



HEALTH AND EMERGENCY PREPAREDNESS

Health and Emergency Preparedness

Climate change is already affecting the health, safety, and the general well-being of Anchorage residents. We are experiencing more winter days that hover around freezing, and summers that are longer. The effects of these environmental changes on health can be negative and positive. Winter freeze-thaw cycles bring flooding, road accidents, and hospitalizations from slips and falls, but longer warm seasons provide additional opportunities for outdoor recreation. Warmer summers have resulted in poor conditions for alpine berries, but also longer seasons for community gardeners and farmers.

In this section on Health and Emergency Preparedness, connections are made between climate and health in Anchorage, as well as emerging issues for emergency preparedness. The actions in this sector include strategies to 1) reduce health and safety impacts of climate change, 2) increase household and community resilience, 3) engage diverse communities in climate change resilience planning, and 4) develop research and monitoring programs to support our understanding of and planning for the health and safety impacts of climate change in Anchorage.

Health impacts of climate change in Anchorage

Climate change impacts the health of Anchorage residents in many ways. As the spring and summer gets warmer and wetter, there could likely be an increase in mold, and the allergy season could begin earlier and last longer. The result is that Anchorage residents with asthma, allergies, or other chronic conditions may experience an increase in respiratory disease.

The impacts of climate change on Anchorage's food supply are complex and are addressed more fully in the Food Systems section. In terms of personal nutrition, subsistence foods such as berries, salmon, and moose are an important part of the diet for many Anchorage residents. Temperature and precipitation changes across Alaska will likely impact the location and quality of habitat for many large game animals. Similarly, large scale changes to ocean ecosystems mean that salmon runs are more unpredictable and other fisheries become more variable. Ecological changes associated with climate change are creating ocean conditions that support harmful algal blooms (HABs). HABs are made up of algae that produce toxins. When shellfish eat these toxins, they become toxic to humans. When human eat contaminated shellfish, the toxins can cause death very quickly if the person's chest and abdomen muscles become paralyzed.

Ecological changes associated with climate change has also increased wildfire risk in the Anchorage area. Wildfire events in Anchorage threaten homes and property, and increase respiratory distress due to wildfire smoke. Four of the ten largest fire seasons on record in Alaska have occurred in the past decade.⁵⁹

Warmer summers and milder winters also make Anchorage more hospitable for vectors such as non-native mosquitoes and ticks. These vectors can carry pathogens that cause vector-borne diseases. Two species of non-native ticks have been found in Alaska⁶⁰, and climate change may make it more likely that they will establish and find a new home in the state.

One of the most evident impacts of climate change in Anchorage is our changing winter weather. As our winter temperatures continue to warm, we expect that more of our winter days will hover around freezing. This means that when we get snow in Anchorage, it is more likely to be followed by a rain event, quickly turning the ground to ice. Icy roads and sidewalks are a safety concern. Additionally, icy trails mean that opportunities for Anchorage residents to get outside for recreation in the winter are more limited. Having outlets for outdoor activities during the long, dark winter months are important for both the physical and mental health of Anchorage residents.

⁵⁹ <http://forestry.alaska.gov/Assets/pdfs/firestats/2017%20Fire%20Statistics.pdf>

⁶⁰ <https://academic.oup.com/jme/article/53/6/1391/2658170>

Climate change and emergency preparedness

In Anchorage, it is important that we respond to the ongoing health and safety concerns that we are already experiencing, as well as emerging threats that are new to Anchorage and may not have been recognized or significant problems in the past. Examples include winter floods, spring wind storms, summer heat waves, and fall fire events. We also need to plan ahead and provide support to households and neighborhoods so that they can become more *climate-resilient*. This can be through education about how climate change affects health and safety so that residents have the information they need to prepare their households for changing weather patterns. It can also include outreach about Municipal programs to support household and neighborhood emergency preparedness planning. At the community level, it is also critical that we increase the capacity of our emergency operations team and community partners to effectively communicate and respond in the case of emergencies.

