

METHOW VALLEY CLIMATE ACTION PLAN



Resilient Methow Climate Action Plan Task Force – Report and Recommendations

Prepared by the Resilient Methow planning team • 2021

To learn more, visit www.resilientmethow.org

Acknowledgements

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EXECUTIVE SUMMARY

Executive Summary

This Climate Action Plan for the Methow Valley presents a vision and roadmap for our community to prepare for the impacts of climate change, and to reduce local sources of greenhouse gas emissions. Grounded in science, and based on input from hundreds of community members, the Climate Action Plan details realistic, practical strategies and actions the community and local governments can take to become resilient and carbon-neutral.

CLIMATE IMPACTS

Climate change is affecting the Methow Valley resulting in: hotter summers and lower summer stream flows; earlier peak flows and runoff; wetter, warmer winters with lower average snowpack.

Impacts from these changes include:

- Increased asthma and respiratory diseases due to smoke
- Reduced tourism due to smoke, wildfire, and a low snowpack
- Reduced fish populations due to warming streams with lower water quality
- Crop stress and reduced agriculture production due to heatwaves, droughts, and smoke
- More flooding and erosion due to extreme rainfall and loss of vegetation due to wildfires
- Infrastructure damage due to fires, erosion, and extreme weather days

Many of these climate impacts have a greater impact on historically underrepresented people. We can create resiliency and ensure future generations' livelihoods, by addressing the needs of marginalized and vulnerable community members while implementing climate solutions.

Climate impacts will be more or less extreme depending on how fast, and how much, society chooses to reduce greenhouse gas emissions.

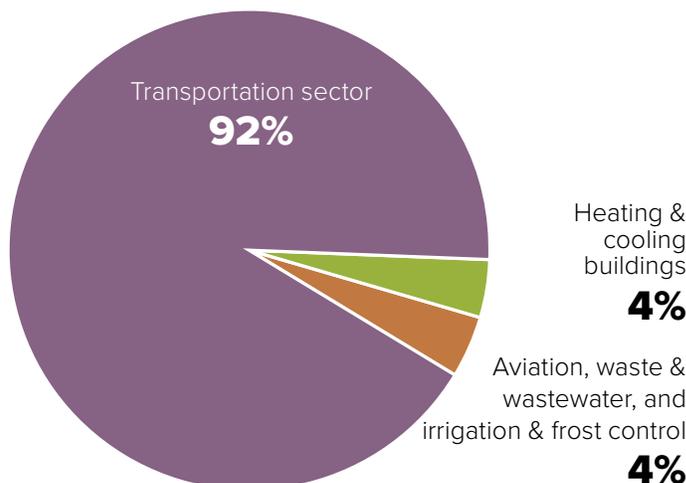
COMMUNITY EMISSIONS

A study commissioned for this process found 92% of greenhouse gas emissions in our community come from the transportation sector, 4% are associated with heat and cooling buildings and 4% come from waste and wastewater, aviation, and irrigation and frost control.

LANDSCAPE EMISSIONS

Methow Valley landscapes can be either a **source** of greenhouse gas emissions (from wildfires and decomposing organic matter), or **a sink** by sequestering carbon in trees, soils, and other forms of organic matter. Losing forest biomass to wildfires increases greenhouse gas emissions. Healthy forests can store carbon. It is vital that we maintain the health of our forests and minimize catastrophic wildfires.

EMISSIONS IN OUR COMMUNITY



EXPECTED CLIMATE CHANGE IMPACTS IN THE METHOW VALLEY



On average drier, hotter summers with more hot days; average temperatures 3 – 8°F warmer by the 2050s



Wetter winters, less snow, more rain: Snow season reduced by 21 and 47 days in 2040s and 2080s respectively; April 1 snowpack reduced by 46% in the 2080s



Higher peak flows and earlier seasonal flooding; January streamflows increase 164% by 2080s



Lower low flows during the summer; July average streamflow 48% less in 2040s, 65% less in 2080s



Earlier run off, already up to one month earlier in some Northwest rivers

GOALS FOR A RESILIENT METHOW

- 1. Water to sustain nature and people.** We manage the Methow Valley's finite resources to meet the needs of our growing community and the natural systems on which we depend.
- 2. Resilient, healthy, and abundant natural systems.** Our natural systems are able to withstand disturbances and rebound; resources and wild-life are plentiful and healthy.
- 3. A community prepared and safe in the event of adversity.** When natural disasters strike, we are prepared as a community, and able to respond adequately to protect our health and safety.
- 4. A low-carbon, efficient, livable & resilient/affordable built environment.** Our buildings, transportation, water, and energy infrastructure are highly efficient. Urban spaces and neighborhoods are livable because they are adapted to a warming climate — securing our comfort, health, and safety.
- 5. A thriving place-based economy with equity for all.** Where human needs are balanced with the natural environment.
- 6. A vibrant future for agriculture.** Diverse farms and ranches are resilient in a changing climate and have strong support from the community.
- 7. A carbon-neutral Methow Valley.** We meet state and science-based limits through systematically reducing our use of fossil fuels and improving the health of our landscapes to maximize carbon sequestration

THE METHOW VALLEY CLIMATE ACTION PLAN:

VISIONARY, VALUES-BASED, COMPREHENSIVE ACTION ORIENTED

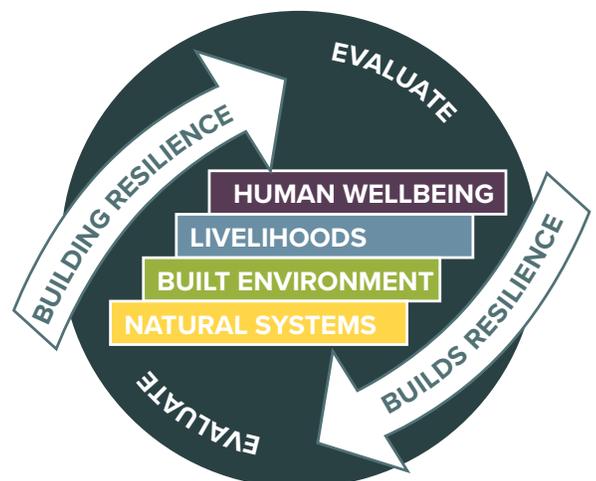
VISION: A RESILIENT, CARBON-NEUTRAL FUTURE WITH EQUITY FOR ALL

A Resilient Methow. We plan for, and successfully respond to, our changing climate. Our resilience is measured by the health of our air, water, land, people, and all living things.

A carbon-neutral Methow. We reduce our emissions through individual and collective action, and we sequester carbon by ensuring the health and vitality of our landscapes.

THE VISION REFLECTS THE METHOW VALLEY'S CORE VALUES:

- **Human health and safety** for all members of the community, especially those most vulnerable
- **Sustainable livelihoods** that give us the ability to earn a living that enables us to afford to work and live in the Methow
- **A built environment** that is affordable, sustainable, and reliable
- Resilient and healthy **natural systems** that provide biodiversity and abundance
- The well-being of **future generations** to whom current generations are responsible and to whom we must pass on healthy, resilient natural systems
- We strive for **equity** in all elements of the Action Plan. This includes a commitment to long-term consultation with tribes as well as ongoing engagement with diverse stakeholders. Equity in this plan involves providing added support to disadvantaged groups so everyone can participate in and benefit from the climate actions we take.



The resilience cycle: increase resilience by basing actions on community values, thereby increasing community resilience. Evaluate progress and act again.



COMMUNITY ENGAGEMENT AND THE PLANNING PROCESS

The Methow Valley Climate Action Plan represents the culmination of two years of work and reflects the involvement and contributions of hundreds of Methow residents, consultants, and representatives of local governments, tribes, community organizations, public agencies, and businesses.

The process began in 2019 when the Methow Valley Citizens Council—compelled by the overwhelming community trauma from repeat wildfires and mounting concern over global climate trends—convened a Task Force of community leaders and organizations to discuss how the Methow Valley, from Pateros to Mazama, could best plan for, and adapt to, climate change. Through the Task Force and subcommittees, experts and stakeholders from five key Methow Valley sectors—agriculture, health and emergency services, infrastructure, natural systems, and the economy—came together to develop this plan.

View a full list of participants at www.resilientmethow.org.



NEXT STEPS

To get involved, go to www.resilientmethow.org

Now the essential work begins—collaborating across sectors, community groups, governments, and with tribes to embed climate action into key investment, operational, and policy decisions and acting with urgency on near-term priorities while laying the foundation for long-term change and success.

Some of the strategies identified in the plan are already being implemented by action partners and community members. Other new strategies need leadership, resources, and coordination.

Implementing these actions as a community will require an adaptable approach, and include incorporating new ideas and solutions, revising approaches as needed, and updating the Action Plan to remain relevant, current, and effective.

Resilient Methow has been formed to provide resources and support for implementing, guiding and coordinating

the work of community partners. Resilient Methow will also support outreach and communication about the Action Plan and prioritized actions. Extensive community engagement and collaboration will be sought to broaden the network, ensure the plan is inclusive of a variety of perspectives, and expand the impact of the work. Throughout implementation, community partners will be supported by a set of action planning tools, including a network and website to share information. Community engagement also involves collaboration with tribes and regional entities, advocacy, and equity to ensure the actions continue to prioritize community members expected to experience the impacts of climate change the most.

Taking action on climate change is the challenge of our time. Working together, we can—and must—do our part to reduce and sequester emissions, and achieve a resilient community adapting, and thriving in a changing climate.

PRIORITY STRATEGIES AND ACTIONS

The Action Plan comprises strategies and actions to improve resiliency and reduce emissions. The table below summarizes the highest priority actions—those with poten-

tial to create high impact, to provide multiple benefits, to achieve equity outcomes, are foundational for longer term success, or are particularly timely.

STRATEGY	IMMEDIATE/NEAR-TERM ACTIONS	ONGOING/LONGER-TERM ACTIONS
Ensure resilient, healthy natural systems	Foster alignment and advocate for funding to accelerate the pace and scale of forest treatments	Protect & restore existing habitats for ecosystems health and biodiversity
Prepare for Changing Water Availability	Retain water rights in the valley through advocacy and legal action	Ensure towns have adequate water rights to meet current and future demand Plan for/implement water conservation, efficient delivery & storage solutions
Advance the Methow Valley as a fire-adapted community	Implement the Smoke-Ready Initiative Expand Firewise principles to community scale with a focus on equity, prioritizing vulnerable, in-need households	Adopt wildland-urban interface building codes
Invest in community and economic resiliency	Increase investment in and funding for affordable “green” housing Diversify the Methow economy, emphasizing local, climate friendly, and circular economy solutions Support funding and policies to enable affordable, equitable access to high-speed broadband	Use projected climate impacts to inform land use, water, & growth management planning and decisions Manage growth by concentrating development in and near town centers and by encouraging clustering in rural areas, including walkable routes and commuter trails Adapt existing and develop new recreation facilities to meet emerging community needs and sustain a low-impact tourism sector
Support a Resilient Agricultural Community	Create a Resiliency Fund to help farmers adapt to climate change; explore the feasibility of a local carbon offset market as a source of funding	Work with farmland owners to permanently protect agricultural lands from development through conservation easements Increase markets for local agricultural products Highlight the ongoing work of local farmers and ranchers to care for the land and the climate
Reduce Emissions	Organize an initiative to advance electric vehicles, public transit, ride-sharing, and active transport Establish a community composting facility	Expand weatherization and energy assistance to low and moderate income households Expand the reuse/sharing/zero waste economy Prepare for electrification of vehicles and buildings
Advocate, Engage, and Educate	Advocate at the state and federal levels for policies, programs and funding to reduce emissions and increase resiliency; secure resources for local initiatives Create a Resilient Methow website; develop and distribute educational brochures, presentations, and a survey instrument	Foster and nurture a local ‘Methow conservation ethic’ and collaborative, community problem solving in the face of climate change





INTRODUCTION



Foreword

►► BY KC GOLDEN, POLICY ADVOCATE

“Hope is a stance, not a calculation.”
—Frances Moore Lappe

“**G**LOBAL WARMING” seems hopelessly abstract. It’s too big, too far beyond anyone’s scope of effectiveness. It describes the rise in the global average temperature... but nobody lives in the global average temperature. Nobody works or plays or gets anything done in the global average temperature.

That’s why local climate action is so vital. And when we roll up our sleeves in our communities, it turns out a lot of the work is local. We cause the problem locally, with our choices of transportation and energy systems. We experience the impacts locally, as we know too well here in the Methow, and those impacts fall heaviest on our most vulnerable neighbors. And when you think concretely about what needs to be done, so many of the solutions are local. We need to keep pushing for state, national and global climate action, and it finally looks like we’ll get some. But even when we do, much of the practical work will still be close to home.



KC Golden

As the fire season (remember when we called it “summer”?) drags on, we could use something more empowering to do than just reducing fuels around our homes and worrying. And here, with the Climate Action Plan for the Methow Valley, we have it.

This action plan is as good a guide to local climate solutions as you will find anywhere — analytically sound, logically organized, and built around local wisdom and initiative. And the Methow is among the best prepared communities to implement such a plan. Indeed, many of the most important actions are underway — from watershed planning and fire resilience to clean energy and transportation choices, from local food production to reducing and recycling our waste, from lobbying our elected officials to implementing solutions in our own lives. One of the most inspiring signs of our appetite for action is the passionate leadership of our young folks, pushing us to do what’s right and necessary.

When it comes to delivering practical climate solutions and building a livable future, the Methow has an ace in the hole: our fierce love of this place and our commitment to build a healthy community. Few places have more to lose. And I know of no place that has a stronger sense of its identity as a small community — deep, strong roots from which to grow our sense of agency and effectiveness in the face of this great challenge.

This is a perfect place to stand for hope. This plan will be a big help as we plant both feet and rise up together for a healthy future. There’s plenty in here for everyone to get in on the action — individuals, businesses, schools, public officials, utilities — literally everyone. We can do this, but not as isolated individuals trying to do our personal part. This is a job for the whole Team Methow!

KC Golden is a policy advocate working at the state, regional, and national levels for climate justice and a rapid transition to a clean energy future.



Introduction

FOR MILLENNIA, the bounty of the Methow Valley has nurtured and sustained its human inhabitants along with healthy, vibrant natural systems. In years past, the Methow River and its tributaries fed by the Cascade snowpack teemed with salmon, trout, and other fish species while the land supported abundant wildlife and a rich diversity of plant life. The current Methow Valley community resides on land long-established as the ancestral homelands of Interior Salish Peoples, that have stewarded these lands and waters since time immemorial. Descendants of the Methow tribe remain connected to this valley with enduring care and the Resilient Methow Planning Team, Task Force, the teams who wrote this plan, express deep respect and gratitude to our original and continued caretakers of this special place. With intention, this community effort maintains a responsibility to establish and deepen relationships with the tribes that are based on reciprocity, honoring tribal sovereignty, and ensuring inclusion of the voices and knowledge of our indigenous neighbors in this shared work responding to a changing climate.

White settlers arrived and displaced tribes in 1886 and, over time, transformed the landscape, harvesting timber, farming the valley floor, and grazing livestock on rangelands. More recently, the Methow economy has shifted from an emphasis on resource extraction to one focused on recreation and tourism, with agriculture remaining important.

Today the Methow Valley supports a growing community of residents who share an appreciation of the valley’s natural beauty, its wildlife, and open landscapes. Bonded by a shared understanding of the valley as a special place, this community is committed to preserving and sustaining the Valley’s abundance and beauty for future generations.

Yet the Methow’s bounty is threatened as never before and the effects of climate change are readily apparent. Triple-digit heat in June, more frequent droughts, increasingly variable snow conditions, ever-earlier spring runoff, more frequent freeze-thaw cycles, and the megafires of the last several years all demonstrate both a present and future very different than in the past. The science of climate change is clear, and we are seeing its impacts on the valley. These impacts will increasingly challenge our community, and underscore the extreme urgency of planning for, and taking action to, become resilient and reduce greenhouse gas emissions.

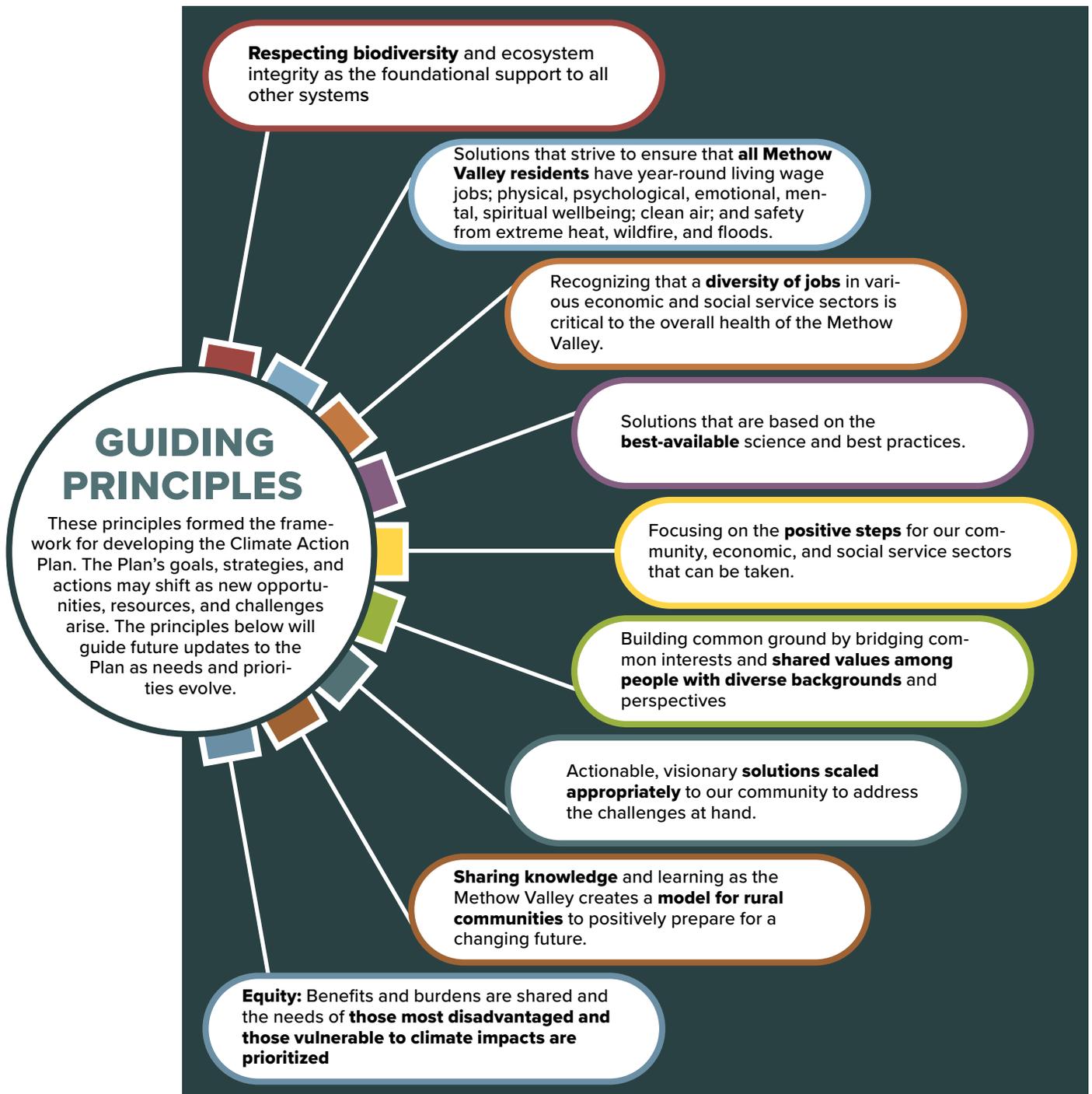
This Climate Action Plan provides a strategic roadmap to prepare the Methow Valley for the impacts of climate change and to reduce local sources of greenhouse gas emissions, the primary cause of climate change. Grounded in science and based on extensive community input through an organized Task Force and public workshops, this plan identifies realistic strategies and practical actions to build local resilience while reducing emissions to support overall well-being based on collective values.

