

Executive Summary

We write this executive summary soon after our County experienced a record-breaking 3-day heat wave that exceeded 100°F in many areas of the Pacific Northwest including Whatcom County. The effects of this heat wave are still being assessed, but it is estimated that a billion small sea creatures – including mussels, clams, and snails – died along the coastlines of the Salish Sea and 25 to 30% of the raspberry crop in Whatcom County was likely destroyed. In addition, the snowpack in the North Cascades, which was measured at 130% of normal in March, contained no available water by July 6th.

The recent heat wave in the Pacific Northwest is just the latest in a long list of similar extreme weather events becoming more commonplace around the world. Although we are often told that we cannot equate weather events with climate change, 27 international climate scientists in the World Weather Attribution group have found that this heat wave could not have occurred if the planet had not already warmed by about 2°F. A sobering finding from their models was that this event, previously expected to occur about once in 1000 years, can be expected every 5 to 10 years within the next 20 years with continued warming. The rate of global warming is alarming and our climate models to date have frequently underpredicted the impacts because of this rapid pace of change.

This update of the 2007 Climate Action Plan was two years in the making and much of the writing was completed by a dedicated group of community volunteers who drew heavily on the knowledge of County staff and stakeholders in the County. These volunteers also spent untold time researching the science and the best approaches for reducing greenhouse gas (GHG) emissions and adapting to the inevitable warming and associated climate impacts that are currently occurring and will continue with or without action at every level of government.

Organization of the Climate Action Plan

This Climate Action Plan covers both the Built and Natural Environments in Whatcom County. Although the plan is long, it provides a detailed roadmap of the actions that need to be accomplished in order to avoid the most devastating impacts of climate change and do our part to meet state emission targets. ***Specific actions that support the strategies in this plan are listed in the Appendices.***

This plan is organized as follows with the primary authors listed in parentheses:

Section 1 – “Climate Change in Whatcom County” discusses climate impacts, terminology, our 2017 greenhouse gas assessment, and the guiding principles for our strategies and actions. (Ellyn Murphy)

Section 2 - "The Built Environment" Electricity & Buildings (Cynthia Mitchell, David Hostetler, Ellyn Murphy), Industry (Sue Gunn), Transportation (Phil Thompson), and Waste (Ellyn Murphy). These are the main sources of emissions, and we present the solutions and strategies to reduce emissions.

Section 3 - "Natural Environment" Land Use (Kaylee Galloway), Water Resources and Fisheries (Chris Elder, Ellyn Murphy, Stevan Harrell), Agriculture (Stevan Harrell), Forestry (Ellyn Murphy) and Ecosystems (Katherine Kissinger). This section discusses the impacts of climate change on these areas and how these areas can be part of the solution.

Section 4 - "Implementation" suggests how best to coordinate and implement the strategies and actions suggested in Sections 2 & 3 and the Appendix (Stevan Harrell). Good management oversight of climate

actions includes community engagement, a stepwise process for defining individual projects, coordinating project execution, assessing outcomes, and adapting next steps based on current circumstances.

Section 5 - Appendix - Details of the strategies, actions, and benefits of the proposed recommendations.

The CIAC would also like to thank the numerous stakeholders in the community that participated in strategy development and reviewed sections and chapters of this report. Without their expertise and willingness to help, we could not have completed such a comprehensive plan and are grateful for their support. These participants are listed in the appendices for the various sectors covered in this report.

The Pathway to Climate Resilience

Our committee is in consensus that the most important recommendation to the Whatcom County Council and Executive is the necessity to establish an Office of Climate Action. This office would house staff dedicated to coordinating efforts across multiple County departments, providing critical information to County departments and the public, and promoting community engagement in projects that boost climate resilience. Without such an Office the County will miss multiple opportunities to implement the specific recommendations for climate mitigation and adaptation detailed in the following sections of this Report. Without an Office of Climate Action, the County will also miss the growing opportunities for funding from private, State and federal agencies, as well as opportunities to participate in the emerging clean fuel economy. The Office should be headed by a Senior Climate Advisor with wide knowledge of climate policy and science, in addition to experience in public service. The office should also include a data analyst/information specialist dedicated to providing and publicizing information relating to local climate and its effects, as well as monitoring the progress of our efforts toward mitigation and adaptation.

