound would likely need to be 10-15 feet above the existing ground. The mound could be constructed with local materials and employ local residents.

Steps to develop the storm surge mound include:

- Identify location,
- Conduct feasibility study (to identify proper height, fill quantities, armoring requirements, and construction costs),
- Secure funding, and
- Construction (including acquiring property and any needed permits).

The community needs to come together to decide where they want to place the mound, what material should be used to build the mound, whether there will be any structures built on top of the mound, and other issues.

Responsible Party: City, Tribe
Potential Partners/Coordination: SNC, DOT&PF, NOAA, DGGS, USACE, landowners
Timeframe for Implementation: Update every 5 years, medium term (6–10 years)
Estimated Cost: To be determined
Current Status: New
Reference: *Shaktoolik Adaptation Plan*

3.5.19 Extend Berm

To provide better protection, the existing berm needs to be extended to protect more of the community. Extension of the berm should be done in phases as funding is available.

Responsible Party: City, Tribe
Potential Partners/Coordination: SNC, DOT&PF, landowners, DCCED, USACE
Timeframe for Implementation: Short term (0–5 years),

Estimated Cost: $150,000 - $200,000 per mile
Current Status: New
Reference: *Shaktoolik Adaptation Plan*

3.5.20 Monitoring

The *Shaktoolik Adaptation Plan* identified the following four monitoring programs:

- Storm surge level – monitor water levels during storms.
- Beach erosion – to determine if the beach in front of the village is experiencing long-term net erosion or is relatively stable
- Driftwood line – measuring how close the driftwood is getting to the village
- Erosion at First Bend – to determine if the beach is erosion and at what rate.

Responsible Party: Tribe and City
Potential Partners/Coordination: SNC, ANTHC, DGGS, USACE, DCCED, DOT&PF, EPA, BSSD,
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: Varies
Current Status: New
Reference: *Shaktoolik Adaptation Plan*

3.5.21 Additional Heavy Equipment

The community needs heavy equipment during the construction of the storm surge mound, evacuation center, sea wall upgrades, land fill relocation, berm extension, and a number of other projects. An inventory of heavy equipment needs to be done. If heavy equipment is acquired, a community shop or storage is also needed to protect the equipment from extreme weather tear.

Responsible Party: City, Tribe
Potential Partners/Coordination: SNC, DOT&PF, VSW, Kawerak, Bering Straits Native Corporation
Timeframe for Implementation: Medium term (6–10 years)
Estimated Cost: Various
Current Status: New
Reference: N/A

3.5.22 Emergency Funding

The village needs an emergency funding plan in place in order to make sure that they have an adequate amount of money in case of emergencies and rebuilding purposes. Organizations and agencies need an emergency fund to pay for emergency actions. The community can create a list of agencies and organizations to contact for emergency funding and relief. The city and village council can also set aside money toward an internal emergency fund.

Responsible Party: City and Tribe
Potential Partners/Coordination: NAB, NANA, FEMA, DHS&EM, DOT&PF, ANTHC, BIA, HUD
Timeframe for Implementation: Medium term (6–10 years)
Estimated Cost: To be Determined

Current Status: New
Reference: N/A

3.5.23 Multipurpose Building

A multipurpose building can be used for a variety of purposes, such as sporting events, community events, and storm shelter. A multipurpose building is needed for the community and should be able to accommodate 180 people for 7 to 10 days. A 2012 feasibility study analyzed costs and options for a multipurpose building that could also serve as an emergency shelter during the event of a storm (USKH 2012). The multipurpose building would provide capacity for everyone in the village, as opposed to the school, which does not have enough room for the entire community.

Responsible Party: City and Tribe
Potential Partners/Coordination: SNC, Bering Straits Native Corporation, Kawerak, VSW, ANTHC, EPA, DHS&EM, NSHC, BSSD
Timeframe for Implementation: Medium term (6–10 years)
Estimated Cost: to be determined
Current Status: New
Reference: *Shaktoolik Local Economic Development Plan 2013-2018* and *Shaktoolik Adaptation Plan*

3.5.24 Incident Command System Training

The Incident Command System (ICS) training is a standardized management tool for meeting the demands of small or large emergency and non-emergency situations. The training provides information on planning and command processes for when an emergency occurs. Members of the community can attend ICS training or access the trainings online through the FEMA website.

Responsible Party: City, Tribe
Potential Partners/Coordination: SNC, DHS&EM, FEMA, Red Cross
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Under $50,000
Current Status: Planning
Reference: N/A

3.5.25 Outdoor Education Program

Outdoor education programs provide critical thinking skills for how to survive in the outdoors, builds self-esteem and self-confidence, and encourages a healthy lifestyle for people of all ages. Survival training programs can take youth out for training. The program can be incorporated with traditional skills in the classroom. Shaktoolik already sponsors annual Elders and youth summer camp, teaches responsibility, provides awareness of outdoors, and has a whaling camp for youth, but there is also a potential to work with the school on a winter survival class.

Responsible Party: Tribe, BSSD
Potential Partners/Coordination: Camp Fire USA Rural Program, Girl Scouts Rural Summer Program, Alaska Best Beginnings Program, Private sources
Timeframe for Implementation: Short term (0–5 years)

Estimated Cost: Under $100,000
Current Status: New
Reference: N/A

3.5.26 Hire Village Public Safety Officer

The Village Public Safety Officer (VPSO) program is a way to provide public safety services in rural Alaska communities. The program trains and employees people residing in rural villages to serve as first responders to public safety emergencies. The VPSOs have had a significant impact in increasing public safety and quality of life in participating communities.