A COMMUNITY-BASED CLIMATE ACTION PLAN

In response to the changing climate, community members have worked together to create this Climate Action Plan for the Methow. Designed and written as a community effort without a government entity guiding the process, the plan is by the community and for the community. It sets forth actions we can

and must take to both adapt to a changing climate and do our part to reduce greenhouse gas emissions.

For our community to adapt, we must build resiliency into the Methow Valley's natural and social systems, including water systems, the built environment, the local economy, and agriculture. To reduce our greenhouse gas emissions in line with science-based targets and Washington State law, we must shift to



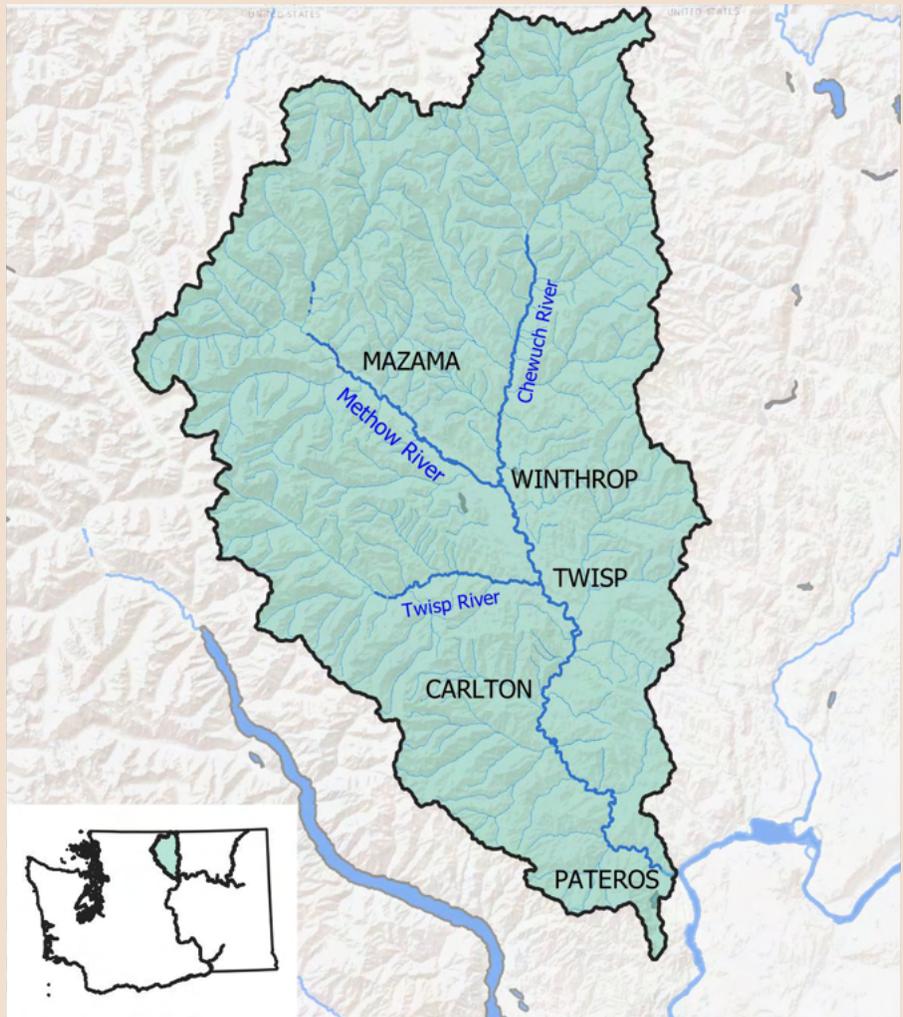
THE METHOW RIVER WATERSHED — ITS GEOGRAPHY, LAND, AND PEOPLE

GEOGRAPHY

This Action Plan focuses on the impacts of a changing climate on the communities and natural systems of the Methow River Watershed, (aka the Methow Valley). Located in Okanogan County in North Central Washington, the watershed occupies a deep valley on the eastern slope of the North Cascade Mountains. An important tributary to the Columbia River, the Methow River is in turn fed by the Lost, Chewuch, and Twisp Rivers.

LAND

The US Government owns approximately 84% of the land in the Methow River watershed, with most of this land managed by the United States Forest Service. Washington State manages approximately 5% of the watershed, including about 35,000 acres owned by the Department of Natural Resources and Department of Fish and Wildlife. The remaining 11% is privately held, with these lands primarily located in alluvial valleys of the Methow and lower valleys of the Twisp and Chewuch rivers. Land use is primarily forest or range land in the uplands, and residential and agriculture in the lowlands.



PEOPLE

The Methow tribe have inhabited the valley for over 10,000 years, following seasonal cycles to gather food and medicines — fishing for trout in their streams, and species of salmon and steelhead, as those species migrated upstream, and journeying to the mountain meadows for berries and big game. Their villages were established primarily along waterways in the lower valley.

The Methow tribe is one of the twelve Colville Confederated Tribes, whose combined traditional territory once spanned 39 million acres across what is now eastern Washington into

British Columbia, Oregon, and Idaho. While maintaining deep and important connections to their ancestral land, many tribal members now live on or near the Colville Reservation, which is bordered on two sides by the Columbia River and is now under 3 million acres. Methow lands were part of the Moses-Columbia Reservation created in 1879, but tribal members were forcibly removed to the Colville Reservation in 1886 when the reservation was opened to non-Indian settlement. This historic injustice must be reconciled — an important consideration in planning future actions affecting the Methow.

The Methow Valley contains the six small communities of Mazama, Winthrop, Twisp, Carlton, Methow, and Pateros along with many full and part-time residents living in unincorporated rural areas. According to a recent demographic study, the year-round residential population is 6,506 people and the seasonal, part-time resident population is an additional 4,380 people.¹ With the pandemic, the population appears to be growing rapidly, with remote work increasing in popularity and families relocating to the valley for the open space, schools and amenities.

¹ Methow Conservancy, State of the Methow, 2021

carbon-free energy sources, adopt a conservation ethic to reduce consumption, and maximize the ability of our forests, soils, and landscapes to sequester carbon. The actions identified in this Plan have the potential to improve biodiversity, living standards, business outlooks and community success; real, tangible, and positive outcomes are possible.

Accordingly, this Action Plan sets forth a vision, establishes goals, identifies strategies, and recommends actions at the individual, community, regional level, and puts equity at the forefront of these efforts with the purpose of:

1. enabling a safe, healthy, resilient Methow Valley community and economy,
2. reducing greenhouse gas (GHG) emissions associated with burning fossil fuels; and
3. increasing the ability of our landscapes to capture and store carbon as well as sustain the biodiversity and water resources on which we depend for our well-being.

The Action Plan highlights strategies and actions in two areas: improving community resiliency, and reducing GHG emissions. Actions in the Plan have been selected by the Task Force as priority actions based on: timeliness, ability to leverage funding, synergy, critical importance as a foundational action, or actions with potentially high impact. Implementing these actions will require an adaptable approach, and include incorporating new ideas and solutions, revising approaches as needed, and updating the Action Plan to remain relevant, current, and effective.

THE PLANNING PROCESS

The Action Plan is the fruit of more than two years of dedicated work and reflects the involvement and participation of hundreds of Methow Valley residents, including representations from local governments, businesses, nonprofits, community organizations, and tribes. This effort began in 2019, when the Methow Valley Citizens Council, compelled by the overwhelming trauma from repeat wildfires and mounting concern over global climate trends, volunteered to initiate a community-based planning process to better understand the impacts of climate change on the valley, our contribution to the problem, and recommend solutions.

To begin the process, the Methow Valley Citizens Council organized a Task Force of community leaders and stakeholders to lead this effort who were further supported by technical subgroups of subject matter experts. Development of the plan was facilitated by a planning team of consultants and Methow Valley Citizens Council staff. Community outreach included two public workshops attended by over 500 community members, numerous Task Force and subgroup meetings, consultations with tribal officials, and one-on-one engagement with stakeholders representing a broad range of Methow Valley interests and perspectives. While elected leaders participated on the Task Force, this plan was not sponsored or funded by any government agency or entity. The result of this public involvement process is this Climate Action Plan. This community-based plan articulates the aspirations, reflects the values, and supports the ambitions of community members that were able to contribute.

APPROACH TO EQUITY

Equity was consistently emphasized as a central value by the Task Force and sectors during the creation of this plan. The groups worked to ensure that the needs of all community members would be addressed in this plan—with a focus on our neighbors who are most vulnerable to the effects of climate change and with the fewest resources to address these effects, like adding a ventilation system to their homes, adding insulation, or accessing and affording locally produced foods.

In examining the equity implications of climate actions, a “multi-solving lens” was introduced to look for solutions that could advance climate adaptation and mitigation while simultaneously addressing equity. The multi-solving approach to solutions and project development will evolve and continue to be emphasized as the community puts this plan into action.

According to Climate Interactive:¹ “Multi-solving policies and actions help protect the climate while also providing other co-benefits, such as improving health, disaster resilience, the economy, and access to healthy food and clean water. They help connect us to the natural world and people around us, and they do that while saving time and energy. They are, in short, win-win solutions for people and the climate.”

Multisolving means finding one solution for many problems

As part of a Sustainability Planning Studio course through Western Washington University, three undergraduate students evaluated equity in other climate action plans and wrote a report of recommendations for consideration in the Methow Valley Climate Action Plan. Their benchmarking criteria, results, and final recommendations were also instructive for the planning team and Task Force.²

The four-step framework provided in *Making Equity Real in Climate Adaptation and Community Resilience Policies and Programs: A Guidebook*³ was introduced to the Task Force. Using these four steps to establish the framework for the Plan entails following these steps through the process, outcomes, and evaluations.

Equity in the Methow Valley Climate Action Plan means providing added support to neighbors in need so everyone can experience the benefits of our adaptation and mitigation actions, as well as the benefits that come from living in this valley. We can all adapt to a changing climate when we work to balance disparities and bring awareness and action to improving the lives of those who are disadvantaged and vulnerable in our community.

Communities vulnerable to climate change impacts in the Methow are our neighbors who are vulnerable to the effects of pollution and other environmental, public health, and economic burdens. These community members include, but are not limited to: women; racial or ethnic groups; low-income individuals and families; individuals who are incarcerated or have been incarcerated; individuals with disabilities; individuals with mental health conditions; children; youth and young adults; seniors; immigrants and refugees; individuals who are of limited English proficiency (LEP); and Lesbian, Gay, Bisexual, Transgender, Queer, and Questioning (LGBTQQ) communities; or combinations of these populations.¹

Disadvantaged communities in the Methow are our neighbors who experience continuing injustice—including people of color, immigrants, people with lower incomes, and indigenous people—due to systemic inequities that influence their living and working places, the quality of their air and water, and their economic opportunities.

Equity-based solutions ensure the needs of these communities are considered and addressed, and are solutions that integrate community values.²

1 Bishop, Jordan, & Mohnot, Sona & Sanchez, Alvaro. (2019). *Making Equity Real in Climate Adaptation and Community Resilience Policies and Programs: A Guidebook*. Greenlining Institute, Oakland, California.

2 Ibid.

1 Sawin, E. et al, retrieved from: <https://www.climateinteractive.org/ci-topics/multisolving/what-is-multisolving/> on February 22, 2021

2 Bonsen, Chloe & Galvez, Sophia & Nienaber, Hannah. The ABC’s of Equity: what you need to know in prioritizing equity in climate action planning, 2020. <https://cpb-us-e1.wpmucdn.com/wp.wvu.edu/dist/6/4099/files/2020/11/CSPS-Equity-in-Climate-Action-Report.pdf>.

3 Sona Mohnot, Jordan Bishop, Alvaro Sanchez, Greenlining Institute, August, 2019; retrieved from <https://greenlining.org/publications/2019/making-equity-real-in-climate-adaption-and-community-resilience-policies-and-programs-a-guidebook/>

The four steps are:

1. Embed Equity in the Mission, Vision, & Values
2. Build Equity into the Process
3. Ensure Equity Outcomes
4. Measure & Analyze for Equity

Putting these steps into practice in this Action Plan included defining equity for our context, explicitly stating a commitment to equity, and facilitating a process that deeply engages community members. The Task Force examined the recommended outcomes and actions for equity considerations in each sector, identified opportunities for multi-solving for equity in those proposed actions, and provided feedback on the plan to make the language, format, and content accessible to a broad audience. Our process promoted broad public participation in our public forums via an online survey, as well as by meeting with additional stakeholders to receive targeted input on the draft plan. Prior to COVID, these events included childcare and food in order to remove barriers to participation. Future events and meetings will also continue removing barriers in order to encourage high levels of community participation, possibly including childcare, food, or other meaningful means of reducing barriers to participation for community members.

Putting equity at the forefront of actions is an ongoing practice. Using the four-step process identified above, the actions will be implemented with an explicit effort to develop equity outcomes. These outcomes respond to community needs, reduce climate vulnerabilities, and increase community resilience. The implementation strategy and process development will include establishing metrics and evaluating equity successes and challenges to improve future work.

KEY TERMS AND CONCEPTS

Climate adaptation: Strategies and actions focused on changing behavior, operating practices, investments, land use, and environmental management to prepare, protect, and build resilience of infrastructure, ecosystems, health, and quality of life to anticipated effects of climate change. Adaptation refers to action to prepare for and adjust to new conditions, thereby reducing harm or taking advantage of new opportunities.⁴

Although used interchangeably in this plan, there are slight differences between climate adaptation, and resilience. The strategies and actions in this plan presented in Chapter IV address both climate adaptation and resilience.

Climate mitigation: Strategies and actions focused on slowing the pace and lessening the severity of climate change by reducing or offsetting greenhouse gas emissions. Chapter V focuses on mitigation.

Greenhouse gas (GHG): A gas that absorbs and emits thermal radiation in the atmosphere, contributing to the “greenhouse effect” by preventing heat from leaving the atmosphere. Carbon dioxide (CO₂) is the most common greenhouse gas. Other common greenhouse gases include: methane; nitrous oxide; ozone; and even water vapor (picture a humid day). Greenhouse gases vary greatly in the strength and persistence of their warming effect; for example, methane has a greenhouse effect approximately 80 times stronger than CO₂, but its atmospheric lifespan is much shorter.⁵

Resilience: The capacity of a social or ecological system to continue to function despite disturbances. In ecological and in socio-political systems, resiliency is adaptive. Recovery may not resemble a return to “normal”. However, resilient systems that recover from an event are able to persist and adapt to new circumstances and pressures. When adaptation capacity is limited, collapse occurs. Key characteristics of resilient systems are diversity, redundancy, multiple pathways, and non-rigidity. Systems that lack these characteristics are vulnerable to slow response, prolonged recovery, or potential collapse.

Resiliency Planning: Includes plans and programs a community can take to build capacity in responding to and recovering from impacts like natural disasters, including climate change impacts. Identifying vulnerabilities, risk assessments, preparedness, post-recovery plans, and climate action planning are all part of building resiliency in a community.

LIST OF ACRONYMS

CAP	Climate Action Plan
CH ₄	Methane
CO ₂	Carbon dioxide
EVs	Electric vehicles
GHG	Greenhouse gas
ICE	Internal combustion engines
IPCC	Intergovernmental Panel on Climate Change
LTROs	Long-term Recovery Organizations
MVCC	Methow Valley Citizens Council
NZEB	Net zero energy building
OCEC	Okanogan Community Electric Co-op
PUD	(Okanogan) Public Utility District
SOV	Single occupancy vehicle
SWE	Snow water equivalent
V/COADs	Voluntary/Community Organizations Active in Disaster
WAFAC	Washington Fire Adapted Communities Learning Network
WSDOT	Washington State Department of Transportation
WUI	Wildland urban interface
ZE	Zero energy
ZNE	Zero net energy

⁴ National Climate Assessment, 2014

⁵ Environmental Defense Fund, “Methane, a crucial opportunity in the climate fight,” 2021





CLIMATE CHANGE & THE METHOW VALLEY

Climate Change and the Methow Valley

THIS CHAPTER discusses how the Methow Valley contributes to climate change and is likely to experience its impacts over the next several decades. After a brief overview of climate change, the chapter provides information on the quantity and sources of greenhouse gas emissions produced in the Methow Valley. This chapter also details the latest science on projected changes in temperature, water availability, and snowpack in the Methow Valley and the implications of those changes on our community well-being and natural systems.

While this chapter covers climate change impacts and climate change science, we, as humans are still learning about how our past actions, and our present lifestyles are impacting the Earth. This Climate Action Plan is forward-looking, and the actions recommended will need to be based on the information presented here, as well as the most up-to-date information possible when they are implemented in order to have the greatest impact on reducing emissions and increasing resiliency; we must be nimble and well-informed.

HUMAN-CAUSED CLIMATE CHANGE

Globally, humans are producing carbon dioxide (CO₂) and methane emissions primarily as a by-product of burning fossil fuels at a far greater rate than can be absorbed by the planet's biosphere, leading to a buildup of these gases in the atmosphere and CO₂ in our oceans. (see sidebar) This increase in concentrations of greenhouse gasses (GHG) is leading to an overall warming of the atmosphere and is changing the climate and the planet's ecosystems — warming the Earth's surface temperature, making oceans more acidic, causing and prolonging droughts, threatening biodiversity, exacerbating floods, and increasing wildfire frequency and intensity.

Scientists agree that if emissions continue to escalate we face devastating, irreversible impacts to the health of the Earth, as we know it, and all the life our planet supports. The well-being of people everywhere is at risk.

To avoid some of the worst-case future scenarios, the global temperature cannot exceed a 1.5–2°C (2.7–3.6°F) increase above pre-industrial levels. At current GHG emission levels, the planet is likely to reach 1.5°C by 2028⁶ and continue to increase after that. To stay within the 1.5°C limit, global greenhouse gas emissions must be drastically reduced in the coming decades, including through shifting away from fossil fuel to clean energy, changing land

WEATHER, THE CLIMATE, AND CLIMATE CHANGE

WEATHER

Weather is the daily atmospheric conditions that influence our lives — what we wear, our daily activities, and how we run our businesses. It is highly variable and changeable, even over short periods of time. Predicting weather can be very challenging due to the variability over short periods of time.

CLIMATE

Climate, can be described as the average daily weather over an extended time at a certain location. Climate is far

more predictable than weather because the factors that influence climate are more stable over time (McGregor, 2013). Therefore, climate predictions tend to have less variability than a daily weather forecast.

CLIMATE CHANGE

Climate change describes changes in the long-term averages of daily weather. Global climate change affects weather patterns and lead us to predict changes in weather over time.

6 <https://www.ipcc.ch/2018/10/08/summary-for-policymakers-of-ipcc-special-report-on-global-warming-of-1-5c-approved-by-governments/>

A BRIEF HISTORY OF CLIMATE CHANGE

The capture of solar energy as heat is linked to the concentration of greenhouse gases in the atmosphere. As far back as the late 1800s, scientists began to understand how atmospheric gases (especially carbon dioxide, CO₂) acted to capture heat and could warm the planet. They posited that fossil fuel consumption might contribute to warming of the earth's surface temperature. By the mid-20th century, scientists understood how CO₂ and other GHGs, provided a natural protective layer enabling a stable climate. Then, with the rising use of fossil fuels, scientists realized the limits to the ability of the earth's

carbon system to absorb excess CO₂, causing alarm that humans were contributing to climate change. In 1957, leading climatologists surmised that the earth would, in fact, warm from human caused emissions of greenhouse gases.

Fast forward to 2014 when the United Nations International Panel on Climate Change declared two important findings:

1) Human influence on the climate is clear, and recent human-caused emissions of greenhouse gases are the highest in history. Re-

cent climate changes are having widespread impact on human and natural systems.

2) Continued emissions will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive, and irreversible impacts for people and ecosystems. Limiting climate change will require substantial and sustained reductions in greenhouse gas emissions which, together with adaptation, can limit climate change risks.

use practices, and securing significant amounts of CO₂ from the atmosphere.

