



Integrating Climate Considerations into Planning: A Quick Reference Guide

WELCOME

Alaska is experiencing the effects of climate change in significant ways. Increased occurrence of flooding and erosion, wildfire activity, and destructive landslides are all examples of how the landscape is changing due to a warming climate. More extreme weather and changes in temperature and precipitation are impacting people, plants, fish and wildlife. The current and future impacts of climate change on community infrastructure, food security, and culture cannot be ignored. Actions that both prepare for and adjust to these changing conditions are important parts of building community resilience and adapting to climate change. Thoughtful planning is an important step in making well informed actions.

HOW TO USE THIS DOCUMENT

The purpose of this guide is to offer a starting point to considering what the best approach for climate adaptation planning might be for your community and point you towards a few resources to get started. All references to specific plans, guidebooks, databases, or tools are hyperlinked in the document. This document will be most helpful if opened in a web browser, so you can easily open references. You can find this document online by navigating to the following webpage or using the QR code and looking under Tools and Reports.

Link to web: akcasc.org/aktrln/aktrln-past-trainings

QR code



WHO WE ARE

The Alaska Tribal Resilience Learning Network (AK TRLN) is a community of learning, sharing, technical assistance, training, and support for Alaska Tribes, Leadership, and Indigenous communities as they respond and adapt to the current and future impacts of climate change.

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Unless indicated otherwise all photos in report were taken by Heeringa K.

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For more information or to request support in integrating climate considerations into your community's planning process contact the Alaska Tribal Resilience Learning Network at AK_TRLN@alaska.edu

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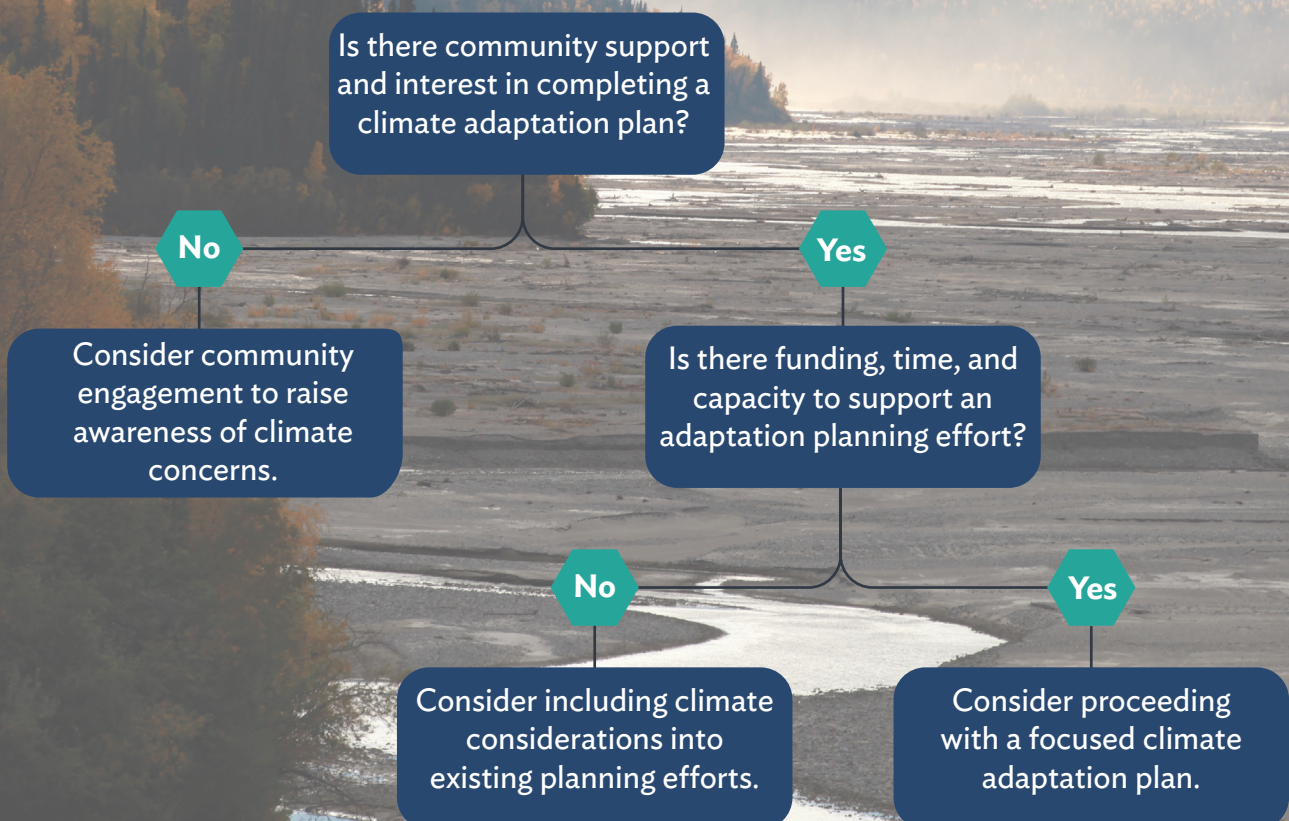
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PLANNING APPROACH