Responsible Party: Kawerak
Potential Partners/Coordination: City, Tribe, SNC, Department of Public Safety
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: less than $10,000[3]
Current Status: New
Reference: N/A

[3] VPSO would work for Kawarek and receive training through the Department of Public Safety. These two entities incur costs associated with the training and employment of the VPSO. The City and Native Village of Shaktoolik are not responsible for these costs.

3.6 Strengthened Traditional Culture

Having a strong traditional culture means residents know where they come from, know who they are, and are proud to be Inupiat. Shaktoolik's traditional culture is an important part of who they are; it is an essential part of their identity. Their traditional culture is the basis for their shared values, beliefs, attitudes, and way of life.

Alaska Native communities have always been resilient. For generations, they have been able to adapt to changing conditions such as the introduction of missionaries and outsiders to their community, outmigration of people to urban centers, and changing technology. However, with the introduction of new goods and ideas into the community, it can become easy to forget the traditional ways. For example, many villages have realized that the number of people who can speak their traditional language is dwindling.

A community with a strong culture is more resilient because the people are able to maintain their identities and critical knowledge and practices while incorporating new technologies, products, and ideas into their lives. For example, many communities now use snow machines to help them with hunting because it allows them to travel farther and increase their productivity. A resilient community can preserve and embrace its heritage while evolving to meet current needs.

The main strategies to increase Shaktoolik's resiliency through its traditional culture are:

- Connected and engaged community
- Inclusive and welcome community
- Arts, cultural, and recreation opportunities
- Cultural preservation
- Increase youth involvement

3.6.1 Continue Community Events

Community events are important because they bring residents together to engage with their community and each other. There are several existing community events in Shaktoolik such as the end of school year lunch, village health fair, a fall carnival, first catch community feast, youth/Elders camp, and Family Fun Night.

Continuing to have community events will help everyone interact positively with each other, and will promote healthy principles and happier residents. Communities with high participation in community activities tend to have more community cohesion and fewer negative social issues such as alcohol and drug problems.

Responsible Party: Various
Potential Partners/Coordination: City, Tribe, NSHC, BSSD
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Existing funding
Current Status: Ongoing
Reference: N/A

3.6.2 New Community Events that Celebrate Traditional Culture

Community events bring people together for positive reasons. Local events celebrating traditional culture exist, but new events can bring family, Elders, and children together to celebrate subsistence and other traditions. New events can also provide opportunities for residents to gain leadership skills by volunteering to help organize and run an event.

Responsible Party: To be determined
Potential Partners/Coordination: Council, Tribe
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Varies
Current Status: New
Reference: N/A

3.6.3 Community Story Project

A community story project is an opportunity for youth to ask Elders about Shaktoolik's history and then encapsulate their stories in web, radio, or written media. Community story projects are important as they help young people connect with Elders and instill a sense of pride over the region's cultural heritage. A community story project is also a way to share community values.

Responsible Party: To be determined
Potential Partners/Coordination: City, Tribe, SNC, BSSD
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Under $50,000
Current Status: New
Reference: N/A

3.6.4 Curfew Enforcement

Shaktoolik has a curfew for the youth in the community that requires them to be home at a certain time. However, residents report that the curfew is not enforced. The curfew is important for the community to reduce juvenile crime. A curfew can also improve school attendance. If kids can stay up later, they are more likely to oversleep or have a hard time getting up for school in the morning and are late for class or skip class entirely.

Responsible Party: City, Tribe
Potential Partners/Coordination: SNC, BSSD, VPSO
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Under $50,000
Current Status: New
Reference: N/A

3.6.5 Elders in School Program

Elders are teachers, mentors, and role models in the community. They have a vital role in promoting the integration of traditional language and culture into the school curriculum. They have important skills and

knowledge they can share with Shaktoolik's children and youth. It is also a way for Elders to continue giving back to the community and a way for them to share their wisdom and experiences.

The community should work with the school district to have Elders from the community involved in the classroom. Elders can have the chance to speak with children about local history, geography, wildlife, plants, sustainable resources management, and other topics. Elders in the classroom sharing stories and knowledge will also help young people learn more and respect their cultural heritage. This program would also provide some students with an Elder in their life (for those who may not otherwise have one). In addition, Elders can also help strengthen the relationship between teachers, students, parents, and the general community.

Responsible Party: Tribe, BSSD
Potential Partners/Coordination: Kawerak, City, SNC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Under $50,000
Current Status: New
Reference: N/A

3.6.6 Increase Use of Traditional Language

The community has expressed a concern that residents are losing their traditional language. They have indicated that they would like to increase the use of Inupiaq in the community. The community should work together to identify the most appropriate ways to increase usage of Inupiaq. Potential ways include offering Inupiaq lessons at the school for both youth and adults, providing written resources and public notices can be written both in English and Inupiaq, maintaining a list of volunteer translators, and conducting community meeting in English and Inupiaq.

Responsible Party: City and Tribe
Potential Partners/Coordination: BSSD, SNC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.6.7 Develop Elders Program

Elder Programs consist of supporting the traditional Elders who still live a rural subsistence lifestyle but need help living on the land in the traditional way as they get older. An Elder program can help provide food, medicine, clothing, transportation, and other assistance. The program can be on a voluntary basis, but students and the community may be able to organize a small stipend or receive credit for helping. A native Elder program is beneficial for locals as it helps connect different age groups and helps the community come together for something positive.