This 1.5°C limit leads to a global “carbon budget” and a science-based goal for the United States to achieve net zero emissions by 2050 and net-negative emissions thereafter. The Washington State Legislature adopted this goal as its own, enacting legislation in 2020 committing the state to limit GHG emissions to 45% below 1990 levels by 2030, 70% below 1990 levels by 2040, 95% below 1990 levels and net zero emissions by 2050.⁷

METHOW VALLEY GREENHOUSE GAS EMISSIONS

A GHG inventory study commissioned for this planning process revealed that the Methow Valley contributes to state and global emissions primarily through:⁸

- **Transportation:** Emissions primarily come from driving gas and diesel-powered cars, machinery, and trucks as well as from aviation.

- **Heating, cooling, and lighting buildings:** Building-related emissions are generated by burning propane and oil for heating and cooking, and consuming electricity powered by fossil fuels.
- **Waste management:** A small quantity of emissions come from wastewater, septic systems, and from waste disposal.
- **Consumption of goods and services:** All products have an embedded GHG footprint from the energy it takes to source raw materials, manufacture, transport, and market things like the food we eat, the things we buy, and the houses we build. The more we consume, the higher our personal and collective production of GHG emissions.
- **Land use practices:** Carbon emissions release rates from land use practices change depending upon the level of land conversion and development occurring in the valley, forestry and agricultural practices, management of range and open lands, and the prevalence of wildfires and disease in forests. Greater disturbances lead to higher levels of emissions.

⁷ Chapter 43.21F.090 RCW.

⁸ The planning process included an inventory of the sources and quantities of those emissions to inform emission reduction strategies. The study estimated CO₂ emissions for 2019 from fossil fuels used for transportation, electricity, propane, and heating as well as methane emissions from wastewater treatment plants, septic tanks, and solid waste in landfills. The study also examined the extent to which the Methow Valley landscape serves as a GHG sink, capturing and sequestering carbon, and/or as a source of carbon, through emissions associated with changes in organic matter from wildfires, forest health treatments, and land use practices. The full report, “Methow Valley Greenhouse Gas Inventory Data Period January 1, 2019-December 31, 2019, prepared by Hammerschlag LLC” is included as an appendix.

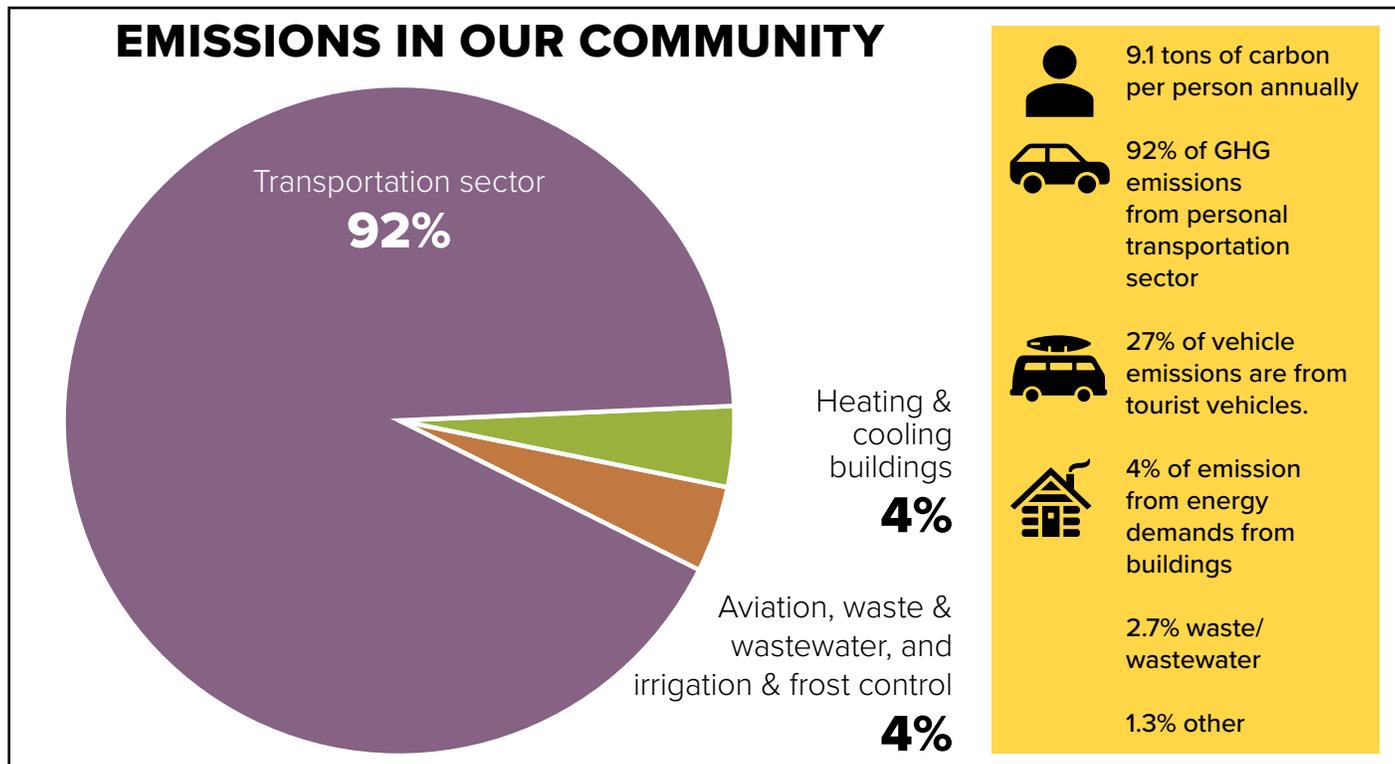


Figure 2: Methow Valley Community GHG Emissions, 2019

Transportation, Buildings, and Waste-related Emissions

Total annual emissions from burning fossil fuels for transportation, buildings, and waste management in the Methow Valley were estimated to be approximately 80,900 tons in 2019, equivalent to 9.1 tons on a per capita basis.⁹ This per capita number compares to 13.8 tons/pp for Washington in 2015 and 20.5 tons/pp nationally in 2018.¹⁰

- The **transportation** sector contributes approximately 92% of all emissions; 27% of these emissions are attributed to tourist vehicles.
- An estimated 4% are associated with **electricity and propane used to heat and cool buildings and for lighting.**
- The remaining 4% of emissions are from **waste and wastewater, aviation, and irrigation and frost control.**

The GHG inventory also estimated the benefits of recycling by Methow Valley residents and businesses, estimated to be 2,100 tons of CO₂ equivalent based on a reported recycling level of 648 tons of material (paper, cardboard, plastics, aluminum, etc.) in 2019. These data reveal the value of activities such as maximizing recycling and reuse to avoid upstream consumption related emissions.

Consumption Related Emissions

With the exception of electricity, the Methow Valley emissions inventory excludes upstream emissions that come from the manufacture, transport, wholesaling, and retailing goods consumed by residents in the Valley but produced elsewhere. A more precise, consumption-based inventory study could estimate these emissions, but that kind of study is both expensive and difficult to undertake. As an alternative, the Methow Valley emissions inventory study estimated values for the Methow by

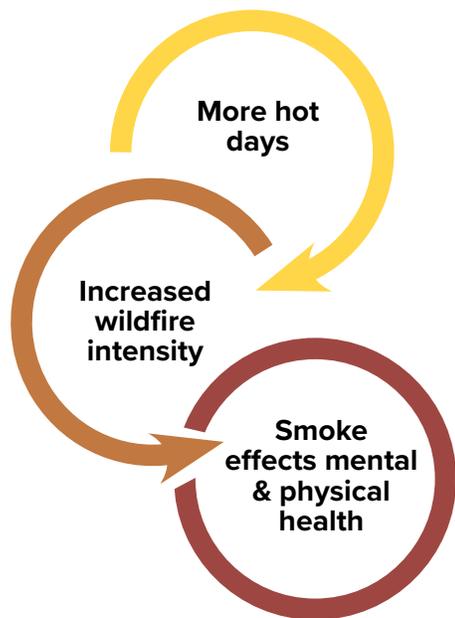
9 GHG Emissions Inventory for the Methow Valley, 2019. This inventory used a standardized methodology and best-available data to estimate Methow Valley emissions for transportation, buildings, and waste. Note that, as per the standard methodology, GHG emissions from burning wood are excluded from the calculation.

10 Calculations provided by Roel Hammerschlag, verbal communication.

scaling the results of a consumption-based inventory undertaken by the State of Oregon in 2015.¹¹ This methodology suggests that the Methow’s upstream emissions (emissions created in production of goods consumed in the Methow) could be significant: 46,000 tCO₂e or 57% of the size of the Methow Valley’s estimated geographic emissions of 80,900 tCO₂e.

Landscape Emissions/ Sequestration

Methow Valley landscapes can be either a source of GHG emissions (e.g., from wildfires and decomposing organic matter), or a sink, sequestering carbon in trees and other forms of organic matter as well as in soils. Analysis undertaken as part of the emissions inventory revealed a net loss of the Methow Valley’s forest biomass of 2.1 million metric tons from 2012-2017.¹² Wildfires account for most of this loss, offsetting carbon sequestration resulting from tree growth. Over time, this loss results in GHG emissions. The 2.1 million tons of organic matter loss translates into 3.45 million tons of carbon emissions, or 692,000 tCO₂e per year over five years.



This figure is over 8 times the 80,900 metric tons of manmade community GHG emissions, suggesting the primary importance of managing and maintaining healthy forests, minimizing catastrophic wildfires while reintroducing low intensity fires on the landscape to enable sustainable tree growth and regeneration over time. This net loss calculation, however, assumes that all the carbon in the biomass is released into the atmosphere. In fact, some GHG emissions occur immediately during a wildfire, while other emissions occur over many years—even decades—as the woody material decays and decomposes.

Calculating carbon emissions or sequestration from trees and the landscape is complicated. This brief description is meant to highlight the potential of the landscape to act as a carbon sink, and help mitigate the impact of climate change.

Non-forested landscapes are another potential source of—or sink for—carbon emissions. The emissions inventory study estimated sequestration potential associated with agricultural lands using a methodology from the UN Intergovernmental Panel on Climate Change (IPCC).

METHOW VALLEY CLIMATE IMPACTS & CONSEQUENCES

Dr. Amy Snover, Director of the University of Washington Climate Impacts Group and part-time Methow resident, presented the latest predictions for climate change in the Methow Valley at a November 2019 workshop to help the community gain an understanding of the climate-related impacts expected in the decades to come.

Summarized in the graphic to the right, these climate-induced changes will have far-reaching consequences for the

EXPECTED CLIMATE CHANGE IMPACTS IN THE METHOW VALLEY¹



On average drier, hotter summers with more hot days; average temperatures 3 – 8°F warmer by the 2050s



Wetter winters, less snow, more rain: Snow season reduced by 21 and 47 days in 2040s and 2080s respectively; April 1 snowpack reduced by 46% in the 2080s



Higher peak flows and earlier seasonal flooding; January streamflows increase 164% by 2080s



Lower low flows during the summer; July average streamflow 48% less in 2040s, 65% less in 2080s



Earlier run off, already already up to one month earlier in some Northwest rivers

¹Climate impacts will be more or less extreme depending on how fast, and how much, society chooses to reduce greenhouse gas emissions.

¹¹ Department of Environmental Quality, “Oregon’s Greenhouse Gas Emissions through 2015: An Assessment of Oregon’s Sector-Based and Consumption-Based Greenhouse Gas Emissions” (State of Oregon, May 2018), <https://www.oregon.gov/deq/daq/programs/Pages/GHG-Oregon-Emissions.aspx>.

¹² Hammerschlag, 2019.

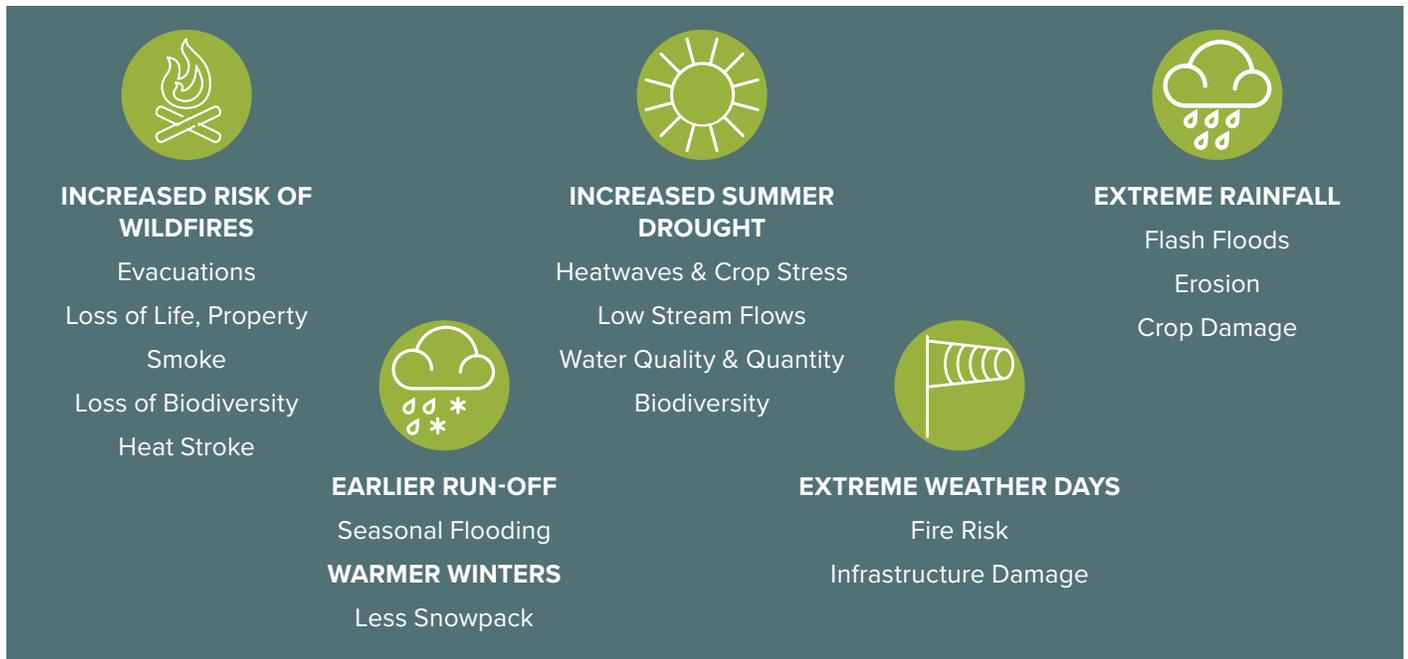


Figure 3: Expected Climate Change Impacts on the Methow Valley: Secondary Implications

Methow including: the valley’s natural systems; the health and safety of those who live and work in the Methow; visitors to the Methow; the durability of the built environment; and the vitality of the Valley’s economy and agriculture. The implications and expected impacts of a changing climate are highlighted in Figure 3.

Meteorological events associated with a changing climate present both immediate hazards and long-term implications for all sectors—even in the Methow Valley where the weather has always been variable and marked by extremes typical of semi-arid mountain environments. These impacts range from short-lived episodes, like extreme windstorms or flash floods, requiring immediate response, to slowly emerging changes, like reduced snowpack, that warrant gradual shifts to adapt to new conditions. Building resilience in anticipation of these changes will help our community rebound from short-lived events and make wise decisions about how to deploy resources and invest in infrastructure to adapt over the longer term.

A changing climate is already having — and will continue to have — cascading levels of impacts on the Earth and all of its inhabitants and systems. These impacts will be felt the most by community members already disadvantaged by poverty, air pollution, socioeconomic disadvantage, and climate change.

The effects of climate change are changes in observed weather patterns that affect us through weather-related events — specifically changes in

temperature and precipitation (or hydrology), that bring conditions very different than experienced over the past 100+ years. Example: more hot days.

Impacts result from changes in these weather patterns, and directly affect human activity, the different sectors of our economy, and the systems on which we depend for our wellbeing including: water systems; natural systems; human health and safety; the built environment; recreation; and agriculture. Example: More hot days lead to increased frequency and intensity of wildfires.

These impacts then cascade, and undermine the key values of the community adversely affecting our overall wellbeing, health and safety, wildfire, habitat, affordable housing, livelihoods, and agricultural productivity. These cascading impacts reflect the reasons why we care about climate change and are compelled to act to adapt to these impacts and reduce emissions. Example: More hot days lead to increased frequency and intensity of wildfires, which has a cascading impact of increasing smoke effects and mental and physical health.

Primary Impacts

The primary impacts of climate change in the Methow Valley include drier, hotter summers coupled with warmer, wetter winters. Dr. Amy Snover, Director of University of Washington Climate Impacts Group, described these impacts in greater detail, and they are summarized in the following table.

TEMPERATURE
<ul style="list-style-type: none"> • Average and seasonal temperatures expected to rise • Increased # of hot days • By the 2050s, the average year in eastern WA will be warmer than the warmest year of the 20th century • Increased average winter temperatures
PRECIPITATION
<ul style="list-style-type: none"> • Lower winter snowpack with a shift from snow to rain, especially at lower elevations • Earlier spring snowmelt, longer summer dry season • Heavy rain events are expected to become more frequent and intense, though annual precipitation totals will remain similar to historic amounts • More rain-on-snow events

Higher winter averages are of particular concern for the local ski and tourist industry that relies heavily on the snowpack. Snowpack also helps preserve stream flows for later in the year, which are vital for irrigation and fish. With warmer winters come more frequent freeze and thaw cycles, presenting significant challenges for snow clearing and street maintenance.

Impacts of Changes in Precipitation

“Less water when it’s dry, more water when it’s wet”
— Dr. Snover, 2019¹⁵

Climate change affects precipitation timing (when), duration (how long), intensity (how hard), and type of precipitation (rain, snow, hail). We can expect fewer snow days and more rain in the winter, resulting in reduced snowpack, increased winter stream flows, earlier seasonal flooding, and lower summer stream flows. Additionally, summers are predicted to be drier. Figure 5 quantifies these expected changes.

Subsequent sections of this chapter describe key impacts on natural systems, the economy, infrastructure, agriculture and human health.

Impacts of Temperature Rise

Temperatures in the Methow Valley vary based on location and elevation, with observed temperature differences between Pateros and Mazama spanning over 10°F across seasons. Twisp’s 30-year average summer highs measure about 87°F and average summer lows at 50°F. Winter average highs and lows are recorded as 28°F/14°F, respectively.

Temperature increases present challenges to maintaining water quantity and quality, human health, the recreation-based economy, and agriculture.

Under current GHG emission levels, average temperatures are predicted to increase 6°F by the 2050s.¹³ Both summer highs and winter averages will continue to trend upwards¹⁴. Higher summer highs cause heat waves that stress human, plant, and animal populations and increase wildfire risk.

	2040s	2080s
January average stream flow	+81%	+164%
100-year flood	-6%	+14%
July average streamflow	-48%	-65%
Low flows (7Q10) ¹⁶	-2%	-5%
Change in April 1 snowpack Snow Water Equivalent (SWE)	-21%	-46%
Length of average “snow-season” (days SWE>10% max)	-21 days	-47 days

Figure 5: Projected Climate Change Impacts for the Methow Valley; Tables recreated from Dr. Snover’s presentation, November 2019.

Extreme, intense rain downpours are anticipated with more frequency. When these downpours occur after prolonged dry periods, when soils are saturated, or after a fire when soil absorption is poor, they can lead to severe flash flooding, washouts, mudflows,

13 University of Washington Climate Impacts Group. (2019). Climate Science Special Report 2017. Presentation, Twisp, Washington.

14 Summary of Projected Changes in Physical Conditions Across the Colville Tribes Study Area, 2017

15 University of Washington Climate Impacts Group. (2019). Climate Science Special Report 2017. Presentation, Twisp, Washington.