This Climate Action Plan closely follows the science and technology recommendations that are widely accepted by policy experts across the globe. Experts agree that the key to reducing greenhouse gas (GHG) emissions is the electrification of systems that currently use fossil fuels with clean electricity (defined as electricity that is generated without emissions). This is the only way we can reduce emissions rapidly in the next three decades. It is also clear that if we do not start immediately, this mountain of emissions will be too steep to climb. New technologies are rapidly evolving, and all levels of government need to continue to support research, development, and deployment, but we cannot wait for a silver bullet to save us. We must act now with the tools we have.

Electrification of buildings and transportation, combined with accelerated conversion to renewable sources of energy, could alone reduce emissions by 70 to 80% across the US and create a much healthier environment for our families, both indoors and out. Minor contributors to emissions such as gas stovetops and fireplaces are not the issue. Instead, we need to encourage a transition away from space and water heating with gas, a major source of CO₂ emissions in buildings. Electric vehicle technology is accelerating so fast that many major car manufacturers will curtail production of gasoline-powered vehicles by 2035. Providing the required amount of electricity will take major investments in infrastructure, as well as collaboration and planning among governments, utilities and communities.

In addition to electrification of transportation, we need to greatly reduce the amount of single occupancy vehicle travel. Residents, businesses, municipalities and the County should all work together to significantly expand interconnected multimodal transportation, especially non-motorized trails that are separated from busy and congested thoroughfares, to provide the public safe options for commuting.

Industrial point-source emissions are the County's largest source of emissions, contributing 51%--a fact we did not know until the greenhouse gas assessment for 2017 was completed in June 2020. Since the largest emissions source for the state is transportation, the state, Whatcom County, and the refineries should work together on win-win solutions to reduce transportation-related GHG emissions while securing long-term economic benefits for the County. Our petroleum refining industry and its highly-skilled workforce have the opportunity to become part of the statewide solution for reducing emissions through the production of low-carbon fuels and development of other renewable energy sources.

The County's effort to restrict the growth in industrial emissions (i.e., Cherry Point Amendment) is a good example of using the County's authority over land use to address climate change. Smart land use practices can reduce GHG emissions and also help us better adapt to the inevitable changes that are already occurring. We view land use as the bridge or fulcrum that can balance emissions from the built environment with storage or sequestration of carbon in our natural environment. Changes in zoning codes and regulations are also an effective way to reduce the amount of single-occupancy vehicle transportation by requiring emphasis on density, giving commuters alternative transportation options in existing and new neighborhoods, and preservation of green spaces.

Smart land use can also increase climate resilience to drought, flooding and wildfires. For example, wetlands not only store large quantities of carbon, but are also a critical component of our overall hydrologic system for water storage, filtration of contaminants, habitat for many different plant and animal species, and as a collection point for flood waters. Likewise, preservation of estuaries protects against storm surge in coastal areas and is a critical link in the food chain for saltwater and freshwater species. Stronger codes and regulations in wildland-urban interface, in addition to the overall reduction in development potential in those areas, can reduce the frequency of wildfires and the resulting economic damage as well as enhancing the forestry economy.

The vast natural ecosystems in our forests, foothills, lowlands and flood plains can be used to increase carbon storage and build climate resilience. Climate adaptation efforts are essential so that our natural ecosystems can continue to thrive under a changing climate. When healthy, natural environmental systems can sequester large amounts of carbon and provide carbon storage. Adaptation will be difficult for some ecosystems and will likely require significant help from us to restore the damage that is already occurring and to prevent future damage.

Climate impacts are nowhere more visible than on our water supply. Whatcom County faces the challenge of too much water in the winter and early spring, combined with too little water in the later summer and early fall. Continued increases in the frequency of flooding and drought are very visible signs of our changing climate. Over the last 150 years or more, development has reduced the flood capacity of our river systems. In addition, natural water storage systems (snowpack, glaciers, and even

our shallow groundwater aquifer) that would normally feed our river systems in late summer have been directly impacted by climate change or development or both.

Resolving uncertainty in our current and future water supply under climate change is the first step in understanding and dealing with this contentious issue. Restoring and protecting our streamflow levels and temperature to ensure year-round salmon migration and survival is the greatest climate challenge currently facing Whatcom County. Fortunately, there are many tools we can employ to adapt to climate change such as incentivizing efficiency in water consumption systems, rebuilding the connectivity of our fragmented hydrologic system, and enhancing estuarine, marine shoreline and coastal wetland habitats for fish and shellfish.