Responsible Party: City and Tribe
Potential Partners/Coordination: SNC
Timeframe for Implementation: Short term (0–5 years)

Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.6.8 Continue Archeology Studies

The community indicated that archeology studies have been performed near the airport. The community would like to see similar studies continue to help learn more about their culture and how their land was previously used by their ancestors.

Responsible Party: To be determined
Potential Partners/Coordination: City, Tribe, SNC, SHPO
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.7 Leadership for the Future

Confident leadership can lead to a more cohesive and resilient community. Understanding how leadership operates is essential for residents to be able to support leadership decisions and is an important part of holding leadership accountable to their constituencies.

Leadership also means ensuring the community has the financial resiliency to allow it to withstand potential economic downtowns. Leadership needs to protect the community by ensuring the financial position of the community is strong through responsible and transparent fiscal practices.

Key leadership strategies to support Shaktoolik's resiliency are:

- Open, accountable, and responsive government
- Collaborative, engaged leadership
- Proactive financial management
- Organizational practices
- Opportunities for positive community building
- Support for all residents

3.7.1 CRITICAL ACTION – Continue Planning Committee

To assist with their resiliency efforts, Shaktoolik has a Planning Committee consisting of three members from the Shaktoolik City Council, Native Village of Shaktoolik IRA Council, and the Shaktoolik Native Corporation board. The community coordinator also participates on the planning committee. The Planning Committee allows the community to develop a unified response and approach to resiliency related issues. It also supports communication between the three entities.

The community will be responsible for finding a different funding source for the community coordinator after June 30, 2016.

Responsible Party: City, Tribe, and SNC
Potential Partners/Coordination: DCCED, Denali Commission
Timeframe for Implementation: Ongoing
Estimated Cost: Under $150,000
Current Status: Ongoing
Reference: N/A

3.7.2 Continue Strong Local Leadership and Governance

The City of Shaktoolik, Tribe, and the SNC have a long history of working together to lead the community. Their working relationship has had a positive impact on the community and results in projects and programs being implemented. For example, by working together, the community was able to construct the vegetated berm protecting the community from storm surge.

By continuing the strong local leadership and governance, the community will continue to thrive. The community can encourage good leadership by recognizing their leaders and encouraging mentorship programs so that everyone has the opportunity to make a difference in Shaktoolik. Communities can

continue to support their local leaders by being active in their public affairs and involved in community projects.

Responsible Party: City, Tribe and SNC
Potential Partners/Coordination: N/A
Timeframe for Implementation: Ongoing
Estimated Cost: Under $50,000
Current Status: Ongoing
Reference: N/A

3.7.3 Continue to Support Youth Leadership Programs

Youth involvement is essential to growing successful future leaders in the community. The community needs to continue to support youth leadership programs as they help grow future community leaders. Leadership programs can include job shadowing, youth representatives on City boards, and other community involvement activities. These opportunities will teach youth the values of hard work, responsibility, reward, and stewardship to their community.

Responsible Party: Individuals, Tribe, City
Potential Partners/Coordination: BSSD
Timeframe for Implementation: Ongoing
Estimated Cost: Under $50,000
Current Status: Ongoing
Reference: N/A

3.7.4 Having City and Tribe Council Meetings Open to the Public

Shaktoolik should continue having City and Tribal council meetings open to the public and encourage community residents to participate in the meetings. Listening to the public and being responsive to their needs are important parts of responsible governance and promote transparency.

Ways to increase participating include:

- Having a community-wide annual meeting/celebration that can bring everyone together and also provide more transparency between these governing groups with the public.
- Producing meeting minutes that can be easily accessible to everyone via email, website, or social media outlets.
- Providing translators, transportation, and other assistance so that people who traditionally have difficulties participating in meeting have a way to contribute to important community discussions despite barriers.
- Having a meeting schedule established for the entire year so people know when meetings are.

Responsible Party: Tribe and City
Potential Partners/Coordination: SNC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Under $50,000

Current Status: Ongoing
Reference: N/A

3.7.5 Improve Government to Government Relations

Improving government to government relations will help elicit trust among different government levels—tribal council, city, regional, state level—as well as various state agencies. Continued interaction and correspondence will help make sure everyone is on the same page with the same ideas and no relationships are destroyed through the process.

Responsible Party: Tribe and City
Potential Partners/Coordination: SNC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: under $50,000
Current Status: Ongoing
Reference: N/A

3.7.6 Organizational Mapping

An organizational network mapping is a comprehensive tool with which leaders can connect with each other in the community and in the region so that there is more communication and information exchange between the communities. Mapping key leaders, groups, and organizations helps the community mainstream who to contact appropriately, depending on the crisis.

Responsible Party: Tribe and City
Potential Partners/Coordination: SNC, Kawerak, DCCED, DHS&EM, BSSD, DHS&EM, FAA, FEMA, USFWS, ADF&G, NOAA, EPA, DNR, AVEC, VSW, ANTHC, NSHC, Bering Straits Native Corporation, Bering Straits Regional Housing Authority, Norton Sound Economic Development Corporation
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Under $50,000
Current Status: Ongoing
Reference: N/A

3.7.7 Continue Joint City and Native Village of Shaktoolik IRA Council Meetings

Shaktoolik currently has several joint City and IRA Council meetings every year. This should continue because it increases interaction between the two governing groups, helps eliminate possible communication barriers, and helps ensure that the City and IRA Council coordinate on how to address various community issues. Coordination is critical because the City and IRA Council both have access to different funding sources. By working together, the community can be more strategic and creative about how to implement needed projects.