16 A 7Q10 Flow is a low-flow statistic that measures the annual minimum 7-day average streamflow with a 10-year recurrence interval (7Q10). In terms of probability of occurrence, there is a 1/10 or 10-percent probability that the annual minimum 7-day average flow in any 1 year will be less than the estimated 7Q10 value.

and landslides. These episodes threaten transportation systems, recreational trails, and the built environment, including housing and infrastructure. For example, immediately following the Carlton Complex Fire in 2014, extreme rainfall caused flooding and mudflows along Frazier, McFarland, and Benson Creeks, requiring immediate evacuation and destroying homes and other property.

Extreme rainfall events have caused repeat highway closures, limiting routes in and out of the valley. For example, a spring downpour in April 2017, resulting from a combination of saturated soils and fire-related erosion, caused a massive washout on Highway 20 over the Loup Loup Pass Summit. The closure lasted for more than two months cutting off the usual access to the Okanogan Valley for employment, supplies, government services, and healthcare and forcing people who drive between the Methow and Okanogan valleys to take a forty-mile detour that required an extra hour of travel time.

Less snow, earlier melt

Less snowpack has other adverse affects, including reduced spring runoff, diminished aquifer recharge, and changes changes in timing of streamflow important for fish migration. Implications of this affect agriculture as well as natural resource dependent sectors. Low winter snowpack also reduces the length and quality of the winter sports season and so has immediate impacts on the winter recreation-oriented businesses.

Degraded water quality

Temperature directly affects water quality in rivers and streams as well as the quantity and timing of runoff. Winter snowpack melting earlier reduces water availability in later seasons when temperatures are higher. Reduced runoff, coupled with a larger number of hot days, increases stream temperatures during the summer, adversely affecting salmon and other aquatic species. Warming trends in freshwater systems potentially encourage increased nutrient production, which results in more algae growth, especially in lakes and slower moving streams.

Natural Systems Impacts

The Methow Valley consists of a wide variety of habitat types and ecosystems. Natural systems can be damaged or collapse when human systems interfere with critical feedback loops or reserves. Signs of

collapse include positive reinforcing loops, loss of keystone species, waste accumulation, and disease. Natural systems provide a foundation for the productivity of all human systems, as depicted in Figure 6.

Similarly, impacts to human systems reverberate to natural systems.

Resilient natural systems exhibit certain qualities and characteristics that allow them to adapt to changes in the environment, including human-caused disturbances. Resilient natural systems are diverse, highly connected but not rigid, adaptable to disturbances, and exhibit feedback loops that reinforce specific inputs or outputs.¹⁷ Resilient systems have the adaptive capacity to absorb and transform after a disturbance occurs.

As temperatures rise and water patterns shift due to climate change, the impact on the Methow’s natural systems will be cascading and self-reinforcing. For example, hotter, drier summers lead to more wildfires which increases CO₂ emissions and reduces carbon sequestration, causing more warming, hotter temperatures and so on. In a worst-case scenario, the cycle continually spirals downward as the adaptive capacity of the natural system is depleted.

Experts and stakeholders engaged as part of the planning process identified the following impacts

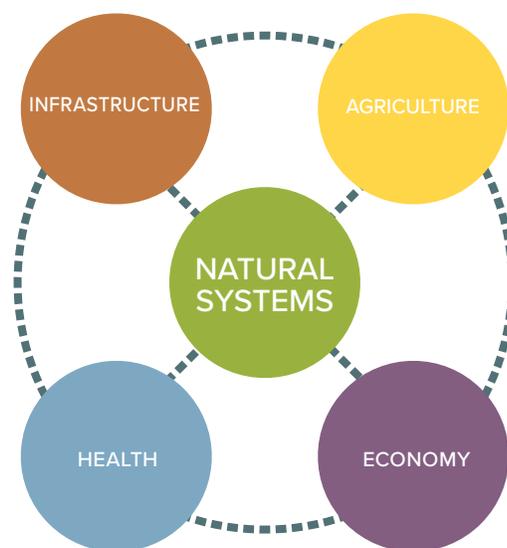


Figure 6. Systems Linkages

17 Walker, B. H., & Salt, D. (2006). Resilience thinking: Sustaining ecosystems and people in a changing world. Washington, DC: Island Press.

of climate change on the Methow Valley’s natural systems:

- Shifts in plant/animal distribution
- Increase in invasive species
- Loss of aquatic habitat/organisms
- Increase in burned/early successional habitat
- Severe additional stress on imperiled species (e.g. lynx, wolverine)
- Increase in number of landslides
- Increased drought stress
- Increase of fire risk
- Loss of biodiversity
- Shrubland conversion to grassland
- Loss of forest
- Changes in seasonal flooding

Economy Sector Impacts

The natural beauty of the Methow Valley drives a recreation- and amenity-based economy. Small businesses form the backbone of this economy and provide most services from tourism-related amenities and agricultural products to real estate, construction trades, and health care. The economy is also boosted by the government sector, and a thriving nonprofit sector. In addition to the service sector, natural resource jobs such as state, federal, and tribal agencies provide professional wages and rely on the proximity to public lands and their associated ecosystems. More recently, a growing segment of workers are moving to the Methow Valley and telecommuting to jobs outside the valley, enabled by the internet.

Winter recreation and summer tourism fuel service jobs at hotels and restaurants, with recreational providers employing both seasonal and year-round workers. Service sector wages, however, have not kept pace with the rising cost of living, contributing to a housing crisis that is forcing workers to live out of the area and commute. This crisis is exacerbated by the influx of part-time residents, second-home owners, and telecommuters, which increases income disparities and the demand for and price of housing.¹⁸

Climate change will adversely affect the Methow’s small businesses due to expected increases in frequency and severity of natural disasters. These disasters, such as wildfires and washouts, will threaten health, housing, and labor year-round, and increase economic insecurity, with vulnerable and disadvantaged communities most impacted.



Photo courtesy of Methow Trails

The following impacts of climate change on the Methow Valley economy were identified:

- Reduced tourism
- Direct loss of housing
- Changes in the labor market
- Education/training gaps
- Changes in housing demand & affordability
- Decreased recreational fishing
- Changes in winter recreation
- Changes in salmon recovery jobs
- Destruction of recreation trails and campgrounds

Built Environment/Infrastructure Impacts

Well-maintained infrastructure is critical to the efficient flow of goods and services, water, communication, and energy. Deteriorating infrastructure increases the cost of living and can reduce quality of life.

18 TwispWorks Comprehensive Economic Study of the Methow Valley, 2021.

The Methow Valley becomes vulnerable when infrastructure is destroyed, or access to the Valley is limited. Like natural systems, infrastructure systems are complex and contain feedback loops with cascading impacts.

Roads and Highways

The Methow Valley's rural, mountainous location relies on a limited number of state and county highways for access. In winter, SR 20 over Washington Pass closes, leaving only two access points: SR 20 over Loup Loup Pass and Highway 153 through Pateros. Furthermore, within the valley, steep terrain, creeks, and rivers create a challenging network of roads that require care and consideration as they cross salmon-bearing water features and ascend steep, erodible hillsides. Climate-related events such as fires and floods amplify the ongoing expenses of road building, repair, and maintenance incurred by county, state, and town road crews.

Within the incorporated towns of Winthrop and Twisp, public works departments are charged with maintaining a small, but heavily used, network of roadways, drinking water systems, sanitary sewers, pedestrian walkways and sidewalks, and green spaces. Local jurisdictions rely heavily on state and federal grants for capital investment as their local tax revenues cannot support the necessary infrastructure upgrades or recreational amenities that residents and visitors have come to enjoy.

Water systems

Water systems in the valley include domestic, municipal, and community systems for potable water,

while irrigation districts manage a complex canal and pipe system. Connection fees and rising rates can be a deterrent to building new homes within town limits, making housing shortages worse while the relative low density and open space quality of the valley attracts exurban development. However, the continued demand for housing outside of town limits has resulted in a moratorium on subdivisions and restrictions on drilling new wells, limiting rural development in the near term. Despite the current halt to new subdivisions, water infrastructure for both domestic, industrial, and agriculture requires ongoing planning and coordination to ensure investment in efficiency and conservation.

Communications infrastructure

Utilities and private service providers such as CenturyLink, NCI Datacom, and Methownet.com provide communication services. Universal, rural access to broadband has been identified as a priority for the Methow Valley.

Energy

The Okanogan Community Electric Co-op (OCEC) and the Okanogan County PUD provide the Methow Valley's energy infrastructure. Both utilities offer state-funded solar and net metering programs to promote household solar generation projects. Community solar generation projects include The Town of Winthrop, TwispWorks, and the OCEC.

A changing climate will affect each segment of the built environment and their associated infrastructure needs in challenging ways. The infrastructure subgroup identified the following concerns and impacts as particularly significant as a result of the planning process:

- Disconnect between seasonal timing of increasing electricity demand (e.g., for cooling) and shifts in hydropower production, due to changing stream-flow timing
- Road deterioration limiting access and connectivity and making access by emergency vehicles difficult
- Water demand increase
- Adequate water sources for fire prevention
- Declining water quality and quantity leading to deeper wells
- Fire risk increases
- Variable drinking water quality leading to higher water treatment costs
- Loss of structures leading to more human vulnerability
- Road closures resulting in supply chain disruptions to food and energy.



SR20 Loup Pass Photo by Washington DOT

- Energy disruptions (gasoline, natural gas and propane)
- Loss of marketable wood products

Agricultural Sector Impacts

The Methow Valley enjoys a diversity of thriving family farms raising livestock, fruit, vegetables, grain, and hay on nearly 9,000, privately-owned dry-land and irrigated acres. For each type of farm, the impacts of climate change are experienced differently. Impacts anticipated by, or already experienced by, farmers include crop and livestock stress and loss due to drought, extreme heat, smoke, disease and pests; crop loss due to extreme weather events or shifting of traditional seasons; reduced water availability for crops or livestock in late summer; loss of crops, forage, livestock, pollinators or infrastructure to wildfire; and farm worker exposure to extreme heat and smoke. Other potential impacts include:

- Increased soil erosion
- Higher prevention costs
- Increased plant, animal, and human stress
- Productivity loss
- Infrastructure loss
- Loss of tourism sales
- Increased irrigation needs later in season.
- New limits on some irrigators
- Increased irrigation demand earlier in season

These impacts represent a cumulative economic stress on farmers and ranchers, demanding constant adaptation and innovation. Tough and resilient, Methow Valley farmers are already preparing for these impacts by building healthier soils, diversifying crops and cropping strategies, using agricultural water wisely, and investing in infrastructure and equipment. Despite these adaptations and efforts, additional, technical, financial, and community support will be required at local and regional levels for them to succeed and thrive.

Human Health Impacts

Wildfires, prolonged summer drought, and excessive heat episodes present direct threats to human health in the form of heat stress and respiratory smoke effects. In addition, research in the field of emergency management and recovery reveals that the mental health impacts of disasters and evacuations can be long-lasting.¹⁹ A mounting body of evidence shows that mental health effects, including anxiety,



Irrigated Agriculture at Big Valley, photo by Alex Farrell

depression, and PTSD, are heightened by prolonged exposure to fires and smoke. Local mental health care providers have noted that environmental worries and dealing with smoke and fire are common sources of depression and anxiety. Lastly, when wildfires and extreme storms threaten communication, transportation, and energy infrastructure, the safety and security of individual lives are at risk. These impacts include:

- Increased mental health challenges throughout the community
- Changes in safety and security due to economic and natural resource dynamics
- Decrease in respiratory/cardiovascular health from decreasing air quality
- Declines in overall physical health

¹⁹ Lindell, 2006.





VISION, GOALS, & PRIORITIES

VISION: A Resilient, Carbon-neutral Future with Equity for All

A resilient Methow. We plan for, and successfully respond to, our changing climate. Our resilience is measured by the health of our air, water, land, people, and all living things.

A carbon-neutral Methow. We reduce our emissions through individual and collective action, and we sequester carbon by ensuring the health and vitality of our landscapes.

Vision, Goals, & Priorities

THIS CHAPTER presents the vision and associated values, goals, and high-priority strategies and actions for the Climate Action Plan. These were developed by the Task Force based on extensive community input and small group discussions.

The foundation for this vision and the entirety of the Action Plan is a set of shared community values which provide:

- **Human well-being:** health and safety for all members of the community, especially vulnerable

populations and those most disadvantaged and affected by poverty, air pollution, socioeconomic disadvantage, and climate change.

- **Sustainable livelihoods:** the ability to afford to work and live here.
- **A built environment:** one that is affordable, sustainable, and reliable.
- **Resilient and healthy natural systems:** Resilient and healthy natural systems provide biodiversity and sustain life.
- **Well-being of future generations:** The well-being of future generations to whom we are responsible and to whom we must pass on healthy, resilient natural systems.
- **Equity:** defined for this plan as “providing added support to disadvantaged groups so everyone can experience the benefits from our adaptation and mitigation actions.” This requires putting the needs of our vulnerable and disadvantaged communities at the forefront of action, so we can all thrive.



Figure 7. The resilience cycle: increase resilience by basing actions on community values, thereby increasing community resilience. Evaluate progress and act again.

Figure 7 shows these values are part of the cycle of building and sustaining resilience. Resiliency can be gained by protecting, developing, building, or enhancing adaptations to climate change using community values to guide action.

Goals

The Action Plan provides a strategic pathway towards accomplishing seven primary goals linked to the vision and values presented above.

To achieve these goals and realize the vision of a resilient carbon neutral future with equity at the forefront of decision making, the Plan defines a set of near-term and longer-term priorities along with a

GOAL 1: Water to sustain nature and people. We manage the Methow Valley’s finite water resources to meet the needs of our growing community and the natural systems on which we depend. We prepare for and adapt to changing water regimes.

GOAL 2: Resilient and healthy natural systems. We protect and sustain the Methow Valley’s ecosystems, habitat, and biodiversity, managing our landscapes for the conditions of the next 10 decades.

GOAL 3: A community prepared and safe in the event of adversity. When natural disasters strike, we are prepared and able to respond adequately to protect our health and safety.

GOAL 4: A low-carbon, efficient, livable, resilient, and affordable built environment. Our buildings, transportation, water, and energy infrastructure are highly efficient. Our urban spaces and neighborhoods are adapted to a warming climate—securing our comfort, health, and safety for the foreseeable future.

GOAL 5: A thriving place-based economy that prioritizes equity. The economy is balanced between human needs and local ecology.

GOAL 6: A vibrant future for agriculture. The Methow Valley is diverse, and features healthy soils, resilient practices, plus strong local support & investment in farmers and ranchers.

GOAL 7: A carbon neutral Methow Valley. We meet state- and science-based limits through systematically reducing our use of fossil fuel and improving the landscape’s health to maximize carbon sequestration.

comprehensive suite of strategies and actions linked to each goal. Priorities are presented below. Strategies and actions to enable a resilient Methow are presented in Chapter IV, while those to achieve a carbon neutral Methow are presented in Chapter V.

Priorities

Five criteria were used to prioritize actions for special focus and early implementation:

- 1) Impact: Actions that address the biggest climate-related issues offer the greatest potential for significant change.
- 2) Synergistic/cross-cutting: actions that support multiple values/benefits/outcomes are prioritized.
- 3) Equity: Priority is given to actions that work to resolve system inequities while also addressing a climate-related issue.
- 4) Foundational: Actions necessary to galvanize other priority actions or support ongoing efforts in new ways. Foundational priorities fill in a missing piece considered essential for a climate-ready community.
- 5) Timely: Actions that take advantage of a time-limited opportunity are ranked accordingly. The action timelines were further defined: Near-term actions address critical unmet or emerging needs and/or are essential first steps to achieving resiliency and/or mitigation outcomes. Near-term actions can or should be implemented within the next one to three years; or ongoing/longer-term actions are those which are already underway and/or require a longer time to achieve the intended impact. These include actions that address systemic changes, that may require big investments, and/or require sustained effort to achieve results.

STRATEGIES & ACTIONS TO ENHANCE RESILIENCE

METHOW VALLEY CLIMATE ACTION PLAN



Methow valley residents participating in the 2016 Climate March. Photo by Steve Mitchell

STRATEGIES FOR A RESILIENT AND CARBON NEUTRAL METHOW VALLEY

	ACTIONS	CRITERIA & RATIONALE	POTENTIAL LEADERS/ PARTNERS
STRATEGY: Ensure resilient, healthy Natural Systems			
NOW	Foster alignment and advocate for funding to accelerate the pace and scale of landscape restoration	<p>Impact: increases forest resiliency & helps reduce the threat of catastrophic fires & associated emissions; Synergistic: creates jobs, potential to grow a sustainable forest harvest-based economy;</p> <p>Timely: DNR and USFS currently developing forest health programs</p>	DNR, USFS, WDFW, North-central WA Forest Health Collaborative, C6 Forest to Farm, community organizations, climate action group
FUTURE	Protect & restore existing habitats for ecosystems health and biodiversity	<p>Synergistic & Foundational: protects the integrity and functions of Methow Valley ecosystems, enabling adaptation to climate change impacts</p>	Confederated Colville Tribes, Yakama Nation, Federal and State land management agencies, non-profits, and community groups
STRATEGY: Prepare for changing water availability			
NOW	Retain water rights in the valley through tools such as water banking, advocacy for legislative and policy changes at local and state levels	<p>Foundational & Timely: efforts to transfer water rights out of the valley are ongoing and need to be stopped; adequate water for towns is essential for managed growth; climate change is expected to reduce flows in the fall</p>	Local and state governments; Winthrop, Twisp, & Pateros, Okanogan County; Confederated Tribes of the Colville Reservation, Yakama Nation, Methow Watershed Council; MVCC; irrigators; community organizations
FUTURE	Ensure towns have adequate water rights to meet current and future demand		
NOW	Protect the quality and quantity of water in rivers and streams to ensure survival of riparian and aquatic ecosystems		
FUTURE	Plan for and invest in water conservation, efficiency, and storage solutions at multiple scales	<p>Synergistic & Foundational: Investment in water conservation practices and technology alongside new infrastructure for efficiency and storage that will make possible more equitable and reliable delivery for the built environment, human health, agriculture, and natural systems</p>	Methow Watershed Council; Irrigation Districts; Okanogan County; Local Municipalities; water system operators; Confederated Tribes of the Colville Reservation, Yakama Nation, community organizations; Okanogan Conservation District

STRATEGIES & ACTIONS TO ENHANCE RESILIENCE

METHOW VALLEY CLIMATE ACTION PLAN

STRATEGY: Advance the Methow Valley as a fire adapted community		
NOW	Implement and support the Smoke-Ready Initiative to reduce smoke pollution where possible (e.g. develop alternatives to outdoor burning, incentives for clean home heating) and protect health where necessary, ensuring equitable access to clean indoor air during smoke events.	<p>Impact: increases community resiliency & reduces fire risks;</p> <p>Timely: urgent action needed now in the face of increasing wildfire risk</p>
FUTURE	Adopt wildland-urban interface building codes	<p>Foundational: WUI building codes and smoke ready community provide a basis for long-term safety and well-being</p>
NOW	Expand fire adaptation efforts to community scale with a focus on equity, prioritizing vulnerable and disadvantaged communities most affected by poverty, air pollution, socioeconomic disadvantage, and climate change.	<p>Equity: improved community health and socio-economic outcomes for all valley residents;</p> <p>Timely: climate change-driven wildfires are increasing in quantity</p>
STRATEGY: Invest in community development and diversify the economy		
NOW	<p>Emphasize local, climate-friendly, and circular economics</p> <p>Increase investment in and funding for affordable “green” housing</p>	<p>Equity, Synergistic, Foundational: Enables a stronger resilient community and economy in the face of climate change impacts (e.g. in-migration, increase in tourism impacting the cost of living and availability of affordable housing)</p>
NOW	Support funding and policies to enable affordable, equitable access to high-speed broadband	<p>Foundational & Timely: efforts are ongoing locally to provide universal broadband. Supports reduced transport, health, education;</p> <p>Equity: meets the need for affordable internet access and educational access</p>
FUTURE	Adapt existing and develop new recreation facilities to meet emerging community needs and sustain a lowimpact tourism sector	<p>Impact: sustains economy & community as climate changes;</p> <p>Foundational: new facilities will be necessary to meet evolving needs;</p> <p>Equity: Provides services for those in need.</p> <p>Synergistic: indoor recreation space during smoke episodes for wellbeing and year-round youth and elderly needs</p>
FUTURE	Use projected climate impacts to inform land use, water, & growth management planning and decisions and manage growth by concentrating development in and near town centers and by encouraging clustering in rural areas.	<p>Synergistic & Foundational: protects the integrity and functions of Methow Valley ecosystems, enabling adaptation to climate change impacts</p>