Climate impacts nearly every aspect of a community. Considering all the ways a community might be impacted by climate change can be invaluable. A focused climate adaptation plan offers the setting for your community to consider the ways climate change is impacting your community holistically. It may also assist in developing action-oriented strategies in areas ranging from infrastructure, to human health, to food security.

While completing a focused tribal adaptation plan might be the right choice for your community, limited funding or capacity can put a lot of strain on what a tribal, city, or village corporation can do to prepare and respond to climate change. In this case, your community or organization may want to consider including climate considerations into existing planning efforts that are regularly updated. Incorporating climate considerations into existing planning efforts (referred to as mainstreaming) can be an effective strategy when there is limited funding available, limited support staff or capacity, and when other plans are more closely aligned with community needs and actions. Mainstreaming can also cut down on planning time to move a community towards fundraising and implementation more quickly.

If your tribe, city, or village corporation chooses to include climate considerations into an existing planning effort, it is helpful to understand which plans are needed for your community, and what they are used for. From there, look at the plans that your organization has already completed. Which of these have been used in making decisions, securing grant funding, or implementing projects? Do any of these plans need to be updated soon? This might be a good place to start incorporating climate considerations into your community's next planning effort.



CLIMATE ADAPTATION PLAN GUIDES

There are a variety of ways to approach climate adaptation planning and the best approach will depend on the concerns, capacity, and priorities of your community. Whether you choose to develop a climate adaptation plan or mainstream climate consideration in your existing plan, you may want to consider how you frame or share the story of climate change impacts on your communities within your tribal values or worldview. There are several climate adaptation guides and databases that have been developed to assist tribes in the planning process. We've outlined a few here that are specific to Alaska and are regularly updated. These guidebooks also include glossaries for climate change terminology that are a useful reference. Across the references we have included, there are a few common steps that most of them outline in greater detail.

- 1 Starting conversations around climate change concerns within your community and forming a planning team.
- 2 Determine how your community will focus its planning efforts.
- 3 Collect community information including key climate concerns, Traditional Knowledge, and information on past planning efforts.
- 4 Assess vulnerability through consulting Traditional Knowledge, climate projections and research, and available risk assessments.
- 5 Identify solutions and actions to respond to concerns.
- 6 Take action and monitor as climate conditions change.

Planning Tip:

High turnover in leadership and administration can significantly challenge planning and implementation by inadvertently allowing an organization to revert to “square one.” All training, workshops, and capacity that was attained by one or more individuals can be lost. The time and funding used to understand the system must be reattained by the newly hired or elected official. Forming a planning team of members interested and aware of what each plan entails is important. Creating opportunities for the community to engage in the planning process through opening meetings and hosting gatherings helps provide consistency, and shared learning and knowledge.

[Institute of Tribal Environmental Professionals Adaptation Planning Toolkit](#)

This toolkit includes checklists, templates, and examples to assist with completing an adaptation planning assessment. It is a helpful place to start if you want step by step worksheets to follow.