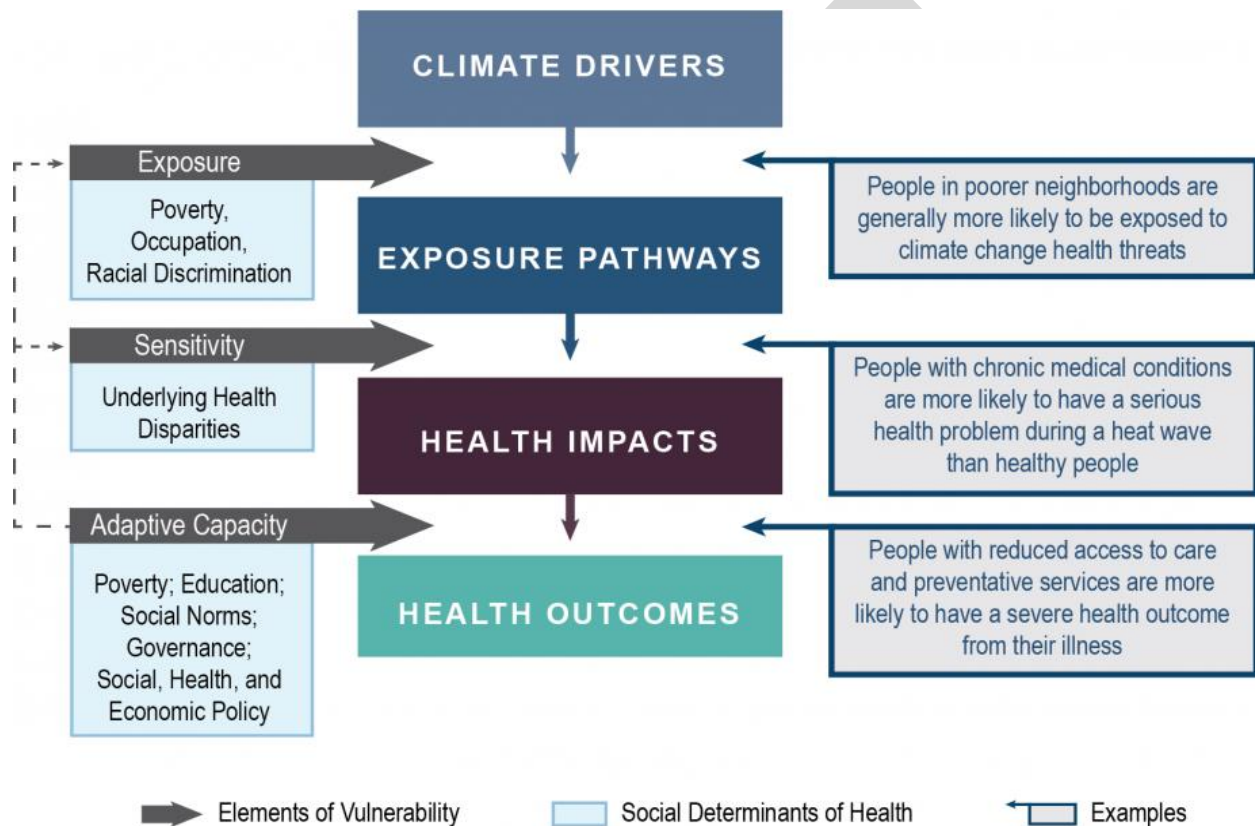
Resilient communities are prepared for a variety of disasters. They are able to adapt to and recover from natural hazards, shocks, and stresses while maintaining daily functions and progressing towards long term goals. This is particularly important to consider given Anchorage's deep dependence on the frequent shipments of critical supplies – including medicine and food – from the continental U.S. Improving resiliency to the effects of climate change includes securing back up supplies that scales from the household level to community level. Also, resilience planning includes support for increasing neighborhood engagement in educating and planning for climate-related hazards.

The role of research and monitoring

Research and monitoring are critical components of effectively addressing the health and safety impacts of climate change in Anchorage. The development of key health indicators of climate change in Anchorage will be an important first step for establishing a baseline by which we can monitor change. Establishing surveillance and monitoring systems that have predefined thresholds for action will help Anchorage medical and public health professionals respond to emerging health impacts of climate change. Such systems could include air quality monitoring stations that collect data to calculate smoke exposure from wildfires or pollen levels, integrated hospital and clinic-based surveillance systems that monitor injury admissions, or ecological monitoring to aid in early identification of non-native vectors such as ticks and mosquitoes.