VISION, GOALS & PRIORITIES

METHOW VALLEY CLIMATE ACTION PLAN

STRATEGY: Support a resilient agricultural community		
NOW	Create a Resiliency Fund to help farmers adapt to climate change; explore the feasibility of a local carbon offset market as a source of funding	Foundational: supports the longterm viability of the Methow Valley's agricultural sector Conservation District, Natural Resource Conservation Service, WSU Extension, Methow Conservancy, nonprofits
FUTURE	Highlight the ongoing good work of local farmers and ranchers to care for the land and the climate	
FUTURE	Work with farmland owners to permanently protect agricultural lands from development through conservation easements	Impact: sustains local economy & community as climate changes; Foundational: supports a resilient agriculture sector and healthy soils that can sequester carbon Conservation District, Natural Resource Conservation Service, WSU Extension, Methow Conservancy, nonprofits
FUTURE	Increase markets for local agricultural products	Conservation District, Natural Resource Conservation Service, WSU Extension, Methow Conservancy, nonprofits
STRATEGY: Reduce emissions		
NOW	Organize a transportation initiative to advance electric vehicles, public transportation, ride-share, and active transport	Impact: addresses the biggest emission source; Synergistic: supports economic and recreation goals; supports recreation goals, supports efforts to create walkable/bikeable community; Foundational & Timely: efforts needed now to transition to EVs and have the infrastructure for the long term; Equity: enables transportation access for all TranGO, trails organizations, Winthrop, Twisp, & Pateros, Okanogan County, businesses, National Park and Forest Service, and other social service agencies
FUTURE	Expand weatherization and energy assistance to low and moderate-income households	Equity & Timely: meet the urgent needs of energy-burdened households Okanogan County Community Action Council, Room One, state & local governments, and other social service agencies
NOW	Establish a community composting facility	Synergistic: Creates a use for organic matter that is often burned or landfilled — reducing smoke & emissions, sequestering carbon Methow Recycles, local governments, restaurants/food establishments, C6 Forest to Farm, households
FUTURE	Expand the reuse/sharing/zero waste economy	Impact, Foundational, Synergistic: Basis for long-term sustainability and resilience; essential for becoming carbon neutral; contributes to circular economy Individuals; businesses; Methow Recycles; Okanogan County, nonprofits
FUTURE	Prepare for electrification of vehicles and buildings and bikes	Impact: enables carbon-neutral energy for buildings and transport; Foundational & Timely: aligns with state policy & future regulations Okanogan County PUD, Okanogan County Electrical Cooperative, Public Works Departments and Planning Departments, trails organizations
STRATEGY: Advocate, engage, and educate		
NOW	Organize and advocate at the state and federal levels for policies, programs and funding to reduce emissions and increase resiliency; secure resources for local initiatives	Foundational, Impact, Equity, Timely, Synergistic: Systemic change that shifts to a clean, equitable economy and increases resiliency requires policies and action at the state and federal level. As a rural community, the Methow Valley can organize and make its voice heard to support needed change Resilient Methow, MVCC Action Fund, local governments, individuals, youth, businesses; non-profit organizations, climate action group
FUTURE	Foster and nurture a place-based ethic with collaborative, community problem solving in the face of climate change	Foundational: sustains identity as conservation community that cares for the natural functions and benefits of the ecosystem Community organizations, Resilient Methow, towns, Methow Recycles, State and Federal partners
NOW	Create and distribute Resilient Methow materials, brochures, & website – providing information for businesses, households, and tourists on climate ready actions for resiliency & reducing emissions	Foundational: builds awareness and provides essential education about best practices for the community & visitors. Timely: The basic first step in implementation Resilient Methow, chambers of commerce, businesses, and nonprofit organizations
NOW	Create and distribute a Methow resiliency and mitigation survey instrument	Foundational: basis for tracking progress towards outcomes WWU Community Learning Lab, Resilient Methow



Action Plan

Organization: Goals, Strategies, & Actions

THE ACTION Plan identifies a set of strategies and actions for each of the seven primary goals, the Action Plan identifies a set of strategies and actions. Strategies represent a thematic grouping of actions that all work towards achieving a specific goal. Strategies consist of different types and scales of actions over different time frames.

Types of Actions include:

- **Behavior change** resulting from a broad range of activities and approaches which focus on individual, community, and environmental influences on behavior.
- **Education** utilizing clear, coordinated messages to bring about behavior change.
- **Investment** of financial resources from a variety of sources. Investment sources can be direct capital, debt service, loans, grants, revenue expenditures, or donations.
- **Operational** actions require a change in day-to-day workflow or tasks rather without large input of resources.
- **Policy** requiring a legislative, regulatory, or programmatic shift.

- **Programs** implement a coordinated set of actions to achieve an intended outcome.
- **Stewardship** manages resources with more concentrated effort.

These **Actions** can occur at different **scales**. This Action Plan defined three levels:

- **Individual:** what each person or household can do.
- **Community:** coordinated local action by organizations, businesses, or local government.
- **County, State or Federal:** actions taken outside the Methow Valley which the community can influence through advocacy or other means.

The types and scale of actions are further organized into different time frames, reflecting the urgency, opportunity, and/or time needed to achieve results:

- **Near-term** action that be initiated and/or undertaken within one to three years.
- **Longer-term** actions will take three+ years to yield results.
- **Ongoing** action is currently underway and requires continual involvement over time.





STRATEGIES & ACTIONS TO ENHANCE RESILIENCE

Strategies and Actions to Enhance Resilience

This chapter presents the resiliency road map for the Methow Valley’s adaption to climate change consisting of a comprehensive set of strategies and actions to achieve goals 1-6 of the Action Plan.

RESILIENT WATER STRATEGIES

EFFICIENTLY USE & CONSERVE WATER

INCREASE NATURAL AND HUMAN-MADE WATER STORAGE CAPACITY

PROTECT WATER QUALITY AND SUPPLIES FOR HUMAN AND WILDLIFE HEALTH

ADAPT WATER PLANNING FOR FUTURE CONDITIONS



We manage the Methow’s finite water resources to meet the needs of our growing community and the natural systems on which we depend, both now and into the future. We prepare for and adapt to changing water regimes.

GOAL 1: WATER THAT SUSTAINS NATURE AND PEOPLE

Water is essential to life, healthy ecosystems, and human well-being. The impacts of climate change on the water cycle will include changes in timing, intensity, and type of precipitation as well as the timing of run-off and the amount of infiltration into groundwater. These changes can increase pressure on seasonal availability for plants and animals as well as human systems, leading to water stress and shortages in ground water and surface water resources and systems.

The Methow Valley’s legacy of water management includes both cooperative approaches and contentious episodes. Current management policies and practices largely reflect a collaborative and integrated

approach involving many stakeholders. The Action Plan builds on these efforts. Central to the plan’s water related strategies is the recommendation that all water related planning and decision-making use the best available science and projections of water availability and quality that account for shifting water regimes due to climate change.

Recommended strategies and actions detailed below address water quantity and quality, and promote efficiency, storage, planning, and access. Multiple types of actions at different scales and time frames will be required, from policies to investment, behavior change, stewardship, and planning to meet these water challenges.

Water Strategy 1: Efficiently use and conserve water

Investment in efficiency and conservation is critical to water security, especially when faced with changing water availability and a growing population. Infrastructure for water delivery in the Methow Valley includes large-scale irrigation networks, municipal systems, private community

systems, individual domestic wells, and small farm systems. Technology and investment play big roles in efficiency improvements across all these systems, but smaller actions like altering irrigation schedules also encourage conservation.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Develop efficiency and conservation mandates and incentives for equitable distribution and use	Policy; Operational	Community	Near-term
Replace infrastructure	Investment	Individual; Community; State/Regional	Ongoing
Meter water usage	Behavior change; Investment	Individual; Community	Near-term
Establish new efficiency standards or guidelines	Policy; Education	Community; State	Long-term
Enact policies to enable grey water systems	Policy	Individual; Community; State	Long-term

Water Strategy 2: Increase natural and constructed water storage capacity

The need for improved water storage —engineered and/or naturally occurring — has long been recognized by the Methow Watershed Council, responsible for watershed planning, as well as other entities, including the Methow Salmon Recovery Foundation and the valley’s irrigation districts involved with water quantity and quality. Water storage provides

relief from seasonal water shortages by capturing runoff when it occurs, releasing and using it later when the demand exists. To adapt to changing water cycles, storage options include both investment in new infrastructure and enhancing natural processes that keep water on the landscape.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Increase natural storage			
Increase beaver populations and beaver dam analogues	Investment; Stewardship; Stewardship/policy	Community	Ongoing
Restore floodplains			
Manage aquifer recharge			
Develop new infrastructure			
Small storage structures, contouring, or impoundments	Stewardship; Investment	Community	Long-term
Rain barrels	Behavior change;	Individual; Community	Near-term
Soil amendments/Carbon storage (e.g., biochar)	Education; Behavior Change	Community	Ongoing
Infiltration/Recharge structures	Stewardship	Community	Ongoing

Water Strategy 3: Protect water quality and local supplies

Ensuring water availability for natural systems and future growth relies on careful allocation of water and protections of natural processes that store, protect, and clean our water resources. Water quality, both surface and below ground, relates to water

quantity and temperature, and is, therefore, at risk to climate impacts as the water cycle changes and temperatures increase. In addition, because climate predictions include prolonged summer drought, actions that enhance natural processes to replenish

groundwater through infiltration will protect drinking water wells and required in-stream flows.

The following actions are recommended to continue to protect water quality and quantity.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Restore and reconnect floodplain with side channels for fish habitat and to reduce flood impacts	Stewardship	Community	Ongoing
Strengthen rules governing critical areas (e.g., spawning areas, water refugia) to better protect water quality	Policy	Community	Long-term
Develop policies and practices to limit nonpermeable surfaces and manage runoff	Policy	City; County; State	Ongoing
Update infrastructure to improve water infiltration, flow, connectivity: <ul style="list-style-type: none"> • Assess barriers to fish passage, including bridge/culvert replacement needs • Ensure instream diversions are “invisible” to fish • Improve or decommission roads 	Investment	Community; County; State; Federal	Near-term
Acquire better data on water quality	Investment; Education	Community; Individual	Ongoing
Protect natural wetlands. Support sources of natural infiltration and filtration.	Education; Policy; Stewardship	Community; Individual	Ongoing

Water Strategy 4: Adapt water planning and policy for future conditions

The planning and management of our communities relies on adequate water availability. As water demand increases and supplies diminish, planning and policies will require the best available science to

guide sound decision-making. Similarly, concentrating new water infrastructure through land use and planning leads to efficient design and lowers the cost of public investment.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Prioritize water rights for towns	Policy; Land use	Community	Near-term
Implement policies and practices to protect in-stream flows as precipitation patterns change	Policy	State	Near-term
Initiate flood and drought planning, including mapping high-risk areas. Expand stormwater planning and control; plan and manage for increased flash flooding	Policy; Operational	County; Municipal	Long-term

Plan and design road ditches and culverts to address seasonal hydrological changes & adapt to changes that occur after wildfires	Planning; Operational; Investment	County; State	Ongoing
Protect aquifers and surface water through zoning that is based on water availability. Educate public on “drain etiquette.”	Policy; Education	Community	Long-term
Develop land use policies that limit subdivision; protect large rural lots; eliminate flood plain development	Land Use; Policy	Community; County; State	Long-term
Require metering and monitoring on all new groundwater wells that are approved as part of building permits	Policy	County	Near-term

Water Strategy 5: Provide equitable access to water; ensure availability for agriculture and towns

The effects of climate change have an outsized impact on disadvantaged community members intensifying the effects of existing, embedded injustices and structural challenges. Accordingly, access to water must be fair and affordable for domestic, commercial, and agricultural needs. Connection fees for municipal water systems continue to increase, creating a disincentive to develop in towns while

the County has declared a temporary moratorium on new residential development. These pressures increase the demand for existing housing, in turn affecting the price of housing (which is dependent on water availability). Additionally, the pressure to transfer water rights out-of-basin continues to grow as the populations and associated water demands of other arid communities in the region increase.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Identify areas of inequity; evaluate the cost of entry (connection fees) to municipal systems vs. rural development	Planning	Community	Long-term
Promote local water banking & leasing; drought leasing, acquisitions, and temperature triggered leasing	Policy; Investment	Community; Individual	Ongoing
Reconcile water rights conflict between changes in timing of water availability and timing of water use; improve enforcement of water use based on rights and seniority	Policy; Operational	Community; State	Near-term
Continue implementing Water 2066	Education; investment	Community	Ongoing

**RESILIENT NATURAL
SYSTEM STRATEGIES**

PROTECT EXISTING AREAS OF
BIODIVERSITY AND SLOW
HABITAT LOSS

PROTECT AND ENHANCE
SHRUB-STEPPE

MANAGE FOREST LANDS FOR
LONG-TERM STABILITY

PROTECT FUNCTIONS AND
VALUES OF RIPARIAN AND
AQUATIC SYSTEMS

RESTORE AND RECONNECT
FLOOD PLAINS

SEEK COLLABORATIVE
LAND MANAGEMENT



We protect and sustain the Methow's ecosystems, habitat, and biodiversity — managing our landscapes for the conditions of the next 10 decades.

GOAL 2: RESILIENT AND HEALTHY NATURAL SYSTEMS

Natural systems underpin the functions of all other systems and represent a foundational value identified by the Task Force. Climate impacts on natural systems can have cascading effects, interrupting natural feedback loops and altering a system's path in a way that can be difficult to reverse. Actions that enable natural systems to adapt to a changing climate are critical to avoid collapse. This means that it is more important than ever to protect biodiversity.

To sustain resilience and the landscape's capacity to store carbon, the community will need to increase investment in, and stewardship of, the natural systems, including building on the successes of many ongoing conservation programs and management initiatives. In the face of a changing climate, the Action Plan recommends that these efforts be continued with more urgency and increased investment, and that related strategies as described below be implemented to increase resilience and improve the overall health of the ecosystem.

Natural Systems Strategy 1: Protect existing areas of biodiversity & slow habitat loss

Recurring and chronic stress to habitats in the form of pollution, disruptions of nutrient flows from cumulative impacts of development, fragmentation, and unsound management practices threatens biodiversity at many scales. Development in vulnerable/sensitive habitat, weed spread, pesticide use, road building, rural land conversion, and recreation all contribute to disturbance and displacement of species, and hinder the ability of species to get established in a habitat. Climate change will exacerbate these stressors over time.

The Methow Valley's natural systems, resilient by nature, are being pushed beyond their capacity to adequately recover from these cumulative impacts and now face the new threat of climate change. Traditional conservation approaches such as land protections for reserves, corridors, and buffers will continue to play a critical role in allowing biodiversity to adapt to a changing climate. New conservation approaches need to account for predicted changes to allow for species migration and establishment.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Management accommodates shifting distribution and species composition through assisted migration	Operational, Stewardship	State, Federal, International	Ongoing
Protect wildlife corridors to enable species migration	Land use planning, policy	Community	Ongoing
Utilize conservation easements to protect critical areas, unique habitat features, and culturally significant natural areas	Investment, planning, policy	Community	Ongoing
Aggressively control invasive species during and after fire suppression activities	Stewardship, Operational	Community, State, Federal	Ongoing
Reintroduce plant and animal species in areas with habitat potential	Stewardship, operational	Community, State, Federal	Ongoing

Natural Systems Strategy 2: Protect and enhance shrub-steppe habitat

The Methow Valley’s foothills includes some of the most productive shrub-steppe habitat in Washington State. The combination of soils, elevation, and latitude create a uniquely diverse selection of plants that support robust wildlife populations. There are fifty rare plant communities in the Methow Subbasin and over half of them are in the shrub-steppe (Stovall 2004). Largely privately owned, the shrub-steppe ecosystem has been a preferred location for residential development

due to the open space qualities and stunning views. Residential development, and the associated roads, fire risk, runoff, domestic animals, fence lines, and lights threaten this ecosystem and together create cumulative impacts adversely affecting the quality and connectivity of this habitat. A changing climate further threatens the integrity of this system as species migration becomes necessary but is made more difficult by a fragmented and disturbed landscape.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Manage invasive plant and animal spread	Stewardship; Investment; Operational	Community, State	Ongoing
Prioritize improving the conditions of fire-altered, drought stressed, & degraded shrub-steppe habitat	Stewardship; Operational	Community	Ongoing
Limit shrub-steppe development	Policy; Advocacy	Community	Long-term

Natural Systems Strategy 3: Manage forested habitat for long term stability

Forests provide ecosystems services such as clean water and air, erosion control, and food and fiber. Enhancing those services through restoration and stewardship is a resilient strategy. Previously, fires were more frequent and less intense than the current phenomena of catastrophic fires. Manage

for long-term stability with a variety of methods including: advancing prescribed fire; tree thinning and pruning programs on public and private land; and creating and managing logical landscape fuel breaks around towns and communities.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Subsidize or pay for forest treatments thereby removing financial barriers/disincentives	Investment; Planning; Operational	Community; State; Federal	Near-term
Prioritize long-term investments in forest health & restoration with a 100+year outlook	Policy; Investment	Community; State	Ongoing
Adapt reforestation practices (planting, thinning, elevation, species selection) for warmer, drier weather	Operational	Community; State	Long
Use prescribed fire to maintain open forest structure; integrate tribal knowledge to improve fire management and burning practices.	Operational	Community	Near
Limit development in forested landscapes when it endangers people and habitat	Policy	Community	Ongoing

Natural Systems Strategy 4: Protect functions and values of riparian and aquatic environments

Riparian environments support high levels of biodiversity and exhibit the highest degree of energy transfer in ecosystems. The interface between land and water is critical for most species, either directly or indirectly. Riparian areas also support physical processes such as water infiltration, filtration, cooling, and wind breaks. Maintaining, restoring, and connecting riparian corridors is sound environmental land use policy and protects water quality and aquatic habitats.