[Tribal Climate Adaptation Guidebook Online Version & PDF Version](#)

Both the online and PDF versions outline activities that work through the different stages of a tribally focused adaptation process. The online version was developed to highlight examples of tribal adaptation stories on an ongoing basis.

[Adapt Alaska](#)

Adapt Alaska has briefly summarized adaptation planning steps. This website can be useful with its use of Alaska focused examples and resources.

[Tribal Climate Change Guide](#)

This is a comprehensive database that includes regularly updated funding opportunities specific to tribes, a database of tribal climate adaptation plans, and climate resources.

CLIMATE ADAPTATION PLANNING EXAMPLES

Climate change affects each community differently depending on the ecosystem, geographic location, and relationship to the land. Here we contrast two different climate adaptation planning approaches taken by Tlingit and Haida and Shaktoolik and share links to a few additional plans to check out.

Tlingit and Haida Climate Adaptation Plan

Climate Concerns

This plan focuses on climate impacts to the ecosystem. Concerns identified include:

- Ocean acidification
- Changes in temperature and precipitation
- Changes in forest habitat
- Changes in glaciers
- Harmful algal blooms

Assess Vulnerability

This plan prioritizes species by assessing their level of vulnerability to climate change. Highlighted species include:

- Salmon
- Shellfish
- Yellow cedar

Take Action

Adaptation actions highlighted in this plan include:

- Enhancing local research
- A focus on community-wide monitoring

Shaktoolik Climate Adaptation Plan

Climate Concerns

This plan focuses on climate impacts to infrastructure. Concerns identified include:

- Erosion
- Storm surge
- Lack of shore ice

Assess Vulnerability

Assessment areas covered by this plan include:

- Roads
- Housing
- Fuel Tank Farm
- Airport

Take Action

Adaptation actions highlighted in this project include:

- Vegetative Berm
- Community-wide monitoring
- Updating HMP to reflect priorities

Igiugig Village Climate Adaptation Assessment

This is a desktop report focused on identifying vulnerabilities of key species of concern.

Oscarville Tribal Climate Adaptation Plan

This plan takes a holistic and comprehensive approach to adaptation planning.

The Aleutian-Bering Climate Vulnerability Assessment

This is a vulnerability assessment focused on assessing the vulnerability of the marine environment including marine mammals and seabirds.

INTEGRATING CLIMATE CONSIDERATIONS INTO EXISTING PLANNING EFFORTS

Regardless of whether your community is considering completing a focused climate adaptation plan or including climate considerations into an existing planning effort, both will require a description for how the climate is projected to change in your area and the impacts that might occur as a result.

Climate models and projections

Changes in the climate system include changes of temperature, precipitation, sea surface temperature, and even wind direction. Climate change is experienced differently depending on geographic locations. Understanding how the climate is projected to change in your area of concern is an essential step to plan for this different future.

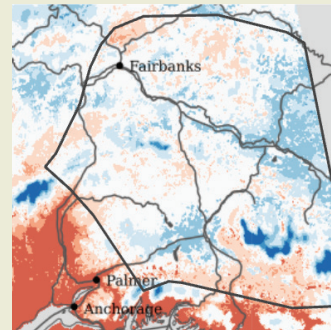
Climate projections are based on models of what earth's climate might look like considering the interactions between the atmosphere, ocean and sea ice, land surface, and human behavior. Because global climate models (GCM) are complex, these models are not perfect representations of what earth's climate will look like in the future, rather estimates based on different warming scenarios based on different human behavior.

The Scenarios Network for Alaska and Arctic Planning have made available climate projections specific to Alaska by developing a suite of climate projection tools using climate models that are most accurate in modeling the Arctic. The easiest climate projection tool to use is the Northern Climate Reports (NCR) which includes projections for a range of variables such as temperature, precipitation, fire risk, and permafrost change.