Understanding vulnerability to climate change impacts

Many climate-related health impacts will affect residents across Anchorage differently, depending on factors such as demographics, socio-economic status, pre-existing health conditions, and geography. For example, in June 2015, Anchorage residents received smoke alerts from multiple fires from Interior Alaska to the Kenai Peninsula. Smoke from wildfires can cause an increase in respiratory illness. People who have diagnosed asthma, are pregnant, or have a job that requires that they work outside are particularly vulnerable to wildfire smoke. For an adaptation action (such as an educational campaign about the importance of air filtration systems during a wildfire smoke event) to be effective, it must consider each of the potential factors that could make some people, neighborhoods, and/or populations particularly vulnerable, especially in a city as diverse as Anchorage.



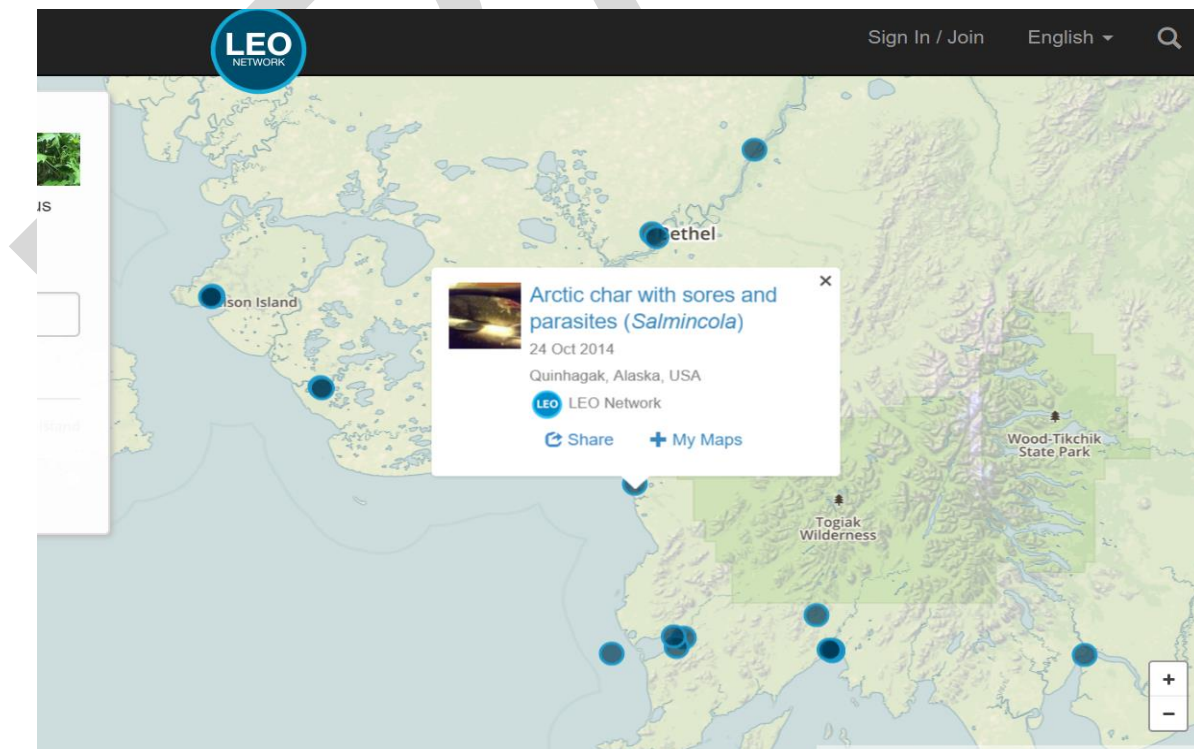
Case Study: Local Environmental Observer (LEO) Network

Arctic communities were among the first to experience impacts from climate change. In 2009, the Alaska Native Tribal Health Consortium (ANTHC) established the Center for Climate and Health to work with local residents and experts to describe connections between environmental impacts, climate change, and health. ANTHC launched the LEO Network in 2012 for local observers and topic experts to share knowledge about unusual environment, weather, and animal events. With LEO, community members can connect to share observations, raise awareness, and find answers about environmental events. The LEO Network provides a platform to engage with experts from different organizations and become part of an observer community. ANTHC hosts a monthly webinar and teleconference for participants in Alaska to review and discuss recent environmental observations.