Aquatic habitats include streams, rivers, and lakes that are at risk of absorbing nitrogen, heavy metals, oils, and other toxic substances from runoff. More intense storms and runoff events due to climate

change increases this risk. Recommended actions to protect aquatic systems from climate impacts align with well-established practices:

- Increasing shade and complex vegetation cover
- Protecting existing wetlands
- Protecting intact in-stream habitat
- Restricting avoidable human impacts (improper grazing, road building, home building, dams, and improper timber harvest that delivers sediment)
- Controlling pollution from point (one or several large) and non-point (many smaller) sources

The actions recommended below are designed to enhance ongoing efforts or fill in gaps in programs where current efforts fall short.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Riparian Habitat Actions			
Rehabilitate damaged and fragmented buffer habitat with plantings and fencings ²⁰	Stewardship; Operational; Behavior change	Community; Individual	Near-term

²⁰ Conservation buffers are small areas or strips of land in permanent vegetation, designed to intercept pollutants and manage other environmental concerns. Buffer Strips: Common Sense Conservation | NRCS (usda.gov)

Allow natural or controlled fire to reduce fuel loading in riparian areas	Policy; Stewardship; Operational	Community	Long-term
Keep riparian habitats intact and healthy, to maintain their ability to serve as a fire break	Stewardship; Operational	Community; Individual	Long-term
Aquatic Habitat Actions			
Increase beaver populations to enable improved infiltration	Investment; Stewardship	Community; Individual	Ongoing
Educate the fishing public about proper fish handling, fish identification, endangered fish, and aquatic ecosystems	Stewardship; Education	Community	Near-term

Natural Systems Strategy 5: Floodplain management: Restore Complexity and Reconnect Floodplains

Floodplains are nature’s sponges. They absorb energy, nutrients, and water and then release these inputs slowly back into the system. Rivers naturally deposit their mineral and organic matter in floodplains, which become very rich in nutrients, and make them attractive for cultivation. Floodplains are

typically flat and hence prime land for development. Throughout the Methow Valley floodplains have been altered by levees, dikes, development, deforestation, and channelization. This loss of floodplains results in downstream flooding, higher rates of bank erosion, aquatic and riparian habitat degradation.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Implement flood “easements” ²¹	Investment	Community	Long-term
Enforce vegetation buffers (on floodplains?)	Regulations, Investment in enforcement	Community	Near-term
Support codes and regulations to discourage floodplain development	Advocacy, Policy	Community	Near-term
Encourage buy-out of flood-prone properties	Investment	Community	Ongoing

Natural Systems Strategy 6: Engage with Land Management Agencies

Planning for and implementing these strategies and actions will require engagement and coordination between state and federal agencies as well as advocacy to ensure adequate resources and management actions that mitigate climate impacts. In addition,

partnering with tribes can offer approaches to land management that incorporate traditional knowledge and values that modern land practices fail to consider.

²¹ Floodplain easements restore, protect, maintain and enhance the functions of floodplains while conserving their natural values such as serving as fish and wildlife habitat, improving water quality, retaining flood water, and recharging groundwater. For more information see: EWP Floodplain Easement Program - Floodplain Easement Option (EWPP-FPE) | NRCS (usda.gov).

STRATEGIES & ACTIONS TO ENHANCE RESILIENCE

METHOW VALLEY CLIMATE ACTION PLAN

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Form community advisory groups	Operational	Community	Near-term
Create/support community science monitoring programs	Operational, Programs	Community	Near-term
Develop ecosystem service work crews	Investment	Community	Near-term
Advocate for increased investment in stewardship-based management	Advocate	Community	Near-term
Partner with tribal agencies to include traditional ecological knowledge in land management decisions	Operational, Programs	Regional	Near-term

HEALTH & SAFETY

BECOME A SMOKE-READY COMMUNITY

ADOPT FIREWISE BUILDING AND LANDSCAPING STANDARDS

SAFE PUBLIC INDOOR SPACES AS COOLING AND CLEAN AIR CENTERS

PLAN AND DESIGN ROAD NETWORKS FOR EMERGENCY RESPONSE AND EVACUATION

ESTABLISH A RESILIENT SUPPLY CHAIN

IMPROVE EMERGENCY RESPONSE & COMMUNICATION

SUPPORT MENTAL HEALTH



Carlton Complex Fire from Twisp. Photo by Sarah Schrock

GOAL 3: HEALTH & SAFETY

When natural disasters occur, we are prepared to respond quickly.

In the Methow Valley, we are experiencing an increase in wildfires and smoke, extreme heat events and floods; all of which threaten our personal health and safety. To prepare well, we must invest in our

collective public health and safety, collaborating early and often with our local agencies that are responsible for managing these crises.

Health and Safety Strategy 1: Become a smoke-ready community

A smoke ready community knows its sources of air pollution, is actively working to reduce them, and has resources to protect its most vulnerable.

Episodes of wildfire smoke are increasing in frequency and duration, negatively impacting our physical and mental health. Additional smoke exposure

comes from prescribed burns that are a critical part of forest restoration and management. Other sources of smoke in our community include inefficient burning of yard waste and wood smoke from home heating. Better communication/education regarding

the health risks of smoke, reducing unnecessary burning where possible, and implementing protective measures to reduce smoke exposure will reduce the harm caused by increasing smoke in our Methow community.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
<p>Develop and implement a Smoke-Ready Action Plan that includes the following steps:</p> <ul style="list-style-type: none"> • Increase communication and outreach about smoke issues, including education about: health risks; air quality and burn ban alerts; ways to protect health; ways to reduce unnecessary burning. • Protect health, especially in at-risk populations through N95 mask distribution; expanded use of air purifiers and filter fans, including in schools and retirement facilities. • Protect mental health through campaigns that address the effects of disasters on residents' mental wellbeing. • Create public spaces and programs to provide cool, clean air for people to come together to recreate, socialize, and de-stress. 	<p>Education; Investment</p>	<p>Community; Individual</p>	<p>Ongoing</p>

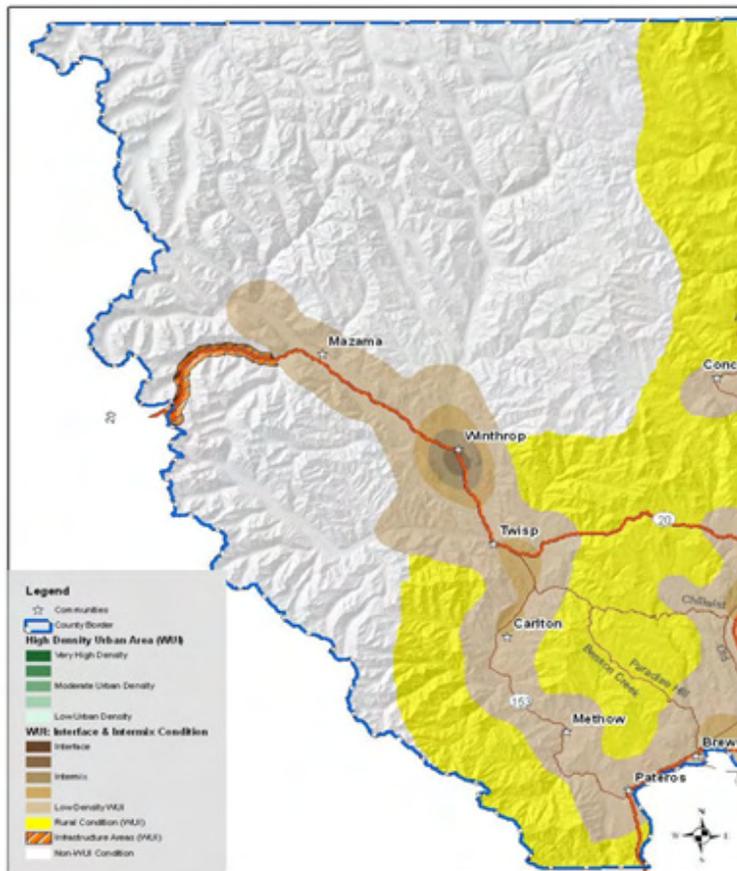
Health and Safety Strategy 2: Adopt Firewise building and landscape standards

Wildfire-related building codes and construction standards are intended to minimize loss of life and property due to wildfires. Such standards need to address both community and household risk, and be accompanied by education and incentives to encourage adoption.

Wildfire risk to homes in the Wildland Urban Interface (WUI) depends on many factors where a one-size-fits-all code or standard may not be appropriate. Furthermore, some wildland fire risk reduction actions can have environmental consequences such as soil destabilization and habitat loss (Klein 2017). In the Methow Valley, homes are situated on

variable topographies and in varying vegetation types either with or without irrigation. These factors, in addition to a structure's immediate surroundings and ignitability, determine risk, emphasizing the need for individualized solutions.

At the community scale, variables such as density of housing, spatial configuration of development, continuity of vegetation, vegetation types and structure, and accessibility, all create hazards. Therefore, risk reduction at the community scale requires inter-agency coordination and planning.



The Wildland Urban Interface WUI is defined as the area where wildland fuels, and vegetation contact human development.

The US Forest Service identifies three types of wildland interface zones: interface or boundary, intermix zones, or isolated/island zones.

The Okanogan County Community Wildfire Protection Plan (map insert left) identifies both WUI Intermix and Interface and Rural classifications for communities within the watershed.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Adopt Uniform Building Code (UBC) Wildland Urban Interface (WUI) building codes based on evaluated risks, ignition zones and vegetation types	Policy; Planning	Community	Near-term
Establish landscape standards for developers and homeowners	Education; Investment	Community; Individual	Near-term
Advocate insurance reform to incentivize FireWise programs or their equivalent. ²²	Advocacy	State	Long-term
Incentivize homeowners to implement Firewise strategies	Education; Operational	Community; State	Ongoing
Conduct outreach and prioritize resources for Firewise and fire adaptive programs that address equity -providing education, support and funding for underserved populations	Programs; Operational	Community; Organizations	Ongoing

²² The Firewise USA® Program empowers individual homeowners to take an active role in protecting structures before a fire starts. For more information, see: Firewise USA - Frequently asked questions (nfpa.org).

Health and Safety Strategy 3: Create safe public indoor spaces as cooling and clean air centers

During smoke or heat episodes, the Methow Valley lacks accessible indoor public spaces large enough for people to gather, exercise or to just feel safe in order to maintain health and wellbeing. Many private homes and businesses lack air conditioning or air filtration, creating unsafe environments. Both smoke and heat

can have acute and life-threatening health impacts in some individuals. Experiencing a prolonged smoke episode can lead people to depression and isolation. Accordingly, investing in community spaces for gathering and to support healthy lifestyles is vital for a resilient Methow.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Explore options for school buildings to be accessible to children and families during smoke episodes	Policy; Operational	Community	Near- to Mid-term
Retrofit existing spaces like the Methow Valley Community Center as cooling, clean air gathering places or for group activities and public safety information programming	Operational	Individual	Ongoing
Support creation of a Methow Valley Recreation Center	Investment	Community	Ongoing

Health and Safety Strategy 4: Plan and design road networks for emergency response and evacuation

Despite only three paved roads leading out of the Methow Valley, no coordinated traffic plan for evacuation exists. Evacuation routes are not well marked or identified and the impact of traffic from private roads feeding onto county roads and highways is unknown.

Road access can be compromised by washouts, fallen trees and fires during disasters. Cul-de-sac and dead-end road developments can contribute to loss of life and property from wildfires. Dispersed road networks also increase the cost of fire response.²³

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Design and implement road standards for access, connectivity, and emergency evacuations	Policy; Planning; Regulation	County/Town	Near-term
Prepare for evacuations; signage (911 and evacuation signs)	Plan; Education	Community/ Neighborhood	Ongoing
Create a valley-wide evacuation plan for traffic	Policy; planning	County/town	Near-term

23 Klein, 2017

Health and Safety Strategy 5: Establish a resilient supply chain for food, medicine, energy, and other essentials

In the Methow Valley, we are highly dependent on imported goods and services. When a disaster occurs, the community supply chain is vulnerable. Similarly, when disasters strike other areas of the nation or world where goods are produced or stored, we are

vulnerable to a cutoff of supplies. Building a network of production, storage, and distribution facilities for essential items strengthens resilience during disasters and recovery.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Create storage for essential supplies during emergencies	Investment; Planning	Individual; Community	Near-term
Build in energy supply redundancy and storage to mitigate interruptions during a disaster	Investment; Planning	Individual; Community	Ongoing
Develop /expand capacity to support food security – emphasize local	Investment; Operational; Behavior change	Individual; Community	Long-term

Health and Safety Strategy 6: Improve emergency response & communication

Communication during emergencies is crucial to community preparedness, response, and recovery. The remote, rural location of the Methow Valley complicates communication, and makes communication networks vulnerable. When power outages occur, cell phone and internet networks are often affected.

Air sirens or other warning systems can help alert communities and give evacuation directions.

Emergency Management messaging must be clear and consistent and designed to reach all members of the community.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Ensure that emergency response plans for utilities and infrastructure systems are regularly updated; identify and provide services for vulnerable populations.	Planning; Operational	Community; Local; County; State	Near-term
Support initiatives to create redundant and reliable communications infrastructure such as improving broadband access. Expand ongoing efforts including: Methow Valley Broadband Action Team and PUD hotspots	Planning; Advocacy	Community	Ongoing
Engage emergency management, county, cities, fire districts, towns, and conservation districts to advocate for resiliency actions; seek funding opportunities to invest in communications infrastructure and practical solutions.	Planning; Advocacy; Investment	Local; County; State	Near-term

Support ongoing efforts by Methow Ready and others to educate and create local neighborhood emergency pods and communication trees.	Education; Individual	Community	Ongoing
Continue building functional networking and partnership systems. These include the Washington Fire Adapted Communities Learning Network (WAFAC), long-term recovery organizations (LTROs), voluntary/ community organizations active in disaster (V/COADs), and resiliency/ mitigation programs.	Operational	Community; County	Ongoing

Health and Safety Strategy 7: Support mental health

Heat, smoke and ash cause not only physical stress to the human body, but also incur an emotional toll. Prolonged fear and anxiety are common responses to wildfires. Unfortunately, rural isolation and loss

of familiar routines during a natural disaster can compound stress. The Methow Valley lacks a robust mental health system, and people are reluctant to access the available limited resources.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Create spaces and programs for people to come and de-stress during, and in the aftermath of a natural disaster	Education and Operational	Community/County	Near term and On-going
Create a public health campaign to destigmatize mental health, and to normalize the mental health challenges related to natural disasters	Education and Operational	Community/County	Near term and On-going

RESILIENT BUILT ENVIRONMENT STRATEGIES

- ACCESSIBLE TRANSPORTATION
- AFFORDABLE GREEN HOUSING
- INCREASED URBAN TREE CANOPY



Our buildings, transportation, water, and energy infrastructure are highly efficient. Our urban spaces and neighborhoods are livable because they are adapted to a warming climate — securing our comfort, health, and safety.

GOAL 4: A LOW CARBON, EFFICIENT, LIVABLE & AFFORDABLE BUILT ENVIRONMENT

The built environment includes infrastructure and investments that enable a modern world to take part in communication, transportation, electricity, and construction. It includes homes and commercial buildings. Going forward, this infrastructure must be built to withstand future climate conditions and stresses, enabling us to maintain the continuity of modern society. Power outages and road closures as well as loss of cell phone and internet services are both risky and disruptive to daily life.

Making the Methow Valley’s built environment more resilient to the impacts of climate change also reduces the Methow Valley’s greenhouse gas emissions, increases quality of life, and addresses equity issues such as poverty, disparate health impacts, and air pollution. A resilient future features “green infrastructure” in compact, walkable communities. This resilient future includes increased tree cover in urban areas; wildfire safety and preparedness; open spaces and community facilities connected with bike and walking paths; community-wide access to electric vehicle charging stations; and buildings constructed or retrofitted for energy and water efficiency in ways that are appropriate for hotter summers, heavier/wetter snow, and more intense precipitation.

Creating a built environment that enables a resilient future involves designing and implementing strategies and actions that address affordability, access, and equity and include funding and regulations. The strategies and actions presented below are closely

Green infrastructure refers to elements of our built environment that provide ecosystem services or mitigate impacts of development, including climate change. Based on a philosophy of “building with nature”, the EPA defines green infrastructure as: *the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspiration stormwater and reduce flows to sewer systems or to surface waters.* Investment in green infrastructure can enhance livability and combat cumulative environmental impacts of development, including climate impacts and mitigation. Examples are bio-swale infiltration basins for stormwater, limiting pervious surfaces, trees, vegetated corridors, green-roofs and mulching and rain-water harvesting.

related to those in the Built Environment section of Chapter 5.

Infrastructure Strategy 1: Invest in comprehensive transportation solutions

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Coordinate the work of agencies to co-locate transportation and other utilities: <ul style="list-style-type: none"> • Buried electricity and communication lines • Address transportation runoff with low-impact stormwater facilities that protect surface and ground water quality 	Policy; Operational	Community	Near-term
Prioritize infrastructure for non-motorized transportation: <ul style="list-style-type: none"> • Bike trails; bike parking spaces • Pedestrian facilities • Neighborhood connections/trails and paths • Recreation access placed with an emphasis on equity for a wide variety of populations in the Valley. 	Policy; Planning; Investment; Regulations	Community; Individual	Near-term
Create and implement incentives for using public transit: <ul style="list-style-type: none"> • Employer incentives • Shuttle services for recreational use • Event shuttles 	Policy; Operational; Behavior change	Community; Individual	Near-term
Create and implement a rideshare program	Planning; Behavioral change; Operational	Individual	Near-term

Infrastructure Strategy 2: Enable affordable, low-carbon housing

Housing insecurity results when wages and the cost of housing are not well balanced. Housing insecurity reduces the ability of a community to adequately prepare for, respond to, and recover from natural disasters. It is a key barrier to community resiliency.

The Carlton Complex Long-Term Recovery Plan identified the lack of affordable housing as the highest obstacle to recovery, leading to the creation of the Methow Housing Trust. Homeownership in the valley is increasingly unattainable to many residents due to: loss of housing stock due to wildfires;

growing income and socio-economic disparity, and an increased housing shortage due to homes being used for short-term vacation rentals or part-time homes. These factors also contribute to a severe shortage of affordable rental housing for full-time residents.

Given this situation, the Action Plan prioritizes housing diversity that includes a variety of housing types to meet changing needs and demographics thereby strengthening our resilience as a community. Additionally, housing must match local needs for

employment to avoid “a carbon commute”, where workers in the community cannot afford to live here, but need to commute for work.

helps reduce GHG emissions. Additionally, minimizing development in lands prone to flooding or in landscapes with high wildfire risks helps to improve resiliency.

Incorporating green building principles in new construction, and when retrofitting existing structures,

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Support the Methow Housing Trust and recommendations from the Methow Housing Solutions Network	Investment	Individual; Community	Ongoing
Evaluate zoning to determine feasible locations to increase density	Planning	Community	Near-term
Enact policies to further restrict floodplain development	Policy	County; State	Long-term
Adopt building and subdivision standards that address and mitigate WUI hazards	Policy	Community; County	Near-term
Adopt “green” building standards	Policy	Community; County	Ongoing
Use locally sourced materials where feasible and affordable	Operational; Educate	Community	Ongoing

Infrastructure Strategy 3: Increase tree canopy for shade & cooling in urban areas while designing for wildfire risk

Trees, when appropriately placed and maintained in private landscapes, public spaces, and streetscapes are an important green infrastructure strategy, mitigating many of the impacts predicted from climate change. Increased heat, storm intensity, storm water runoff, and air pollution are all lessened by trees in the built environment.

While dense urban forest canopies can create a natural tension with wildfire risk in dry climates like the Methow Valley, when carefully designed and located, urban trees need not endanger local communities.

A strong urban tree program provides maintenance and education for property owners and municipalities.

Outside incorporated towns, Firewise community certification and fire-adaptive strategies can enable rural and ex-urban residents to enjoy a vibrant and safe tree canopy. Furthermore, trees are important for carbon sequestration.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Adopt/update community tree plans	Planning; Investment; Education; Stewardship; Operating practices	Community; individual	Near-term
Seek grants and incentives for planting and street tree watering; ensure all neighborhoods have access to the tree program	Planning; Operating practices	Community	Near-term
Support ongoing Firewise Community Efforts	Investment	Community	Ongoing

A THRIVING PLACE-BASED ECONOMY PRIORITIZING EQUITY

DIVERSIFY OUR LOCAL ECONOMY

ADVANCE UNIVERSAL,
AFFORDABLE BROADBAND

ADAPT & DEVELOP RECREATION

PROVIDE EDUCATION



GOAL 5: A THRIVING PLACE-BASED ECONOMY PRIORITIZING EQUITY

The Methow Valley economy is in transition. For the past two decades, a successful tourist economy, government jobs, small businesses and services, and artists have been displacing the traditional natural resource-based economy of the 20th century. However, a shift to a remote work force is now underway, impacting the economy yet again. The tourism economy is closely tied to second home ownership and amenity migration. An influx of remote workers drawn to the valley’s recreation, open space, and quality of life is fueling a wage disparity as these workers typically draw higher salaries than the local workforce, creating a housing and cost of living affordability gap. The Methow Valley is just beginning to see the full impact of this movement exacerbated by the COVID-19 pandemic.