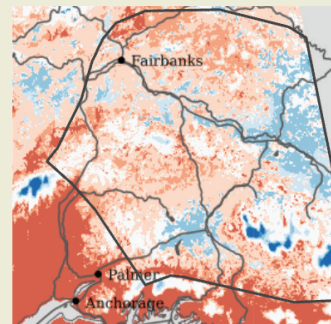
Northern Climate Reports northernclimatereports.org

This is an example of an output from NCR showing what ground temperature might be in the future based on the climate model named GFDL CM3 and the 8.5 RCP. Visuals of potential future change can support community dialogue around climate action and prompt reflections like, what will it mean in your community transitions from there being permafrost to no permafrost? This needs to be paired with local knowledge to be useful in a planning context. Climate projections paired with local and Indigenous Knowledge will be the strongest.

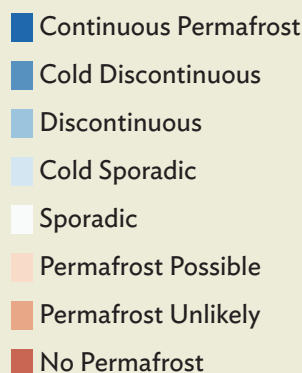
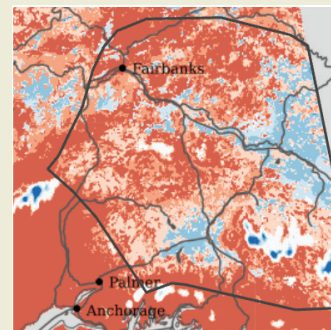
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Scenarios Network for Alaska and Arctic Planning (SNAP) Tools

snap.uaf.edu

A few additional climate projection tools developed by SNAP that are worth noting include:

- [Community Climate Charts](#) - Displays simple bar graphs for projected changes in temperature and precipitation by community through the end of the century.
- [Alaska Garden Helper](#) - Displays projected changes in growing degree days and length of growing season by community through the end of the century.
- [Arctic Environmental and Engineering Data](#) - Designed for engineers when considering design of roads and other infrastructure.
- [Alaska Wildfire Explore](#) - This interactive tool displays historical fire parameters as well as projected flammability across Alaska.



DOCUMENTING IMPACTS

Changes in the climate system can lead to a range of impacts to the land, plant, animals, and people. There are a variety of methods and resources that can be used to document climate impacts. First, recording local and Indigenous Knowledge about how the landscape is changing can be a valuable place to begin conversations and plan around climate change. Indigenous Knowledge and stories about a place carry deep history that provides meaning and context to a planning process.

Other methods and resources that may be useful in documenting climate impacts include community based monitoring, specific site assessments, instrument based research, and regional or statewide reports. Here we have outlined Tribally focused and primarily Alaska based reports and resources that can be referenced in climate focused planning efforts



State of Alaska Community flooding, erosion and permafrost risk assessment

This dashboard allows the user to select a community, then see a snapshot of all the past assessments, including community flooding, erosion, and permafrost risk assessment statuses.

Statewide Threat Assessment Dashboard

This dashboard based on the Statewide Threat Assessment categorizes and ranks permafrost, erosion, and flood risk of Alaska villages.

Erosion Exposure Assessment of Infrastructure in Alaska Coastal Communities

This assessment conducts erosion forecasts near infrastructure in coastal Alaska villages. They conduct shoreline change analysis, forecast 60 years of erosion and estimate the replacement cost of infrastructure in the forecast area.

Unmet Infrastructure Needs of Tribal Communities and Alaska Native Villages in Process of Relocation 2024

This informational report outlines the unmet infrastructure needs of tribal communities with sections that focus specifically on Alaska Native Villages in the process of relocating to higher ground as a direct result of the impacts of climate change.

COMMON TYPES OF PLANS

We have compiled here a list of common plans that are utilized by Tribes and Alaska Native communities to advance community priorities. We have organized these by those that are Federally administered or required to access different sources of funding, those that are supported by the State of Alaska, and finally those that a municipality or tribe might pursue independently to advance community priorities. Each listed plan includes a brief description and climate considerations that could be incorporated into the planning process. For some plans we have included examples for how it has been used to support climate readiness.

[Alaska DCRA Community Plans Library](#)

This searchable database is a good place to find plans your community may have already completed. It archives plans from across the state that are voluntarily submitted by agencies and communities.