Agriculture can also play an important role in water use efficiency, increasing soil carbon storage, and also building food security and enhancing the local agriculture economy. Regenerative farming practices have been shown to enhance carbon storage, increase soil moisture, and reduce the amount of fertilizer needed. These practices can be economically incentivized by establishing a carbon market in Whatcom County to reward farmers for increasing their soil carbon. The County also needs to change codes for renewable energy siting so farmers can benefit from the additional income generated from these installations.

The large amount of forested land in Whatcom County is a huge sink for atmospheric carbon and needs to be wisely managed. A baseline for carbon sequestration by forests was recently established using information from 2000 to 2010. Our forests were found to sequester, on average, 4 million MT CO₂e per year, roughly equal to half of the emissions in the County. This important carbon sink should be monitored every 5 years as an indicator of forest health and land use changes. Revising decades old forest management practices will also be necessary to maintain our forest economy and reduce destruction from wildfires and disease.

Our natural ecosystem services provide clean water, clean air, soil productivity, water storage, flood control and many other services that are necessary for life on Earth. Climate change is occurring faster than our ecosystems can adapt therefore we must do everything we can to preserve these systems. This includes promoting community education on the importance of preserving ecosystems such as wetlands and wildlife corridors. Some land use codes may need revision based on current and future climate conditions and the County can provide technical, logistical and financial support for community organizations that are restoring and enhancing ecosystems. A long-term monitoring program of ecosystem health is essential.

The longer we delay climate action, the more difficult and expensive it will be to preserve the natural systems that support life as we know it on Earth. The need to combat climate change and prevent irreversible damage to our County and planet is urgent and we must rise to the challenge facing us, for our own sake and for that of future generations.

Key Priorities in the Whatcom County Climate Action Plan

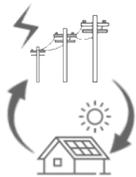
County Implementation



In order to accomplish climate resilience in Whatcom County through the many strategies and actions recommended by this plan, the County needs to establish and staff an Office of Climate Action.

- Establish an Office of Climate Action within the Office of the Executive.
- Appoint an interim director from within current County staff while pursuing funding to hire a permanent Senior Climate Advisor to head the office.
- Hire a data analyst/information specialist to begin compiling relevant climate data and making them available to staff and the community.

Electricity and Buildings



Electrification of buildings is one of the most important strategies for quickly reducing emissions, especially if electricity generation comes from clean, emissions free sources. Climate resilience occurs when buildings can operate at times without utility power & can provide power back to the grid. In essence, buildings become grid assets to help manage the electricity load on the grid.

- Commit to net zero carbon emissions for government buildings & create resilience hubs for emergencies & community benefits.
- Accelerate deployment of distributed energy resources & broadband while ensuring equity & energy resilience.
- Develop an equity-based financing plan to expand energy efficiency upgrades and electrification of space and water heaters.
- Promote leadership at the state and county levels through support of climate legislation and demonstration projects that promote climate resilience.

Industry



Because industry is the largest GHG emitter in Whatcom County, rapid reductions in industry emissions are essential. The state, County and refineries need to work together to successfully transition to the production of clean fuels and ensure a strong long-term manufacturing base and the jobs that come with it.

- Facilitate a solutions-focused collaboration with *bp's* Cherry Point plant manager and energy experts in academia, state, and federal governments to discuss ways to reduce refinery emissions 50% by 2030.
- Promote the research, development, & collaboration needed to build a hydrogen electrolysis facility to create green hydrogen in Whatcom County.
- Establish a regional center for research, development and demonstration to accelerate the development of low carbon fuels and building materials modeled after Washington's Maritime Blue Strategy.

Transportation



Transportation is already on a rapid pathway to decarbonization with the growing transition to EVs. The County can make this transition equitable with new programs, & updates in regulations and codes that accelerate EV charging infrastructure and provide multimodal transportation options for County residents.

- Accelerate adoption of EVs through pooled EV purchases, charging stations at all government buildings and parks, and building codes that promote EV charging at businesses and homes.
- Implement the regional trails plan for commuting and recreation and provide safe active transportation routes for schools.
- Explore and encourage electrification of buses throughout the county.