Responsible Party: Tribe and City
Potential Partners/Coordination: SNC
Timeframe for Implementation: Ongoing
Estimated Cost: Under $50,000
Current Status: Ongoing

Reference: N/A

3.7.8 Develop Communication Plan

The communication plan lays out the necessary information for the City and Tribe on how they will communicate the latest plans and ordinances or updates of the relocation process to the community. The communication plan can incorporate flyers at key public facilities and use social media as a way of dispersing information to the rest of the community.

Responsible Party: Tribe and City
Potential Partners/Coordination: SNC, DCCED
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Under $50,000
Current Status: Ongoing
Reference: N/A

3.7.9 Review/Establish Procurement Policy

A procurement policy lists the process and regulations that guide the acquisition of goods and services the City and Tribe need. The policy aims to communicate the process of purchasing goods and services to everyone within the organizations.

Responsible Party: Tribe and City
Potential Partners/Coordination: SNC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Under $50,000
Current Status: Ongoing
Reference: N/A

3.7.10 Develop Strategy to Include Local Business in Decision-Making Process

Develop a strategy to include input from local businesses in decisions made by community leadership.
Responsible Party: Tribe and City
Potential Partners/Coordination: SNC, DCCED
Timeframe for Implementation:
Estimated Cost: Under $50,000
Current Status: Ongoing
Reference: N/A

3.7.11 Elders Advisory Committee

Shaktoolik should consider establishing an Elders Advisory Committee. The Elders Advisory Committee could provide counsel to the City and Tribe on community issues. Elders can share their traditional wisdom with community leadership and provide input on Elder needs.

Responsible Party: Tribe, City
Potential Partners/Coordination: Kawerak, SNC
Timeframe for Implementation: Short term (0–5 years)

Estimated Cost: Under $50,000
Current Status: Ongoing
Reference: N/A

3.8 Relocation

Shaktoolik is projected to face extreme storm events in the upcoming years as changes in the climate occur and the shore ice provide a decreasing amount of protection from various storms. Although erosion, flooding, and severe storms are a significant concern for the community in the foreseeable future, relocation is not seen as a viable option for the village of Shaktoolik. The community believes that relocation could take years to be finalized; thus the community has opted to remain in their existing site. Although residents have agreed that staying in place will be the best for the community, relocation for the long-term future will need to be considered and planned for.

3.8.1 Identify Criteria for Potential New Village Site

Before a village site can be chosen, the community needs to identify which aspects of the land they think are important, such as nearby water source, higher ground that would not be affected by large flooding, good subsistence hunting grounds, and direct access from existing village site. Creating criteria for needs will help the community narrow the options for the number of potential sites. The community needs to come together to initiate discussion and go through the process of developing criteria for the new village site.

The community has indicated that an area known as the Foothills is their preferred relocation site.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, SNC, FAA, USFWS, DNR, ADF&G, DGGS, DHS&EM, DGGS, USACE, EPA, BIA, NOAA, Denali Commission, HUD, BSSD, Kawerak, VSW, USCG, AEA, ADEC, AVEC, TeleAlaska, Health Corporation, ANTHC, CCHRC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.2 Site Selection Study

A site selection study identifies different locations that have the developmental potential to become the selected site. Village community members and local government will need to consult with the state or hire contractors to help with the selection study while having public meetings and adding input through the process. As part of this study, preliminary geotechnical work should be performed to ensure that potential sites are constructible.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, DGGS, USACE, USFWS, ADF&G, VSW, ANTHC, EPA, NOAA, DHS&EM, SNC
Timeframe for Implementation: Medium term (6–10 years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.3 Site Selection

Site selection occurs when the community has decided on a location and there is agreement that the location will be ideal, based on the criteria identified at the beginning of the relocation process. The specific site must meet all the needs of the community, including higher ground, safe water source, subsistence opportunities, stable ground, will not be greatly affected by the onslaught of larger storms during the year, and less prone to flooding.

As part of the site selection process, educating community residents about the new site and addressing their concerns about the site relocation process is vital so people can make an informed decision. Concerns that have been expressed so far include how the community would still access the coast and what would happen to the cemetery.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, SNC, FAA, USFWS, DNR, ADF&G, DGGS, DHS&EM, USACE, EPA, BIA, NOAA, Denali Commission, HUD, BSSD, Kawerak, VSW, USCG, AEA, ADEC, AVEC, Health Corporation, ANTHC, CCHRC, DNR
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.4 Acquire Title

A title is a document which refers to having the rights to own a specific property. The title gives the owner exclusive rights. The City and Tribe would need to acquire title to the land on which the selected site is located in order to gain the exclusive rights to live there and use the land.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, Kawerak, BIA, SNC, DNR, landowners
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.5 Survey Site

A site survey is when an area of proposed work or project is surveyed and inspected. The information from this survey determines which areas are most suitable for access and building while also laying out the constraints of the site. The surveying process helps determine which areas within the site are suited for the best design.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, VSW, Kawerak, DGGS, DNR, landowners
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New

Reference: N/A

3.8.6 Identify Quarry Site

A quarry site is an open excavation or pit from which rock is obtained. The process typically uses cutting and blasting of an area. A quarry source is important as it provides rocks and other heavy material used for building rip rap, barriers, smaller gravels, and road construction projects. The community needs to identify a quarry site that is relatively close to the village site.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, DNR, DGGS, SNC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.7 Identify and Prioritize Community Needs