FEDERALLY ADMINISTERED PLANS

Long-range Transportation Plan (LRTP)

The LRTP planning process allows for a tribe to create an inventory and analyze transportation options locally and regionally with the goal of identifying and prioritizing projects in alignment with a Tribal government to improve transportation. This program is administered by the U.S. Department of Transportation under the Federal Highways Administration and an LRTP is required in order to access funds administered through this program.

Climate Considerations

Are roads being designed and built considering:

- Current and projected rates of permafrost thaw
- Changes in precipitation volume and timing
- Projected changes in storm surge
- Land loss due to erosion

Possible Planning References or Data Sources

- [Arctic Environmental and Engineering Data](#)
- [Erosion Exposure Assessment of Infrastructure in Alaska Coastal Communities](#)
- [Statewide Thread Assessment](#)
- [Unmet Infrastructure Needs](#)

Indian Housing Plan (IHP)

Tribes and tribally designated housing entities are able to complete an IHP. At a minimum this plan includes a statement of housing need, financial funding resources to support housing programs, and a detailed profile of affordable housing resources in a community. An IHP must be completed and updated every 5 years in order to access program funding administered through the U.S. Department of Housing and Urban Development, Office of Native American Programs.

Climate Considerations

Are homes being designed and built considering:

- Current and projected rates of permafrost thaw
- Projected changes in storm surge
- Land loss due to erosion

Possible Planning References or Data Sources

- [Northern Climate Reports](#)
- [Erosion Exposure Assessment of Infrastructure in Alaska Coastal Communities](#)
- [Unmet Infrastructure Needs](#)

EPA Tribal Environmental Plan (GAP ETEP)

An ETEP is a jointly developed document between a tribe and the U.S. Environmental Protection Agency (EPA) that outlines how they will collaborate to achieve the tribe's environmental goals within the context of EPA's tribal programs. ETEPs serve as a planning and communication tool providing a roadmap for future decision-making and helping to target EPA financial assistance towards building tribal capacity.

Climate Considerations

With the flexibility that ETEP plans can be written, they offer a useful opportunity for tribes to include [Assessment](#) climate priorities within the workplan.

Possible Planning References or Data Sources

- [Northern Climate Reports](#)
- [Statewide Threat](#)



Photo: Jerilyn Kelly

Hazard Mitigation Plan (HMP)

The U.S. Federal Emergency Management Agency (FEMA) requires state, local, and tribal entities to have a current (updated every 5 years) and approved HMP in order to be eligible for different types of funding. Key elements of an HMP include first developing an inventory of human, infrastructure, economic, and cultural resources and assets that a community wishes to protect and then identifying hazards and risks to the identified resources and assets.

Climate Considerations

Does your HMP map out current and future hazards that may increase due to climate change such as an increased frequency or severity of:

- Super storms
- Flooding
- Wildfire
- Landslides
- Drought

Possible Planning References or Data Sources

- [Northern Climate Reports](#)
- [Erosion Exposure Assessment of Infrastructure in Alaska Coastal Communities](#)
- [Statewide Threat Assessment](#)
- [Unmet Infrastructure Needs](#)

PLAN IN ACTION

Hazard Mitigation Planning in Quinhagak with Jerilyn Kelly

While I was employed by the Quinhagak tribe as the EPA GAP Coordinator and serving as the Mayor, I was an active part of the Hazard Mitigation Planning team working with Lemay Consultants as they completed this work in 2020.

The permafrost and erosion projections included in this plan were done only a few years ago and were accurate, but the change was faster than predicted. As I was skimming through the HMP, I was struck how in the short period of time since it's been written, we were hit with our water treatment plant sinking into the ground due to permafrost degradation, and the former clinic/washeteria building was condemned. The State of Alaska projections predicted that our lagoon had significantly more life left than what we are seeing and experiencing in reality due to the more rapid erosion and permafrost thaw rates.

I learned a lot during our recent Disaster Declaration about the importance of including information about the life of infrastructure and equipment (such as generators) when updating an HMP.