The LEO Network was created to be the eyes, ears, and voice of our changing environment. Here is an example observation:

A resident in Shishmaref in late December 2016 reported on the LEO Network that “The Bering Straits sea ice along the shores of Shishmaref was finally freezing up, but, due to strong southerly winds, the thin ocean sea ice blew away.” A scientist from UAF responded with expert information: “At Shishmaref, during the past 20 years first ice has appeared on average during the third week of November, based on satellite images, a late appearance of first ice would have occurred by the first week of December. Based on those long-term observations, this year’s delay into the last week of December is unusual. This late freeze-up is part of a very warm year in Alaska, with ocean temperatures much higher than normal and many of the weather stations on land reporting a record warm year for 2016.”

An overview of the LEO Network virtual map can be found at <http://leonetwork.org/en/map#lat=61.8428&lng=-165.5817&zoom=7>. The LEO Network Alaska map displays observations and where they occurred. The maps contain descriptions, photos, expert consultation, and links to information resources.



Climate Action Plan sectors

The Anchorage Climate Action Plan puts Anchorage on a path to reduce greenhouse gas emissions 80 percent from 2008 levels by 2050, with an interim goal of 40 percent by 2030. This document details objectives and actions to achieve these emissions goals and to support resilience and preparedness for climate impacts.

Key

The objectives and associated actions are grouped into the following sectors:

- Buildings and Energy
- Land Use and Transportation
- Consumption and Solid Waste
- Health and Emergency Preparedness
- Food Systems
- Urban Forest and Watersheds
- Outreach and Education

TERMINOLOGY

“Vision” = A broad statement that describes our desired position by 2050 within each sector.

“Objectives” = Steps towards achieving mitigation targets and adaptation goals by 2030.

“Actions” = Detailed policies, projects and activities to achieve our objectives.

CO-BENEFITS refer to the intended or unintended benefits for the local environment and community as a result of mitigation and adaptation actions that are directed at addressing climate change. The co-benefits column indicates the actions that have the potential for significant, direct co-benefits. For example, actions to reduce the number of cars on the road have environmental quality and health co-benefits because these actions will improve air quality in Anchorage. The co-benefits assessed in this plan include:

- High potential to support jobs and prosperity
- High potential to advance equity
- High potential to improve local environmental quality
- High potential to improve health

PRIMARY MUNICIPAL LIAISON & POTENTIAL PARTNERS

To assist with implementation and accountability, primary municipal liaisons and potential partners are identified. For Municipality lead actions, the Primary Municipal Liaison is the primary entity responsible for initiating the implementation of the action and reporting on progress. For partner (university and other) lead actions, the Primary Municipal Liaison will be the main point of contact for the Municipality. Successful implementation will often require collaboration and coordination with other departments as well as public and private sector partners.

The full list of municipal departments included in the plan is included in the Appendix.

IMPLEMENTATION TIMEFRAME

- **Near-term** = Plan adoption to June 2020
- **Mid-term** = 2020 to 2025
- **Long-term** = 2026 and beyond
- **Existing and/or ongoing** = currently underway
- **Uncertain** = depends on funding or other factors

Health and Emergency Preparedness

2050 Vision: Anchorage is a flourishing and resilient community that embraces a culture of preparedness and adaptability at household, neighborhood, and municipal levels to equitably improve health and safety.

Objective 13. Reduce risks to health and safety created by ongoing climate impacts.