What are the community's goals and needs when it comes to relocating? It's important to have dialogue and include all community members, and to have regular meetings to ensure that community needs are identified throughout the site selection process and there is an opportunity to express sentiments when new ideas are exchanged.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, SNC, FAA, USFWS, DNR, ADF&G, DGGS, DHS&EM, USACE, EPA, BIA, NOAA, Denali Commission, HUD, BSSD, Kawerak, VSW, USCG, AEA, ADEC, AVEC, TeleAlaska, Health Corporation, ANTHC, CCHRC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.8 Develop Community Layout Plan

A community layout plan determines where important buildings, homes, the clinic, and the school will be laid out in the proposed relocated site. The planning process will determine specific project sites such as how the village's school, community center, and clinic be located in relation to housing, water facilities and the landfill or airport runway. The community must conduct a series of meetings and discuss the layout they hope to achieve.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, SNC, FAA, USFWS, DNR, ADF&G, DGGS, DHS&EM, USACE, EPA, BIA, NOAA, Denali Commission, HUD, BSSD, Kawerak, VSW, USCG, AEA, ADEC, AVEC, TeleAlaska, Health Corporation, ANTHC, CCHRC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New

Reference: N/A

3.8.9 Infrastructure Feasibility Studies

An infrastructure feasibility study attempts to objectively assess a site to determine whether it can accept infrastructure projects by understanding the project site's strength and weaknesses. Infrastructure feasibility studies help determine what areas are better, easier to work on, and the most cost-effective for the project. The community can discuss and seek additional help for this from other agencies.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, SNC, FAA, USFWS, DNR, ADF&G, DGGS, DHS&EM, USACE, EPA, BIA, NOAA, Denali Commission, HUD, BSSD, Kawerak, VSW, USCG, AEA, ADEC, AVEC, TeleAlaska, Health Corporation, ANTHC, CCHRC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.10 Environmental Studies

Environmental studies are an important part of the process of developing the new village site. They identify and document environmental issues that need to be considered as part of the development process. Typical environmental studies include wetland delineations, geotechnical investigations, cultural resource studies, hydrology studies, and fish and wildlife studies. These studies can be done independently or in conjunction with the development of community facilities.

Environmental studies are frequently performed as part of the National Environmental Policy Act (NEPA) process or as part of the permitting process.

Prior to conducting any environment studies, agency coordination should occur to identify the specific studies that should be conducted, the methodology to be used for the studies, and the potential to share studies among different agencies that require environmental information.

Responsible Party: Various
Potential Partners/Coordination: DCCED, DOT&PF, FAA, VSW, AEA, NOAA, USFWS, ADF&G, USACE, BLM, USCG, SHPO, ADEC, ADNR, NMFS, EPA, Kawerak
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.11 Identify Water Source

A safe, uncontaminated water source is necessary for the existence of any community. Determining whether there is a viable water source at the new site is important because water is also necessary for many household and community purposes. When identifying water sources, the community needs to

consider several questions: Is the ground stable? Are there possibilities of contamination or runoff and erosion near the water source? What are some steps to prevent these problems?

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, VSW
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.12 Identify Resources that can be Reused

Identifying which resources can be reused will help the community determine the importance of these resources. What are subsistence opportunities at the site? Are there reindeer that can be herded and the community can use to subsist on? Are there ample whitefish, blackfish, or burbot species to fish for? Is there an area where firewood may be accessible?

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, SNC, FAA, USFWS, DNR, ADF&G, DGGS, DHS&EM, USACE, EPA, BIA, NOAA, Denali Commission, HUD, BSSD, Kawerak, VSW, USCG, AEA, ADEC, AVEC, NSHC, ANTHC, CCHRC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.13 Detailed Construction and Financing Plan

A detailed construction and financing plan is important to organize. Laying out a plan will help keep costs lower on the construction projects while also meeting specific deadlines for construction. How will the community consider paying for the relocation process? Impact fees? Loans? The financing plan will help determine the best ways to accommodate the community's needs.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, SNC, FAA, USF&WS, DNR, ADF&G, DGGS, DHS&EM, USACE, EPA, BIA, NOAA, Denali Commission, HUD, BSSD, Kawerak, VSW, USCG, AEA, ADEC, AVEC, TeleAlaska, Health Corporation, ANTHC, CCHRC Kawerak
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.14 Leadership Agreement

Local leading organizations in the existing village need to come together to write a leadership agreement document for the new community that outlines the specific responsibilities that hold leading

organizations accountable for their actions. The City, Tribe, and Corporation must come together with the rest of the community to write an agreement to which local leaders will adhere.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, SNC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.15 Relocation Committee

The relocation committee will be in charge of organizing meetings, working with contractors, and acting as liaison to the rest of the community on the relocation process. The relocation committee can be comprised of people from the City, Tribe, and Corporation, state agencies, and regional corporations that can provide input and assistance as well as leadership during the relocation process.

Responsible Party: City, Tribe, and SNC
Potential Partners/Coordination: DCCED, DOT&PF, SNC, FAA, USFWS, DNR, ADF&G, DGGS, DHS&EM, USACE, EPA, BIA, NOAA, Denali Commission, HUD, BSSD, Kawerak, VSW, USCG, AEA, ADEC, AVEC, TeleAlaska, NSHC, ANTHC, CCHRC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.16 Develop Access to New Site

Access to the new site needs to be developed in order for relocation and the construction process to occur. Where can a road be built? What is the best site for a runway? Is there access to the site location by barge or boat? Is there a lake nearby that can be used for plane landings in the winter and summer?