Waste



Waste is an expanding problem for disposal & consumer expense, but information on the magnitude of this problem is unavailable. Nevertheless, much can still be done through codes to reduce the amount of waste we generate and encourage recycling.

- Collect the necessary data through expanded audits to evaluate the success of existing programs & the benefit of new programs.
- Encourage the eliminate single use plastic bags, containers & utensils.
- Expand the Food Recovery Program to add a food kitchen to reduce food waste.

Land Use



Land use zoning and codes are perhaps the most important tools that the County can use to mitigate emissions in industry, buildings, transportation, and waste. These tools also help us adapt to climate change and ultimately create climate resilience.

- Create a climate-resilient regulatory framework for new County development.
- Use regulations to enhance active & public transportation systems & infrastructure.
- Require a climate-focused risk assessment for all County infrastructure.
- Protect ecological zones that create climate resilience such as riparian areas, floodplains, shorelines, wetlands & migrations corridors.

Water Resources and Fisheries



No climate impact is as predominant as its effect on Whatcom's water resources and fisheries. Water availability also impacts agriculture, forestry and our important plant and animal ecosystems. It is currently the most important and contentious issue in the County. Fortunately, there are approaches we can employ now to help these important ecosystems adapt to climate change.

- Resolve uncertainty in current & future water supply under climate change.
- Restore and protect watersheds that enhance streamflow and reduce water temperature to ensure year-round salmon migration & survival.
- Incentivize efficiency upgrades to water consumption systems and new augmentation approaches.
- Rebuild connectivity of our fragmented hydrologic system to increase natural water storage on the landscape & reduce flood damage.
- Enhance estuarine, marine shoreline and coastal wetland habitats for fish and shellfish.

Agriculture



Farmers have long been recognized as stewards of our land and can play an important role in efforts to adapt to our changing climate. Low till or no till management practices increase soil carbon and moisture content. Irrigation efficiency and improved management of drainage can also enhance soil water storage. Development of heat- and drought- resistant crops will be essential under a changing climate.

- Adopt climate smart farm management practices that maximize soil carbon storage and increase water and nutrient availability.
- Ensure a minimum of 100,000 acres of farmland is available for agriculture including rezoning the Rural Study Areas to Agricultural zoning.
- Reduce agriculture emissions & increase renewable energy, while providing farmers with new income opportunities.
- Promote use of climate research including drought- and heat-resistant crops.

Forestry



Our forests are an important part of our economy providing recreation, wood products, and cultural identity. We must adapt our decades old forest management practices to the drier and warmer conditions today and in the future or suffer the economic and health impacts of more wildfires and disease. This starts with measuring the health of our forests & adapting our forest practices to maximize health.

- Protect, enhance, & monitor carbon storage and sequestration in forest ecosystems through implementation of a carbon credit program and other mechanisms.
- Increase forest health, survival & climate resilience using forest management practices that reduce wildfire risk, increase soil moisture, streamflows, & preserve wildlife habitat.
- Promote climate resilient planning & programs to maintain our forest economy for recreation and wood products.
- Reduce development pressure on rural forestry and other forested lands through re-zones and voluntary conservation easements

Ecosystems



Although many ecosystems are already covered above, this chapter emphasizes the crosscutting issues necessary to adapt to climate change that are common across natural environment systems. The common themes are community education, revising land use codes, financial support for restoration, and implementing a long-term monitoring system for ecosystem health.

- Develop and implement zoning regulations that protect wildlife climate migration corridors
- Revise land use & development codes based on current & projected climate impacts to reduce damage & enhance resilience.
- Provide technical, logistical, and financial support for community efforts to restore & enhance ecosystems.
- Implement long-term monitoring to assess the impact of climate on ecosystem health.

Crosscutting Issues

Although the climate mitigation and adaptation strategies and actions are organized by topic areas in this report, several crosscutting themes reoccur in multiple areas. These crosscutting issues will need to be actively coordinated across County departments and among senior County staff and the County Council.