Community Wildfire Protection Plans (CWPP)

The intent of a CWPP is to provide a guiding document for reducing risk of hazardous fuels aimed at protecting people and property from the risk of wildfire. Guides for preparing a CWPP are available through the Alaska Department of Natural Resources, Division of Forestry & Fire Protection. A CWPP is not required for accessing funding sources, but is aimed at increasing community safety.

Climate Considerations

Does your CWPP incorporate any model outputs of future wildfire risk for your area to aid in planning?

Possible Planning References or Data Sources

- [Northern Climate Reports](#)
- [Alaska Wildfire Explorer](#)



Gloria Andrew

Small Community Emergency Preparedness Plan (SCERP)

The intent of a SCERP is to help small communities in Alaska prepare and respond to the first 72 hours of a disaster. The most critical element of a SCERP is community involvement in both developing and updating a SCERP. Guidance in developing a SCERP is available through the State of Alaska, Alaska Division of Homeland Security and Emergency Management.

Climate Considerations

With an increased risk of extreme weather events from climate change, regularly updating your community's SCERP is an action oriented planning step that your community can take better prepare for extreme weather and disasters.

Possible Planning References or Data Sources

- [Northern Climate Reports](#)
- [Alaska Wildfire Explore](#)

Small Community Emergency Response Plan in Shaktoolik with Jolene Auliye

In September 2022, ex-Typhoon Merbok hit the coast of Alaska with hurricane force winds causing extreme storm surge and high waves that impacted more than 35 communities. Located on the east shore of Norton Sound, Shaktoolik was one of the villages that was impacted. Shaktoolik was the first and southernmost Malemiut settlement on Norton Sound, occupied as early as 1839.

While working for the tribe I advocated for climate change planning and helped the tribe minimize environmental threats. I was new to my position, and this was the first climate disaster I had to deal with. I just recently had a newborn baby, and was at home tending to him while my husband who is one of the first responders as search and rescue was helping the community. The SCERP was activated and people evacuated to the school. I didn't know that this plan was entitled to my position and that I was the one responsible for the plan. I am thankful for our council members who stepped up during this time, and other organizations like the city, and corporation members. The SCERP is updated annually so that members on the team are up to date. One thing I could have done better was prepare the community with a mock drill before the disaster happened. Homeland security is willing to help with these types of exercises and will come up with a suitable plan for your community.

COMMUNITY AND TRIBALLY DIRECTED PLANS

Comprehensive Community Plan (CCP)

A CCP is typically used as a guide for municipalities and boroughs on land use and development decisions. The planning process involves community input on goals and long-term vision. It may also include forecasts of future trends and conditions as well as concerns related to achieving outlined goals.

Climate Considerations

CCPs will often include projections of population change in a given community. Climate projection can also be included and be added as a consideration for land use and development decisions.

Possible Planning References or Data Sources

- [Northern Climate Reports](#)
- [Alaska Wildfire Explorer](#)
- [Unmet Infrastructure Needs](#)

Local Economic Development Plan (LEDP) or Community Plan (CP)

There are a range of community initiated plans that aim at capturing a Tribe or community's long-term vision and goals that may cover a variety of topics from economic development to community health and wellness. These plans may have a variety of names and layouts.

Climate Considerations

CP or LEDPs if updated regularly, offer an opportunity to include climate projections and identify potential climate impacts to planning dimensions already included in this plan.

Possible Planning References or Data Sources

- [Northern Climate Reports](#)
- [Unmet Infrastructure Needs](#)

Tribal Resolution

A tribal resolution is a formal document enacted by a tribal government that expresses the will of the tribe on a specific issue or policy. It serves as a mechanism for tribal governments to address matters affecting the welfare of their communities, often relating to areas like health, education, housing, or natural resources.

Climate Considerations

Tribal resolutions that support climate action can be referenced in funding applications and proposals to demonstrate tribal support for climate action. If climate priorities are not already included in existing plan, tribal resolutions can demonstrate support for a given action.

Possible Planning References or Data Sources

- [Unmet Infrastructure Needs](#)
- [Statewide Threat Assessment](#)