Unpredictable events, costs associated with adaptation, changes in weather patterns affecting recreation, and wildfires caused by the changing climate is likely to further stress the Methow’s economy and the livelihood of its residents. The Methow Valley’s most vulnerable residents will likely experience a disproportionate share of these impacts on their livelihoods and wellbeing because many can least afford the costs associated with dislocation and adaptation.

A resilient community supports a diversified economy, is less reliant on tourism and supports more year-round living-wage jobs. Four strategies are designed

to enable the Methow Valley’s economy to become more resilient and equitable in the face of climate change.

Economy Strategy 1: Diversify our local economy

Diversity is a key characteristic of resilient systems. Emerging opportunities around principles of a circular economy (see Figure 8) at different scales offer potential sustainable economic models for the Methow Valley.²⁴ Adopting alternative forms of commerce such as barter, skill sharing, and equipment libraries can help create opportunity,

An equitable place-based economy, balanced between human needs and local ecology.

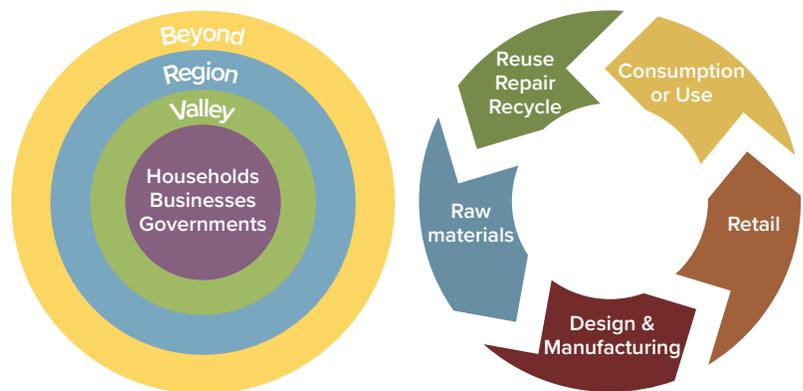


Figure 8. A circular economy occurs at different scales, and incorporates all phases of a product.

24 A circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems. For more see the EllenMacArthurFoundation.org/circular-economy/what-is-the-circular-economy

and improve livelihoods and well being for residents marginalized by low wages and unable to access goods and services through the traditional monetary system. Development of a local currency through digital platforms, such as Venmo, offers a way to

value local trade for goods and services outside of the traditional economy. Furthermore, re-imagining how to utilize our natural resource base — from new agricultural models to forest products — holds the potential for alternative livelihoods.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Expand the local investment network	Invest; Educate	Community	Ongoing
Shop local	Behavior change	Individual	Ongoing
Establish carbon-friendly businesses like biochar	Advocate; Planning	Community; Individual	Ongoing
Encourage collective ownership or libraries for crafts, tools, equipment	Planning; Behavior change	Community; Individual	Ongoing
Organize events (e.g. bartering events to share and trade skills)	Planning	Community	Long-term
Expand remote learning/education	Investment	Community	Long-term

Economy Strategy 2: Advance universal, affordable broadband

Access to high-speed internet is lacking throughout much of the Methow Valley²⁵. Broadband has become a necessity for modern economic life. It is essential for individuals and businesses to communicate and compete — including in the arenas of education, telemedicine, telework, and shopping. Broadband also enables resiliency by allowing for improved electrical grid management, increased controls in response to the threat of wildfires, and more options for emergency communications.

Investment and innovative financing are needed to enable universal access along with policy changes to allow entities such as public utilities to offer broadband services and provide support for those with limited incomes who need internet access.

For more detail on recommended actions to enable universal broadband see the Built Environment Strategy 3 in chapter 5.

Economy Strategy 3: Adapt recreation facilities and develop new facilities that promotes community connectivity

Recognizing that recreation — in all its forms — supports a livable, vibrant, and healthy Methow community, it is critical that we plan for and encourage development that connects communities

via bicycle and walking trails, thereby promoting recreation close to home and ensuring equitable access for local residents.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Site new recreational trails and developments closer to towns, neighborhoods, and population bases.	Planning	Community	Near-term

²⁵ *Methow Valley Community Broadband Report, 2021*

When creating new recreation trails, utilize existing unimproved trails, irrigation ditches, firebreaks and fire roads rather than building trails in undeveloped areas.	Planning	Community	Near-term
Invest in walking & biking trails within and between communities and popular destinations (e.g., safe routes to schools)	Planning	Community	Ongoing
Design public transit routes and destinations to accommodate local access to recreation	Planning; Advocate	Community	Near-term
Build an indoor recreation facility that serves all ages, especially youth/teens	Planning; investment	Community	Longer-term

Economy Strategy 4: Provide education to businesses, households, and organizations on climate-friendly economic vision, values, and practices

Many opportunities exist for business, households, and organizations to reduce their emissions and increase resiliency. Providing access to information and resources for such endeavors is a priority. For example, establishing a climate-friendly business

endorsement program for businesses, whereby they can learn best practices and be endorsed as climate friendly, will likely lead to reduced emissions, more resilient sustainable practices, and attract climate-conscious buyers.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Produce a brochure and website for climate-friendly business practices	Investment	Community	Near-term
Create and implement a local climate-friendly business endorsement program	Investment	Community	Near-term

RESILIENT AGRICULTURE STRATEGIES

CULTIVATE PUBLIC APPRECIATION FOR ALL WORKING AGRICULTURE

GROW THE FINANCIAL SUSTAINABILITY OF FARMS

EXPAND TECHNICAL ASSISTANCE AND CONSERVATION RESOURCES

SEEK WAYS TO INCREASE FARMING FOR CARBON SEQUESTRATION AND STORAGE



Photo by Alex Farrell

A vibrant future for agriculture — diverse, with healthy soils, resilient practices, and strong local support & investment in farmers and ranchers.

GOAL 6: A THRIVING FUTURE FOR AGRICULTURE

Agriculture in the Methow Valley has a rich past and potential for a vibrant future. Today there are thriving family farms raising livestock, fruit, vegetables, grain, and hay. These farms and ranches offer a number of benefits to the community, including healthy food, open spaces, jobs, and a variety of ecosystem services. As a community that values all of these benefits, we need to act to ensure the resiliency of local agriculture.

The effects of climate change are experienced differently for each type of farm. Many are already planning and preparing to adapt to these changes. Farms are on the front line of climate change, and need help from the community in shouldering these adaptation costs.

Another characteristic of Methow Valley farmers and ranchers is their dedication to stewarding the soils, waters, and habitats of this valley. Many of our local farmers have been working for years to be part of a solution to the climate crisis: building healthy soils and putting carbon back into the soil; using water wisely; protecting biodiversity and habitat for wildlife; and looking for ways to reduce on-farm emissions. Farms could do more with community support behind them, and access to more resources and tools.

Four strategies will enable this community support and provide the resources essential to increase resiliency in the agricultural sector.

Agriculture Strategy 1: Cultivate Public Appreciation for All Working Agriculture

Farms are a defining characteristic of the Methow Valley landscape and community. As a community, we can increase our collective understanding and

appreciation for the vibrant, diverse, working agriculture around us. We can learn to be good listeners and advocates for our varied agriculturalists.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Cultivate curiosity for the diversity of types and scales of farming and ranching operations	Education	Local	Near-term
Share information about the good work local farms are already doing to offer solutions to the climate crisis.	Education	Local	Near-term

Agriculture Strategy 2: Grow the Financial Sustainability of Farms

Successful agriculture requires ongoing innovation and investment in infrastructure, equipment, land, crops, livestock, and labor. This has always been true and is even more essential in the face of climate change. Farmers look for better ways to farm, including improving their products; increasing efficiency; boosting the bottom line; and enhancing stewardship.

Thriftiness is often a defining characteristic of agriculturalists. In the best of times, the risk of failure is ever-present, so farmers are often cautious, strategic, and incremental with their investments. Most farmers are wary of taking on too much debt;

instead, they make small improvements as they can afford to. However, as the climate changes, demands for innovating and pivoting may outpace farmers' tolerance for risk and debt. As a community that values working agriculture, we can look for ways to share the burden with farms on the front lines of climate change. Creating grant funding that helps farms adapt to the impacts of climate change would build resilience into our local agricultural system. Helping expand market opportunities for local farms is another supportive option. Compensating farmers for stewardship practices that build soil carbon is yet another possible way to bolster farmers' financial security.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Create an adaptation grant fund, helping farms build resiliency by enabling their purchase of: <ul style="list-style-type: none"> • Improved seed, perennial or breeding stock • Shade and wind protection • Hail and insect barriers • Additional soil amendments • Emergency feed • Irrigation improvements • Emergency power systems • Equipment upgrades • Infrastructure improvements 	Investment; Program	Local; County	Near to long term
Study ways to expand market opportunities for local farm products	Investment; Education	Local	Near-term
Study feasibility of Methow-based, carbon offset program to compensate farms for stewardship practices	Investment	Local; State	Near-term

Agriculture Strategy 3: Expand and increase access to existing technical assistance and conservation programs

Farmers are constantly learning and adapting. Farmers are generally eager to learn about good land stewardship practices. In the same way they need access to improved tools for working the land, they also need tools to expand their knowledge base. Resources already exist at the county, state,

and national level but all could use more funding. Opportunities also exist at the local level to increase our local farmers' access to existing learning opportunities.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Create a local educational fund to provide farmers access to free soil testing, carbon planning software or services, webinars/ trainings; seek grant funding	Investment; Program	Local	Near-term; ongoing
Fund extra capacity to assist farmers with applications to grants or conservation programs; seek grant funding	Investment; Program	Local	Ongoing
Advocate for full funding of the Sustainable Farms and Field program	Policy	State	Ongoing
Lobby for increased staff and funding for Natural Resource Conservation Services (NRCS), as well as expanding eligible practices to include measuring and building soil carbon; engage with the federal farm bill (every 4 years)	Policy	National (Senators and Representatives)	Ongoing
Lobby to fully fund and staff the Okanogan County Extension office, including livestock extension agent Engage county commissioners and Washington State University system	Policy	County; State	Ongoing

Agriculture Strategy 4: Expand and Increase opportunities for Carbon Storage on Agricultural Lands

Irrigated lands in the Methow Valley are invaluable as a means to address climate change. Their ability to sequester and store carbon is limited only by the growing season and soil management techniques. An opportunity exists for increased carbon capture and storage in these soils. Collaboration among growers is currently underway to understand how carbon

farming can benefit their operations and the climate. Options for innovation include paying farmers to harvest carbon from the air, and producing biochar, a form of charcoal that sequesters carbon, from locally sourced small-diameter trees. This biochar can be used as a soil amendment on local farms to benefit crop production.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Support the Methow Conservancy’s existing “Carbon Farming Learning Group”; seek grant funding	Investment; Program	Local	Near-term; ongoing
Research the feasibility of a carbon farming market (i.e., restore abandoned farmlands to carbon banks, biochar pilot project)	Investment	Local	Long-term





STRATEGIES & ACTIONS FOR A CARBON NEUTRAL METHOW VALLEY

Strategies and Actions for a Carbon Neutral Methow Valley

Climate change mitigation is achieved by limiting or preventing greenhouse gas emissions and by enhancing activities that remove these gases from the atmosphere.

– IPCC Working Group III, 2016

THIS CHAPTER presents strategies and actions designed to achieve the Action Plan’s vision of a carbon neutral Methow by reducing, and ultimately eliminating, virtually all GHG emissions. Referred to as mitigation, these activities are essential to achieving science-based emission limits globally and at the community level to avoid the worst case impacts of human-caused climate change.

Methow Valley residents, businesses, organizations, and visitors can reduce GHG emissions at the local level through individual actions and at the community level through investment in infrastructure, policies, and programs that incorporate carbon reduction and/or carbon capture practices. Choices about how we get around, how much and what we consume, what type of energy we use, the size of the houses we build, and the types of appliances we purchase all can contribute to limiting GHG emissions.

Lowering waste streams through sharing, reusing, and recycling of consumer items also decreases GHG emissions.

Achieving carbon neutrality will, however, take more than just individual or community actions. It requires systemic changes on a national and global scale driven by policy action, cultural and behavioral shifts, technology innovation, and market incentives to reduce carbon emissions. The Methow Valley community can use its collective voice to advocate for policies that bring about these changes and ultimately benefit communities locally.

Climate change mitigation strategies outlined in this chapter include reducing greenhouse gas emissions and increasing sequestration and carbon capture. See Figure 9 for a simple depiction of climate change mitigation.

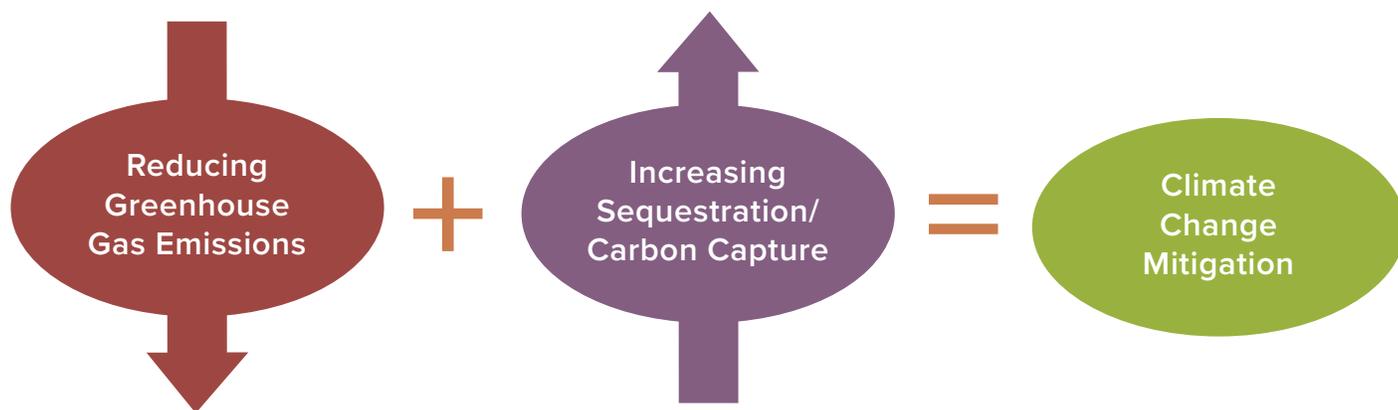
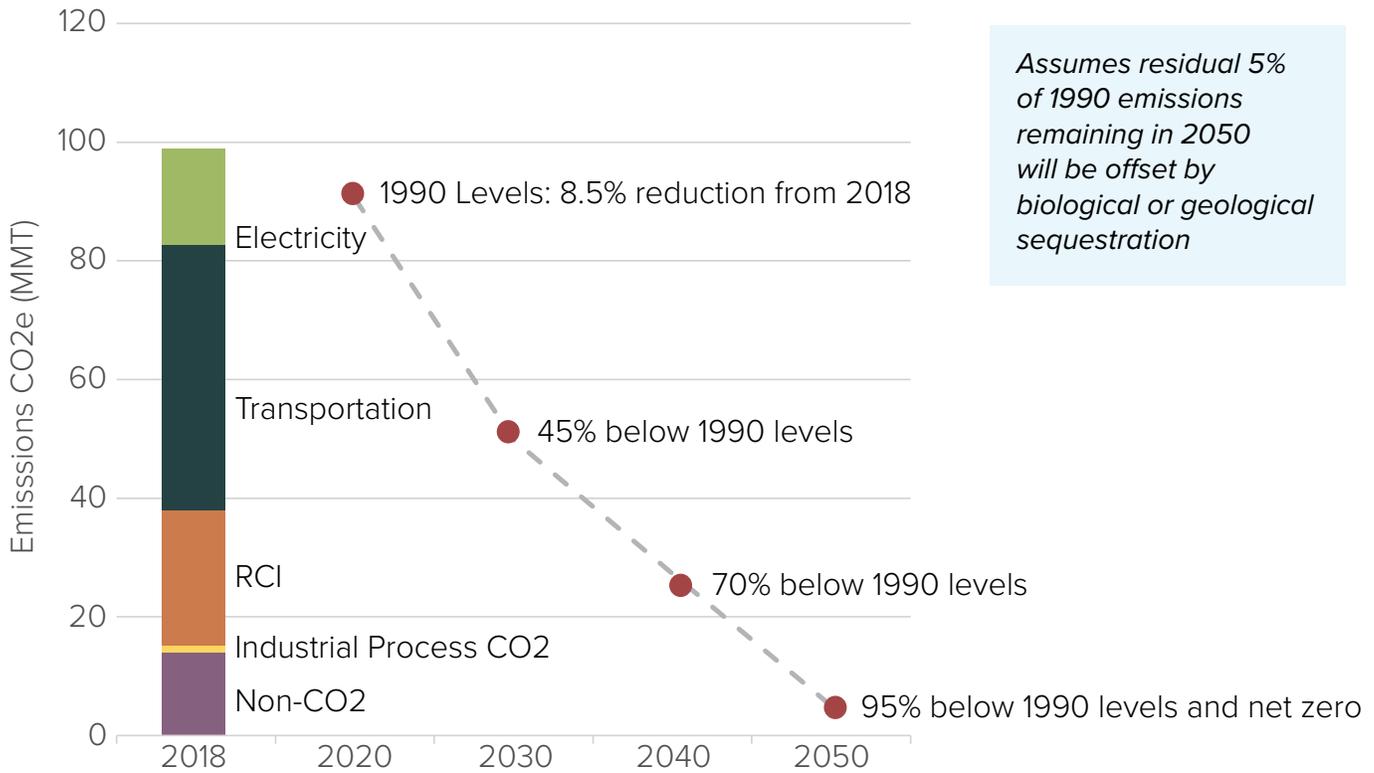


Figure 9. Actions required to mitigate climate change

Washington Greenhouse Gas Emissions Targets



Source: Washington State Energy Strategy Decarbonization Modeling Final Report; Washington Department of Commerce

Figure 10. Washington State Emission Reduction Targets

GOAL 7: A CARBON NEUTRAL METHOW VALLEY

Recommended strategies and actions to reduce emissions in transportation, the built environment, and through changing consumption and waste practices are presented below, with a focus on local and community-based initiatives. Strategies to reduce and/or sequester emissions in natural systems and in the agricultural sector are also discussed as are opportunities for state and national advocacy. Taken together the strategies and actions will contribute to realizing Washington State emissions limits of reaching net zero emissions by 2050 with a 45% reduction from 1990 levels by 2030 as shown in Figure 10.

The goal of becoming a carbon neutral community is large and reaches across all aspects of community

life in the Methow. In order to create strategies to achieve the goal of carbon neutrality in so many sectors, secondary goals were identified in these areas:

- Transportation
- Natural systems
- Built environment and infrastructure
- Consumption and Waste

Each of these secondary goals has a set of strategies to help the community develop actions to achieve the goal of carbon neutrality.

We meet state and science-based limits through systematically reducing our use of fossil fuel and improving the health of our landscapes to maximize carbon sequestration.

TRANSPORTATION

ACCELERATE THE SHIFT TO ELECTRIC VEHICLES

EXPAND THE REACH AND EFFECTIVENESS OF TRANGO

EXPLORE RIDESHARE OPTIONS AND PROGRAMS

DEVELOP ACTIVE TRANSPORTATION OPTIONS AND INFRASTRUCTURE, CONNECTING NEIGHBORHOODS AND COMMUNITIES



GOAL 7A: TRANSPORTATION

Electrify vehicles and reduce miles traveled by increasing public transport, rideshare, biking, and walking

Transportation-related CO₂ emissions make up an estimated 92% of the Methow Valley's human-caused greenhouse gas emissions²⁶. Most of these emissions come from single occupancy (SOVs) vehicles owned by full-time residents and businesses, though part-time residents, tourists, and commercial

vehicles also contribute to these totals. To reduce GHG emissions from vehicles, two options exist:

1. Accelerate the shift to electric vehicles.
2. Reduce vehicle miles traveled (VMTs) by driving less and using public or active transportation.