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, SNC, FAA, USFWS, DNR, ADF&G, DGGS, DHS&EM, USACE, EPA, BIA, NOAA, Denali Commission, HUD, BSSD, Kawerak, VSW, USCG, AEA, ADEC, AVEC, ANTHC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.17 Develop Long Range Transportation Plan

The long range transportation plan identifies the community's transportation needs and goals. This planning process should also meet the current and future land use, economic, and environmental goals. The transportation plan considers a full range of transportation modes, which may include 4x4 or snow

machine, bicycle, and pedestrian travel. The planning process also determines funding opportunities and recommendations for implementing the plan.

Responsible Party: Kawerak
Potential Partners/Coordination: City, Tribe, DCCED, DOT&PF, SNC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.18 Build Initial Housing

The community needs to determine what kind of housing will be built at the relocation site. Who will go into the first homes built? What do families want to have considered in the housing construction process? Who will help pay for the cost of these homes?

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, HUD, EPA, VSW, AVEC, DOT&PF, DHS&EM, DOT&PF, Kawerak
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.19 Develop Initial Infrastructure

The community needs to lay out the initial infrastructure that will be used as the foundation that guides the growth of the community. Initial infrastructure could include sewage, water, and other utility lines, roads, an airport, a wastewater location, public housing, a school, and a city building site.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, SNC, FAA, USFWS, DNR, ADF&G, DGGS, DHS&EM, USACE, EPA, BIA, NOAA, Denali Commission, HUD, BSSD, Kawerak, VSW, USCG, AEA, ADEC, AVEC, TeleAlaska, NSHC, ANTHC, CCHRC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.20 Well at New Site

A water well is an excavation or structure created in the ground by digging, driving, or drilling to access ground water located in underground aquifers. The well water is drawn by pump or raised mechanically or brought up by hand in some regions. Developing a well in the new site is important because it provides a local water source for the community.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF

Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.21 Develop Remaining Infrastructure

Finish building the remaining infrastructure needed for the relocation site. Examples may include critical emergency infrastructure that may mitigate potential for severe storms and floods, emergency services available, and other public works buildings, and a storm shelter or a multi-purpose building to store construction equipment and other hard equipment used in the relocation process.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, SNC, FAA, USFWS, DNR, ADF&G, DGGS, DHS&EM, USACE, EPA, BIA, NOAA, Denali Commission, HUD, BSSD, Kawerak, VSW, USCG, AEA, ADEC, AVEC, TeleAlaska, NSHC, ANTHC, CCHRC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.22 Develop Remaining Housing

Finish building the remaining housing needed for the village site. This may include low-income housing, elder housing, multi-family housing, and single family homes. Determining what is needed in the new village and what can be left behind in the old site location is necessary in the development of housing.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, HUD, EPA, VSW, AVEC, DOT&PF, DHS&EM, Kawerak
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.8.23 Restoration of Old Village Site

Restore the old village site so that garbage, waste, and wastewater is covered, evacuated, or put down properly. The townsite should be restored to its natural condition and look like the surrounding landscape.

Responsible Party: City and Tribe
Potential Partners/Coordination: DCCED, DOT&PF, SNC, FAA, USFWS, DNR, ADF&G, DGGS, DHS&EM, USACE, EPA, BIA, NOAA, Denali Commission, HUD, BSSD, Kawerak, VSW, USCG, AEA, ADEC, AVEC, TeleAlaska, NSHC, ANTHC, CCHRC
Timeframe for Implementation: Long term (11+ years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.9 Other

This section documents action items that are not included in one of the other strategic focus areas.

3.9.1 River Cleanup

The community indicated that the river has had an increasing problem with snags and vegetation that is creating a safety hazard. The community would like an organized river cleanup effort to make the river safer for boats. These efforts would also improve navigation and may improve salmon habitat. This action item could be implemented by a volunteer cleanup day or buy hiring people to clean up the river. The river cleanup should occur on an annual basis.

Responsible Party: City and Tribe
Potential Partners/Coordination: SNC, ADF&G
Timeframe for Implementation: Short Term (0-5 years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.9.2 Animal Control

According to residents, Shaktoolik, like other communities in Alaska, has a problem with stray, neglected, and loose dogs. This is a problem for many reasons. These dogs present a public safety concern because rural Alaska experiences a higher rate of dog bites than other communities. Other identified concerns include loose dogs getting into garbage, aggressive dogs being shot, animal abuse, and inhumane ways of putting down dogs. The community should be proactive in ensuring dogs are properly contained (e.g., on leash or in a kennel.) so they are not freely roaming around the village. The community should determine the proper action to be taken when loose dogs are encountered in the community. They should also work with a non-profit group to bring a veterinarian to village on an annual basis to host a spay and neuter clinic.

Responsible Party: City and Tribe
Potential Partners/Coordination: NSHC, Kawerak, SNC, Humane Society, Alaska Rural Veterinary Outreach
Timeframe for Implementation: Short term (0-5 years)
Estimated Cost: Under $10,000
Current Status: New
Reference: N/A

3.9.3 Fitness Program

The community has expressed a desire for a fitness program. Having healthy, active community residents is an important part of a resilient community. Regular physical activity is associated with improved muscular and cardiorespiratory fitness, reduced risk of hypertension, coronary heart disease, stroke, diabetes, breast and colon cancer, and depression. Encouraging residents to be physically active will bring community benefits. The community will need to give further consideration on how to implement this action item. Potential ways to develop a fitness program include having weekly group fitness classes using a fitness video, converting a portion of a building into a small gym with fitness equipment, having group walk/runs, and developing an incentive program where people can earn points for physical activity that are then converted into prizes.