No.	Actions	Co-benefits	Primary Municipal Liaison	Potential Partners	Timeline
13A	Increase household education about water quality and food storage risks resulting from power outages associated with increased extreme weather events (e.g. wind storms, ice storms, avalanches, etc.).	health	MOA Office of Emergency Management (OEM)	Municipal Light & Power, Chugach Electric Association (CEA), Matanuska Electric Association (MEA), Anchorage Health Department (AHD)	Near-term
13B	Support education to the public and medical and veterinary community on the potential for importation of non-native insect vectors (e.g. ticks, mosquitoes, fleas) through human and pet travel to areas outside of Alaska where these insect vectors are prevalent.	environment, health	Anchorage Health Department (AHD)	UAA, Alaska Department of Health and Social Services (AK DHSS) Office of the State Veterinarian, Alaska Dept of Fish and Game (ADF&G)	Near-term
13C	Review the current recreational burn guidelines and criteria for "approved burn days" to assess whether additional climate tools or information would be helpful for refining these criteria.	environment, health	Anchorage Fire Department (AFD)	Alaska Department of Natural Resources (AK DNR) Division of Forestry, National Weather Service (NWS)	Near-term
13D	Expand visibility of the Anchorage Air Quality Index including particulate matter and pollen counts so that the public is aware of bad air quality days. Include strategies for coping with poor air quality days.	health, equity	AHD	Alaska Department of Environmental Conservation (AK DEC) Division of Air Quality and Public Information Officer, AK DHSS Section of Epidemiology and Public Information Officer, NWS, news outlets	Near-term
13E	Educate the public about the health risks of higher temperatures, develop strategies to check on individuals at greatest risk, and make options for cooling widely accessible.	health, equity	AHD	Catholic Social Services (CSS), Federation of Community Councils (FCC), Older Persons Action Group, community centers, local hospitals	Mid-term
13F	Provide culturally-appropriate resources for health professionals about the potential mental health impacts of climate change including seasonal affective disorder (SAD) and grief counseling for those who have lost their communities or relocated. Develop projections / plans for addressing future mental health needs in the Municipality.	health	AHD	Anchorage Community Mental Health Services, Inc., University of Alaska Anchorage (UAA), Alaska Pacific University (APU), Alaska Native Tribal Health Consortium (ANTHC), local hospitals, faith-based organizations	Mid-term

Objective 14. Identify, coordinate, and engage diverse groups of people to ensure that health and safety resources to respond to climate change impacts are inclusive and accessible to all Anchorage residents.

No.	Actions	Co-benefits	Primary Municipal Liaison	Potential Partners	Timeline
14A	Increase outreach to diverse populations about climate change and health, natural hazards, and emergency preparedness by via broadcast, print, bus ads, social media, and other forms of communication in multiple languages to ensure that emergency preparedness planning reaches all Anchorage residents.	health, equity	Muni-wide	FCC, American Red Cross of Alaska, Alaska Disabilities Advisory Group, Anchorage cultural organizations	Near-term and Ongoing
14B	Support and expand a social vulnerability assessment to more effectively respond to diverse neighborhoods and households that are most at risk during emergency situations. Enhance interagency data sharing to increase response capacity across the city.	health, equity	OEM	AHD, Planning Department, MOA Geographic Data and Information Center (GDIC), UAA, Alaska Department of Commerce, Community, and Economic Development (AK DCCED) Division of Community and Regional Affairs, CSS	Mid-term and Ongoing
14C	Work with Get Outdoors Anchorage to develop tools and communication strategies to develop a culture of flexible and diverse outdoor recreation accessible to all Anchorage residents. Enable opportunities to increase the visibility of the program.	health, equity	Parks and Recreation (P&R)	Get Outdoors Anchorage Coalition; AK DHSS (Chronic Disease Prevention & Health Promotion, esp. Play Every Day); ASD; Anchorage Park Foundation; local outdoor groups (e.g. Nordic Skiing Association of Anchorage, APU, UAA); JBER; NWS; CSS Refugee Assistance and Immigration Services; Alaska Literacy Program	Mid-term

Objective 15. Build household resilience, self-sufficiency, and capacity to prepare for and respond to the health and safety impacts of climate change.

No.	Actions	Co-benefits	Primary Municipal Liaison	Potential Partners	Timeline
15A	Develop an Anchorage-based program to support families who cannot afford to purchase supplies for household emergency preparedness kits to adequately prepare their homes (e.g. solicit emergency supply donations). Engage with community partners and businesses to determine the most effective strategy. Identify possible strategies through a review of donation programs in other communities.	health, equity	OEM	Anchorage Local Emergency Planning Committee, AFD, American Red Cross of Alaska, Salvation Army Alaska Division	Mid-term
15B	Develop capacity for household wildfire mitigation by supporting a full-time Forester position in the Fire	environment, health	AFD	AK DNR Division of Parks and Outdoor Recreation and Division of Forestry, FCC	Uncertain

	Department and reinstating the Firewise Program. This position and program will support community outreach and education to help homeowners understand the recommendations in the Firewise Manual and provide household inspections. They will also support the Urban Forester proposed in Urban Forests and Watersheds (Action 21A).				
15C	Create opportunities for safe food preservation and storage education for Anchorage households. Support the development of community kitchen facilities for household food preservation use and shared cold storage such as a community meat lockers (supports Food Systems Action 19G).	health, equity	AHD	UAF Cooperative Extension, Food Bank of Alaska, Alaska Department of Environmental Conservation (AK DEC), UAA, ANTHC, CSS	Mid-term

Objective 16. Build community resilience, self-sufficiency, and capacity to prepare for and respond to the health and safety impacts of climate change.