- 1. Leadership.** County climate action efforts are largely invisible to Whatcom residents. There is no single person who is dedicated to coordinate climate action across departments, seek state and federal funding for programs, and is accountable to the public. During state legislation sessions, the County needs to voice its position on various bills that support climate action recommendations. The Senior Climate Advisor in the Office of Climate action should, under the guidance of the Executive and Council, provide this leadership.
- 2. Equity and Inclusion.** Equity, especially in energy upgrades, and inclusion of a representative cross-section of the community in the planning and priorities associated with climate actions is essential as the County moves forward. The goal of the County should be to protect the most vulnerable communities first. Climate risk may include exposure to excessive heat or cold temperatures and poor air quality. Climate risk of flooding, drought, and wildfires is highly dependent on location. These issues disproportionately impact low-income households, people of color, and people on fixed incomes.
- 3. Honor Tribal Treaties and Sovereignty.** The County needs to remain committed to our government-to-government relationship with our sovereign tribal nations when implementing climate recommendations in this plan. For example, Cherry Point is acknowledged as the ancestral homelands of the Lummi Nation, which has historic burial grounds located in the heart of this industrial zone. Cherry Point also holds traditional reef net fishing areas as well as harvesting for salmon and crab. The County needs to continue honoring Tribal treaty rights when preserving critical habitats and fully recognize land, water, and resource rights, and protect cultural sites.
- 4. Evaluation of Climate Impacts in All Aspects of Planning.** Climate impact and risk (present and future) need to be evaluated in all aspects of planning to understand the potential impact on carbon emissions:
 - a. In the Comprehensive Plan;
 - b. In the planning process for new County infrastructure (such as roads, bridges, and buildings);
 - c. Regulations for urban growth areas and new industrial, commercial and residential developments (density, building codes, and multimodal transportation plans);
 - d. Zoning for rural and commercial forest lands;
 - e. Shoreline Management Plan
- 5. Increased Resources for Planning, Data Analysis and Outreach.** The data analyst/information specialist in the Office of Climate Action should provide necessary information services. A common theme throughout the different sectors was a general lack of readily accessible data for both planning and evaluating the success or outcomes of various programs. Information on the carbon footprint of County facilities was not available nor the carbon footprint of employee commuting.

Energy savings for building efficiency upgrades were also not available. Although the County produced an excellent solid waste management plan, we do not know if this planning is impacting the trend in per capita waste.

In the natural environment multiple organizations collect information such as streamflow levels, temperature, and water quality, yet the County lacks a centralized database that could serve as a repository for this information to evaluate trends. Snohomish County has such a system at tableau.com, where information can be accessed by the public and analyzed and graphed to indicate trends and get a better understanding of changes occurring over time. Whatcom County needs to sponsor such a system.

Community outreach is also very important, especially if this outreach reaches a diversity of viewpoints. A diversity of viewpoints can lead to better planning and outcomes, while at the same time generating community buy-in. Community workshops should be considered for designing new programs that embrace the guiding principles that are discussed in Section 1 of this report.

- 6. Need for Financial Incentives and Mechanisms.** To quickly reduce emission, the County will need to provide financial incentives and mechanisms. The initial cost of energy efficiency upgrades can be steep for homeowners and businesses. Ecosystem restoration and floodplain management projects can also be very expensive. There are many sources of stimulus and infrastructure funds available at the state and federal levels that could help fund new programs, yet individual staff may be unaware of these opportunities or do not have the time to apply for grants.

Another concept that crosscuts the Natural Environment section of this report is the need for a Carbon Market to incentivize management practices that increase carbon storage in soils and plants. A carbon market sells offsets or carbon credits to businesses that are large carbon emitters and financially rewards landowners who store carbon. A similar idea is being promoted locally to form the [Kulshan Carbon Trust](#). The trust does not own the land, but instead buys an easement to ensure long-term storage of the carbon. The landowner generates income from the carbon credits and is responsible for protecting the carbon asset.

- 7. Need for Universal Broadband Access.** Universal broadband access was recommended in several sectors. Reliable internet access can be used to remotely control energy use in homes and reduces transportation emissions by enabling work from remote locations. Social equity is not achieved if broadband is only available to wealthier households or those outside rural areas.
- 8. Benefit of Research, Development and Demonstration Projects.** Although this Climate Action Plan relies on existing technologies, many of these available technologies are not widely deployed and may be unfamiliar to the public. Local demonstration projects are a very effective way to test new technologies and show residents and builders their advantages. The County should design and execute demonstration projects through collaborations with local research universities, national laboratories, state and federal agencies and the private businesses. Data and information collected from demonstration projects can also be used to support changes in existing regulations or even state laws and legislation. This may especially be important for modernizing our state water laws.