Responsible Party: City and Tribe
Potential Partners/Coordination: SNC, BSSD, Kawerak, NSHC, ANTHC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: Varies
Current Status: New
Reference: N/A

3.9.4 Community Garden

A community garden is a single garden which is taken care of and harvested by a collective community. The gardening process builds a sense of connection to food and community. Creating a community garden is advantageous especially during the summer months as fresh vegetables are more readily available to Shaktoolik residents instead of buying expensive produce that has been flown into the community. With the creation of a community garden, residents are able to produce their own fruits and vegetables at a very little cost in comparison to purchasing from the store or ordering from Nome or Fairbanks and Anchorage. Hydroponics and aquaponics provides small-scale agriculture indoors as an option for the community to pursue fresh greens created locally all year round.

Responsible Party: City and Tribe
Potential Partners/Coordination: SNC, Kawerak, BSSD, Individuals
Timeframe for Implementation: Short Term (0-2 years)
Estimated Cost: to be determined
Current Status: New
Reference: N/A

3.9.5 Community Food Assessment

A community food assessment surveys the existing food products and sources to see if the community has a sufficient food supply during an emergency. The community needs to assess what the food sources are, whether people have emergency food, whether there is the ability to subsist locally and what the local game can bring, and whether food can be set aside for future catastrophic emergencies.

Responsible Party: City and Tribe
Potential Partners/Coordination: SNC, BSSD, Individuals

Timeframe for Implementation: Short term (0–2 years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.9.6 Establish Communication with Potential Future Residents

In recent years, there has been a migration from rural Alaska to larger urban centers. Some people would prefer to remain living in Shaktoolik but have to leave for work, education, or other purposes. The community should develop ways to keep in touch with people who may want to return to Shaktoolik. By communicating with people about what is going on in the community, education, and work opportunities, people who have moved away may find it easier to return.

Responsible Party: City and Tribe
Potential Partners/Coordination: SNC
Timeframe for Implementation: Short term (0–2 years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

3.9.7 Increase Awareness about Existing Substance Abuse Programs

The community wants to encourage residents to choose healthy lifestyles. A topic of particular concern to community residences is substance abuse. Substance abuse programs help local residents get assistance from programs that have the capacity to help. The community should work with local partners such as the school district and the NSHC to increase awareness about existing substance abuse programs.

Responsible Party: City and Tribe
Potential Partners/Coordination: DHSS, Substance Abuse and Mental Health Services Administration, NSHC, SNC, ANTHC
Timeframe for Implementation: Short term (0–5 years)
Estimated Cost: To be determined
Current Status: New
Reference: N/A

4 Next Steps

The next step is for the community to lead the implementation of the SMP. Specific steps include:

- **Accountability** – Having a plan is not the same as implementing the plan. To be successful, Shaktoolik needs to identify specific people to be responsible for each action item. These individuals should report back to the community on a regular basis.
- **Monitoring** – Shaktoolik should decide how they want to monitor and update the SMP. The SMP is a living document to help the community become more resilient. The community should work with their partners to assess the plan and update it at least annually. Keep the plan fluid – adapt to changes. Don't be afraid to change the plan if needed.
- **Support** – Gain support to implement action items from existing and new partners.
- **Communication** – Keep people informed of progress. Shaktoolik should share with residents and agency partners the progress they have made in implementing the plan.
- **Celebration** – As action items are completed, or at substantial milestones, celebrate these accomplishments. Celebrations can help keep everyone excited and engaged.

5 References

Alaska Department of Commerce, Community, and Economic Development. 2012. Increasing Community Resilience by Integrating Hazard Mitigation into Local Comprehensive Planning Efforts. 2012 Alaska Planning Conference, Anchorage, Alaska.

Alaska Department of Health and Social Services. 2013. Fact Sheet: Household Mold. http://dhss.alaska.gov/dph/Epi/eph/Documents/HouseholdMoldFactSheet.pdf

Alaska Housing Finance Corporation. 2016. Weatherization at No-Cost. https://www.ahfc.us/efficiency/energy-programs/weatherization/

Alaska Native Tribal Health Consortium, Energy Projects Group. 2011. Comprehensive Energy Audit for Shaktoolik Health Clinic. Prepared for Native Village of Shaktoolik. http://anthc.org/wp-content/uploads/2016/01/REI_Shaktoolik_ClinicEnergyAuditReport.pdf

Bering Straits Development Co., Alaska Energy Authority, and WHPacific. 2015. Bering Strait Regional Energy Plan. http://beringstraits.com/wp-content/uploads/2015/01/BSREP.pdf

Bering Straits Regional Housing Authority. 2016. Housing Preservation Grant Program. http://www.bsrha.org/#!housing-preservation-grant/c28u

CRW Engineering Group, LLC. 2015. Bulk Fuel Assessment Report: Shaktoolik, Alaska. Prepared for Alaska Energy Authority. ftp://www.aidea.org/Bulk%20Fuel/2015%20Bulk%20Fuel%20Inventory/Bulk%20Fuel%20Inventory%20Reports-%20Final/Shaktoolik%20Bulk%20Fuel%20Assessment%202015.pdf

Denali Commission Alaska. 2008. Update on projects in threatened communities. http://climatechange.alaska.gov/docs/iaw_dc_3sep08.pdfShaktoolik Adaptation Plan

Ecology and Environment, Inc. 2010. Emergency Operations Plan: Shaktoolik, Alaska. Prepared for the City of Shaktoolik and the Native Village of Shaktoolik IRA Council and the Alaska Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management.