No.	Actions	Co-benefits	Primary Municipal Liaison	Potential Partners	Timeline
16A	Give Community Councils tools (e.g. webinar trainings on emergency preparedness, facilitation guides, and other materials in multiple languages) to have dialogues about emergency preparedness within neighborhoods and to create local resilience strategies such as an Adopt-A-Neighbor campaign or hosting an OEM CERT-like training session in their community.	health, equity	OEM	FCC, Alaska Department of Military and Veterans Affairs Division of Homeland Security and Emergency Management (AK DHSEM), UAA, APU Outdoor Studies Wilderness First Responder Program	Near-term
16B	Improve the local Emergency Alert System (EAS) capability by incorporating the Integrated Public Warning And Alert System (IPAWS).	health	OEM	American Red Cross of Alaska, Federal Emergency Management Agency (FEMA)	Mid-term
16C	Improve local Mass Care response capabilities for sheltering by increasing stocks of prepositioned sheltering supplies and equipment. The increased stocks should include both durable equipment and consumable supplies. Also included should be mobility aids and equipment for people with functional access needs, pet sheltering supplies, and generic congregate care supplies identified by the American Red Cross.	health, equity	OEM	American Red Cross of Alaska	Mid-term
16D	Develop an emergency food plan that includes an assessment of the need for food (how much food is available in the Municipality and how much will be needed to protect the population from food shortages), plan for	health, equity	OEM	AHD, AK DHSEM, AK DNR, AK Division of Agriculture, UAF Cooperative Extension, Alaska Food Policy Council, UAA, APU	Mid-term

	stockpiling the necessary food supplies, and a distribution and public communication plan that takes into account those most at risk for food insecurity. Work with local retailers, producers, and warehouses to obtain and store the necessary food stocks.				
16E	Engage the business community in developing emergency response plans and business continuity plans.	health	Office of Economic and Community Development (OECD)	Anchorage Chamber of Commerce, UAA	Mid-term

Objective 17. Conduct monitoring and research to support our understanding of and planning for the health and safety impacts of climate change.

No.	Actions	Co-benefits	Primary Municipal Liaison	Potential Partners	Timeline
17A	Develop a framework for selecting, monitoring, and integrating indicators of health and safety impacts of climate change within clinical contexts, including hospital and clinic admissions related to respiratory, cardiovascular, injuries, and other health outcomes that could be linked to climate change in Anchorage. Include demographic information.	health	AHD	AFD, AK DHSS, ANTHC, Alaska Native Medical Center, regional hospitals	Near-term
17B	Support surveillance efforts for the early detection of non-native vectors (e.g. ticks, mosquitoes, fleas) that may impact human or wildlife health (See Urban Forests and Watersheds Actions 23A and 23B).	environment, health	AHD	AK DHSS Office of the State Veterinarian, AK DF&G, UAA, ANTHC Local Environmental Observer (LEO) Network	Near-term
17C	Work with AK DEC to ensure that data collection protocols for particulate matter monitoring are sufficient to estimate the health impact of smoke exposure during wildfire events.	environment, health, equity	AHD	AFD, UAA, AK DEC	Near-term
17D	Continue assessments of future water requirements to meet the demands of the population in the Municipality of Anchorage that incorporate regional population growth trends, climate data and historical seasonal water usage patterns (See Urban Forests and Watersheds Action 22E).	environment, health, equity	Anchorage Water & Wastewater Utility (AWWU)	MOA Watershed Management, AHD, UAA	Near-term
17E	Conduct a literature review of other communities that have adopted Climate Action Plans with effective emergency preparedness measures to help identify best practices suitable for inclusion in future Anchorage climate adaptation planning documents.	health	OEM	UAA, APU	Near-term