Goldsmith, S. 2008. Understanding Alaska's Remote Rural Economy. University of Alaska Anchorage, Institute of Social and Economic Research. UA Research Summary No. 10.

Government Accountability Office. 2009. Alaska native villages: Most are affected by flooding and erosion, but few qualify for federal assistance. General Accounting Office. Report to Congressional committees. http://www.gao.gov/assets/250/240810.pdf

Kawerak. 2013. Shaktoolik Local Economic Development Plan 2013–2018. Prepared for the Community of Shaktoolik and the Bering Strait Development Council.

Kuholski, K., E. Tohn, and R. Morley. 2010. Healthy Energy-Efficient Housing: Using a One-Touch Approach to Maximize Public Health, Energy, and Housing Programs and Policies. *Journal of Public Health Management Practice* 16(5):S68–S74.

Native Village & City of Shaktoolik, WHPacific, and Bechtol Planning and Development. 2009. Community of Shaktoolik, Alaska: Local Multi-Hazard Mitigation Plan. https://www.commerce.alaska.gov/web/Portals/4/pub/2009_Shaktoolik_MHMP.pdf

Rodney P. Kinney Associates, Inc. 2007. Shaktoolik Long Range Transportation Plan. Prepared for the Shaktoolik IRA Council in cooperation with Kawerak Transportation Program.

Rural Alaska Community Action Program. 2016. How to Apply in Rural Alaska. Alaska Weatherization Assistance Program. https://ruralcap.com/weatherization/rural-weatherization/

U.S. Department of Housing and Urban Development. No date. Indian Community Development Block Grant (ICDBG) Program. http://www.federalgrants.com/Community-Development-Block-Grant-ICDBG-Program-for-Indian-Tribes-and-Alaska-Native-Villages-Mold-Remediation-and-Prevention-50827.html

U.S. Department of Housing and Urban Development. 2016. Section 184 Indian Home Loan Guarantee Program. http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/ih/homeownership/184

U.S. Department of Agriculture, Rural Development. 2016. Single Family Housing Repair Loans & Grants. http://www.rd.usda.gov/programs-services/single-family-housing-repair-loans-grants

USKH. 2012. Final report: Shaktoolik community emergency shelter. Prepared for the Native Village of Shaktoolik.

Appendix A

Shaktoolik Interagency Working Group Invitees

The following individuals and organizations were invited to participate in the Shaktoolik Interagency Working Group.

Agency	Name
Alaska Department of Commerce, Community and Economic Development, Division of Community and Regional Affairs	Katherine Eldemar
	Deborah Leamer
	Sally Russell Cox
	Diane Sam
	Leroy Seppilu
	Jimmy Smith
	Melissa Taylor
Alaska Department of Environmental Conservation	Bill Griffith
Alaska Department of Environmental Conservation/Village Safe Water Program	Greg Magee
	George Wilson
Alaska Department of Military and Veterans Affairs Division of Homeland Security and Emergency Management	Alex Fonteyn
	Ann Gravier
	Scott Nelson
	Brent Nichols
	Kim Weibl
Alaska Department of Transportation and Public Facilities	Ruth A. Carter
	Alexa Green
	Jeff Roach
	Harvey Smith
Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys	Jaci Overbeck
	Deanne Stevens
Alaska Housing Finance Corporation	Mark Romick
Alaska Institute for Justice	Robin Bronen
	Denise Pollock
Alaska Native Tribal Health Consortium	Don Antrobus
	Mike Black
	Mia Heavener
	John Warren
Alaska Village Electric Cooperative	Meera Kohler
	Anna Sattler
Bering Straits Native Corporation	Gail Schubert
Bering Straits Regional Housing Authority	Matthew Ione
Bering Strait School District	Bobby Bolen
City of Shaktoolik	Edgar Jackson Sr.
Cold Climate Housing Research Center	Aaron Cooke
	Jack Hebert
Denali Commission	Chris Allard
	Jay Farmwald
	Joel Neimeyer
Kawerek Corporation	Steve Ivanoff
	Sean McKnight
	Denise Michaels
	Carol Piscoya
	Anahma Shannon
	Jane Stevenson
Kivalina Community Coordinator	Millie Hawley
Native American Rights Fund	Erin Dougherty Lynch

Agency	Name
Native Village of Shaktoolik	Chairmain Tatak
Office of Representative Neal Foster	Paul LaBolle
	Graham Jensen
Shaktoolik Native Corporation	Ronda Asicksik
	Fred Sagoonick
Shaktoolik Community Coordinator	Michael Sookiayak
	Kirby Sookiayak
Shaktoolik IRA Council	Axel Jackson
Shaktoolik Tribal Council	Karlene Sagoonick
Shishmaref Community Coordinator	Fred Eningowuk
St. Lawrence College	Jon Rosales
U. S. Army Corps of Engineers	David P. Williams
U.S. Coast Guard	James Helfinstine
U.S. Department of Housing and Urban Development	Deb Alston
	Colleen Bickford
	Toni Morse
	Carma Reed
	Bill Zachares
U.S. Environmental Protection Agency	Tami Fordham
U.S. National Oceanic and Atmospheric Administration	Amy Holman
WH Pacific	Jackie Schaeffer