Transportation Strategy 1: Accelerate the shift to electric vehicles

Electric vehicles (EVs) are expected to be competitive in cost and performance with internal combustion engines (ICE) within several years, providing the opportunity for the Methow Valley to drastically reduce GHG emissions by shifting from gasoline to electric-powered vehicles. EVs use energy much more efficiently than ICE vehicles²⁷, which reduces carbon emissions. As more electric cars and trucks are produced at varying price points the demand for EVs is expected to grow rapidly.

Washington State, in its 2021 State Energy Strategy, emphasizes policies and investments to enable this shift - with 2035 as a potential target date to end sales of light duty ICE cars and trucks.²⁸

The Methow Valley can support the transition to EVs by planning for and investing in the needed infrastructure. Updates to the electrical grid and changes to how we bill for electricity may be required to meet increased demand and manage loads at peak times. These changes will require leadership

26 Note: While this plan is focused on CO₂ emissions, internal combustion engine vehicles also emit hydrocarbons, nitrogen oxides (NO_x), carbon monoxide (CO), aromatics, sulfur dioxide, and particulate matter. These all have adverse health and environmental impacts and are regulated by USEPA and other entities.

27 EPRI Consumer Guide to Electric Vehicles, April 2020

28 <https://www.commerce.wa.gov/wp-content/uploads/2020/11/WA-2021-State-Energy-Strategy-FIRST-DRAFT-2.pdf>

from the Okanogan County Electrical Co-Operative (OCEC) and the Okanogan PUD. These utilities, along with employers, local businesses, and governments, can collaborate to educate drivers about EVs and promote their adoption through incentive programs and rewards.

To achieve equity, it will be essential to make electric — and other types of low-emission vehicles — accessible and affordable to all households, regardless of income. This could be achieved through initiatives such as providing low-interest loans, rebates, and subsidies for purchase of new or used EVs and hybrids for income-qualified buyers.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Seek funding for, and install, level-3 charging stations in multiple locations in the Methow Valley, including Winthrop and Twisp. Coordinate with regional entities and other communities to establish EV charging stations across the Cascade Loop to enable safe and reliable electric vehicle travel across the Cascades	Investment	Community; State	Near-term
Coordinate with the PUD and OCEC to engage them in planning for EVs	Planning	Community	Near-term
Provide education and marketing about the choices and benefits of electric vehicles. Once available, continue to provide education and marketing to increase EV adoption	Education	Community	Near & longer term
Make investments and changes in grid infrastructure and electricity rates to enable full vehicle electrification.	Investment	Community	Longer-term
Develop and implement programs that enable access to EVs and hybrids for all Methow Valley households	Program	Community	Near & Longer-term
Advocate for infrastructure and policies to support EV transition (e.g., Low Carbon Fuel Standard, charging infrastructure funding)	Policy; Investment	State; Federal	Near-term

Transportation Strategy 2: Expand the Reach and Effectiveness of TranGO

TranGO, the regional public transportation system funded by a local sales tax, offers public transit up and down the Methow Valley, but the service is limited and underutilized. Expanding service and encouraging TranGO usage among residents could

meaningfully reduce emissions and encourage a cultural shift away from reliance on single occupancy vehicles (SOV) for transportation.

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METHOW VALLEY CLIMATE ACTION PLAN

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Engage TranGO operators to explore options to revise and expand routes and service levels	Operating practices	Community	Near-term
Explore the feasibility of expanding the use of van pools for commuting, recreation, and large events	Operating practices	Community	Near-term
Implement changes and expansion of existing TranGo service. Advocate for additional funding as needed	Operating practices; Investment	Community	Near-term
Increase marketing of TranGO to attract more riders	Education	Community	Longer-term
Explore ways to increase revenues for the TranGO system (e.g., through advertising on TranGO vans)	Operating practices	Community	Longer-term
Provide employer-based vouchers and incentives to increase ridership	Operating practices; investment	Community	Longer-term
Advocate for/secure funding to ensure sustainability	Investment	Community, State	Longer-term

Transportation Strategy 3: Explore rideshare options and programs

Rideshare programs provide transportation options when public transport is not viable and can help reduce emissions by decreasing the per capita miles

driven of SOVs. Phone apps, in particular, offer the potential for rideshare to be more accessible, logistically feasible, and safer than in the past.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Explore the feasibility of creating a Methow Valley Rideshare program, using app technology and other methods. Assess whether such a program is better as a private venture or public/private partnership. Seek partners.	Operating practices; Program	Community	Near-term
If feasible, implement a rideshare program, post COVID-19 restrictions.	Operating practices; Behavior change	Community	Longer-term

Transportation Strategy 4: develop active transportation options and infrastructure, connecting neighborhoods and communities

The Methow Valley has a world-class recreational trail system but lacks a well-connected non-motorized network of trails, bike lanes, and pedestrian corridors to connect our towns and neighborhoods safely and efficiently. Human-powered active

transportation — walking and bicycling — improves active lifestyles and health with few emissions. Investing in infrastructure that promotes more active, human-powered transportation will both improve health outcomes and lower GHG emissions.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Develop and seek funding for a community trail system that connects towns and neighborhoods and connects to existing recreational trails networks, eliminating the need to drive to trailheads; ensure trails have access for a variety of abilities and modes of transport	Investment	Community; State	Near-term
Once funding is secured, build out the community trail system	Investment	Community; State	Long-term
Create a master bicycle plan for the Methow Valley, determining where and how to establish safe bike lanes with the WSDOT and County	Program	Community; County; State	Near-term
Improve bike lanes on heavily traveled roads	Investment	Community; State	Long-term
Advocate for comprehensive transportation planning & infrastructure development	Planning; Investment	Community; State; County	Near-term

NATURAL SYSTEMS

STEWARDSHIP OF NATURAL SYSTEMS FOR NET CARBON SEQUESTRATION

SUPPORT FARMERS & ADVANCE CARBON FARMING, & SOIL SEQUESTRATION



GOAL 7B: NATURAL SYSTEMS

Sequester carbon through careful stewardship, land use, and agriculture

The Methow Valley’s landscapes function as both a carbon sink (storage facility) through carbon capture from plants, and a source of emissions through wildfires, decomposition, and land conversion. Careful stewardship of soils, forests, and grasslands

can increase carbon sequestration rates and storage to create a net gain of carbon, alleviating the climate crisis by becoming “net negative” — absorbing and storing more greenhouse gas emissions than we generate.

Natural Systems Strategy 1: Stewardship of natural systems for net carbon sequestration

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Advance/accelerate forest treatments that improve forest health, increase carbon sequestration over the long term and reduce the potential for emissions from catastrophic wildfires	Policy; Operating practices; Investment	Community; State; Federal	Near-term
Conduct an in-depth baseline study of landscape-based emissions & sequestration: agriculture, grasslands, forests	Planning	Community	Near-term
Preserve upland & grassland habitats and other lands that can serve as natural carbon sinks. Utilize land use planning, conservation easements & incentives for good management practice; ensure all parts of valley have access to these programs regardless of income levels or neighborhood	Stewardship	Community; State; Federal	Longer-term
Advocate for sustainable funding for forest health treatments	Policy	State; Federal	Near-term

Natural Systems Strategy 2: Support farmers & advance carbon farming, & soil sequestration

The agricultural sector is already experiencing the impacts of climate change. Many farmers are already adjusting farming practices to include methods that sequester carbon in soils and protect soil health (e.g.,

cover crops, rotations, locking in the soil with perennial covers, rotations with livestock). With additional resources and support from the community, farms can play a larger part of the climate solution.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Support increased funding for long-established programs that support farms in implementing conservation practices to increase soil health and carbon sequestration	Investment; Program; Operating practices	Community; State; Federal	Near-term
Assess the feasibility of a Methow Valley-based carbon farming/offset program to compensate farmers for stewardship of healthy soils & other carbon sequestration practices. If feasible, seek funding & launch program	Program; Investment	Community	Near-term
Support/secure funding for the Carbon Farming Learning Group, to provide education resources such as soil testing, planning software, trainings, and field trips	Program; Investment	Community	Near-term
Support the biochar initiative through the pilot phase. Further assess the potential for biochar based on the outcomes of the pilot	Program	Community	Near & longer-term
Protect additional agricultural lands and permanently protect soils with conservation easements	Program; Investment	Community; State	Longer-term
Preserve Methow Valley lands that act as natural carbon sink	Stewardship	Community; State; Federal	Longer-term

ZERO-ENERGY BUILDING

A zero-energy building (ZE), also known as a zero net energy (ZNE) building, net-zero energy building (NZEB), net zero building is a building with zero net energy consumption, meaning the total amount of energy used by the building on an annual basis is equal to the amount of renewable energy created on the site, or in other definitions by renewable energy sources offsite, using technology such as heat pumps, high efficiency windows and insulation, and solar panels. The goal is that these buildings contribute less overall greenhouse gas to the

atmosphere during operations than similar non-ZNE buildings. They do, at times, consume non-renewable energy and produce greenhouse gases, but at other times reduce energy consumption and greenhouse gas production elsewhere by the same amount. Zero-energy buildings are not only driven by a want to have less of an impact on the environment, but they are also driven by money. Tax breaks as well as savings on energy costs make Zero-energy buildings financially viable.

BUILT ENVIRONMENT & INFRASTRUCTURE

INCREASE EFFORTS TO CONSERVE AND USE ENERGY EFFICIENTLY

INCREASE THE USE OF SOLAR AND OTHER DISTRIBUTED ENERGY RESOURCES; MAKE THE ELECTRICITY GRID SMARTER, MORE FLEXIBLE, AND RESILIENT

SUPPORT UNIVERSAL ACCESS TO HIGH-SPEED BROADBAND

REDUCE EMISSIONS FROM CONSTRUCTION

REDUCE EMISSIONS OVER TIME BY CONCENTRATING DEVELOPMENT IN POPULATION CENTERS



GOAL 7C: BUILT ENVIRONMENT & INFRASTRUCTURE

Focus on energy conservation, efficiency, & distributed energy sources, prioritizing equity-oriented solutions

Greenhouse gas (GHG) emissions in buildings and infrastructure are generated by electricity and fossil fuels used for heating and cooling, lighting, cooking, appliances, construction, irrigation, and industrial activities. Emissions are also embedded in the materials used in buildings, roads, and other infrastructure. Finally, emissions are generated by construction practices and associated construction and demolition waste.

Electricity used in the Methow Valley is primarily produced by hydropower — a mostly carbon-free source. Only 3–5% of the power used in the Methow Valley comes from coal and gas.²⁹ This means that GHG emissions associated with electric heating, cooling, and cooking are low relative to other communities whose utilities rely much more heavily on fossil fuel generation. Importantly, under Washington State law, coal will no longer be allowed as a source of electricity generation, and by 2030 electricity sold in this state must be carbon neutral. As this happens, the Methow Valley’s

electricity related GHG emissions will be eliminated accordingly.

Conservation and energy efficiency remain essential to meeting emission limits, since the electricity saved can be used to power electric vehicles and buildings over the longer term. Conservation and energy efficiency are also important in buildings heated with propane or fuel oil, where the combustion of those fuels is estimated to generate several thousand tons of CO₂ annually in the Methow. An aspirational long-term goal for buildings is to be zero net energy consumption as described in the Zero-Energy Building box (opposite page).

Built environment strategies and actions focus on ways to conserve and use energy more efficiently, to increase the use of renewables, to prepare the electricity grid for increased electrification, and to reduce emissions by changing construction practices and concentrating future growth in urban centers. The Action Plan prioritizes meeting the needs of

29 Hammerschlag LLC. (2019). “Methow Valley Greenhouse Gas Inventory Data Period January 1, 2019–December 31, 2019” Prepared under contract for Methow Valley Citizens Council.

households whose energy bills are high relative to their income is prioritized. Financial and technical assistance should be focused on those most in

need, while providing education and options for all building owners.

Built Environment Strategy 1: Increase efforts to conserve and use energy efficiently

Emissions associated with fossil-sourced energy used for heating, cooling, lighting, and irrigation can be reduced through conservation and efficiency practices. These actions can also make energy and home

comfort more affordable to all households, especially those with a high energy burden (those who spend a large percentage of their income on energy bills).

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Increase weatherization and energy assistance programs for low-income families. Advocate for increased state and federal funding and seek grants for the Methow Valley	Program; Investment	Community; State	Near-term
Create a volunteer program to help with efficiency assessments and upgrades modeled after the Methow at Home program. Prioritize support for high energy burdened households. Close the gap between people’s goals/ interests, knowledge and ability to implement needed upgrades	Program; Operating practices	Community	Near-term
Include information on energy efficiency in the Climate Friendly/ Resilient Methow educational materials. Potential topic areas include zero net energy homes, energy efficient electric appliances (e.g., heat pumps, water heaters, induction stoves), and LED lighting; ensure outreach is designed for residents of all income levels	Education; Operating practices	Community	Near-term
Promote/educate about using electricity instead of propane for home heating, water heating, and cooking	Education	Community	Longer-term
Engage with PUD, OCEC, and propane providers to determine how existing conservation programs could be expanded.	Program	Community	Longer-term

Built Environment Strategy 2: Increase the use of solar and other distributed energy resources; make the electricity grid smarter, more flexible, and resilient

Rooftop solar power generation, along with storage capability and the ability to manage loads on the grid, increases resiliency. These technologies also make it

possible to add new electricity loads from EVs and building electrification without having to make costly upgrades to transmission and distribution systems.

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RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Support and promote existing efforts such as the website Methow Solar, a resource for community members who want to add solar power generation capabilities	Education; Program	Community	Near-term
Work with the PUD and OCEC to increase support for solar power generation and establish systems that enable utilities to directly control, and shift loads to reduce costs and increase system efficiency	Program; Operating practices; Investment	Community	Near-term
Support community solar energy programs designed to benefit low-income, energy-burdened households	Program	Community; State	Ongoing

Built Environment Strategy 3: Support universal access to high-speed broadband

Broadband enables people to reduce vehicle miles traveled through telework, telemedicine, and online education. Local, state, and federal level efforts are being considered to provide universal access to high-speed broadband, including the advocacy needed to advance these solutions. Universal broadband

provides multiple benefits associated with reducing GHG emissions enabling the two-way communication between energy consuming devices and utilities that is needed for remote load management and increased efficiency.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Advocate for statewide policy and funding to enable equitable universal broadband access, with a focus on the needs of underserved, low-income populations in rural areas	Policy	State	Near-term

Built Environment Strategy 4: Reduce emissions from construction

The building sector is a major economic engine for the Methow Valley and a substantial contributor to consumption and waste-related emissions. Changes in building and construction practices can reduce

GHG emissions in both the short-term (e.g., through producing less construction waste) and the long-term (e.g., building smaller, highly energy efficient houses).

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Convene the building industry and key stakeholders (e.g., builders, suppliers, architects, planners) to explore ways to change building practices and encourage the building of smaller footprint homes that maximize the use of locally produced and environmentally friendly materials.	Planning; Program; Policy	Community	Near-term

Include information on best practices for builders in the climate friendly handbook.	Education	Community	Near-term
Support efforts to establish viable recycling, chipping, and composting services to reduce construction and demolition debris that goes to the landfill as waste. These practices can also increase the beneficial reuse of construction by-products and reduce the need to burn woody debris piles thereby lessening harmful smoke.	Operating Practices	Community	Long-term
Advocate for revisions to building codes that improve energy efficiency and increase resiliency, including adopting a locally appropriate version of the International Wildland-Urban Interface Code, requiring fire resistance materials, include rebate or incentive program for lower income households	Policy	Community; State	Long-term
Consider developing a local green buildings standard	Policy, Program	Community, County	Long-term

Built Environment Strategy 5: Reduce emissions over time by concentrating development in population centers

This effort corresponds with others to increase resiliency, active mobility, and reduce GHG emissions.

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Support and increase efforts to upgrade infrastructure in towns — water, sewer, electricity, and roads — with the goal of encouraging population density and growth in urban areas, thereby reducing emissions.	Investment	Community	Ongoing
Emphasize/prioritize density in urban areas through land use planning and zoning	Policy; Planning	Community	Ongoing

CONSUMPTION & WASTE

CONSUMPTION STRATEGY:
CONSUMPTION AND
WASTE ACTION PLAN



GOAL 7D: CONSUMPTION & WASTE

Strengthen Conservation Ethic, and Promote a Sharing and Reuse Economy

With consumption-based emissions potentially adding over 50% to the Methow Valley’s carbon footprint³⁰, fully embracing a conservation ethic — with a focus on reducing consumption and waste — represents one of the most economical and practical means to reduce GHG emissions. Adopting a place-based conservation ethic involves reducing one’s ecological footprint to maintain the health and well-being of the natural world and includes material conservation, important to protect the natural world.³¹ An ethic where we focus on reducing how much we consume and throw away serves to lower GHG emissions. Over time, this can lead to a cultural shift by moving us away from a disposable oriented

lifestyle to one that emphasizes reusing, sharing, and giving items away before recycling and disposal.

The Methow Valley community has demonstrated a conservation ethic by high participation rates in recycling programs and programs like the Methow Recycles’ Repair Café. Building on these practices, we can expand reuse and sharing practices, creating a “sharing economy” that popularizes these activities and benefits all segments of the community.

Consumption and waste actions recommended below focus on education and engagement in the near term, and developing new services and the conservation ethic over the long term.

Consumption Strategy 1: Education & outreach

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Publish climate-friendly education and outreach materials	Education	Community	Near-term
Celebrate examples of people and businesses engaged in low-carbon, resilient practices	Education	Community	Near-term

30 Hammerschlag LLC. (2019). “Methow Valley Greenhouse Gas Inventory Data Period January 1, 2019- December 31, 2019”

31 Conservation ethic | Psychology Wiki | Fandom (wikia.org)

Promote existing Methow Valley reuse and recycling activities	Education	Community	Near-term
Create a template and how-to guide for organizing and hosting zero waste events in the valley, such as at the Winthrop Barn or at Twisp Town Park.	Education	Community	Longer-term
Advocate for “right to repair” legislation at the state and federal levels.	Policy	State; Federal	Longer-term

Consumption Strategy 2: Expanding the circular economy and related services

RECOMMENDED ACTION	TYPE OF ACTION	SCALE	TIME FRAME
Support creation of an appliance-repair vocational program	Program	Community	Near-term
Engage with the County Public Works Department to increase waste prevention, recycling, and reuse education and outreach	Education; Program	Community	Near-term
Create/establish a composting facility to process woody debris, yard, and food waste, reducing disposal quantities and landfill methane emissions.	Investment	Community	Longer-term
Identify gaps in current reuse and repair opportunities — specifically for appliances, electronics, and tools. If feasible, create repair cafes and clinics, creating vocational job opportunities.	Program	Community	Longer-term
Explore and develop options to establish a strong reuse & repair business sector in the valley	Program	Community	Longer-term
Advocate for reconfiguration of the Twisp transfer station to provide simpler reuse and recycling drop-off opportunities	Operating practices	Community	Longer-term

EVALUATING PROGRESS TOWARD A CARBON NEUTRAL METHOW VALLEY

Implementing these strategies and actions will enable the Methow Valley to do its part to help meet statewide carbon reduction targets. Tracking progress and evaluating the efficacy of actions taken will be critical to ensuring the Methow’s actions are appropriately targeted and implemented. In lieu of regularly conducting an expensive emissions

inventory study, the community can track individual progress and:

- Define, and periodically measure and report, on a set of key indicators of behaviors and actions that result in GHG emissions reductions. See graphic below for potential key indicators.
- Invite residents, businesses, farmers, and institutions to commit to taking action, reporting on the

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actions taken, and sharing their experiences and lessons learned. This could include asking individuals to pledge to make behavior changes to reduce emissions, and would be followed by periodic community surveys to document progress.

- Disseminate a standard carbon footprint calculator tool to enable community members to consistently measure and report on their emissions. Use smartphone apps and other technology to facilitate tracking and reporting.
- Ensure equity continues to be a central component of the climate action work by measuring

progress on elements of equity identified in this Plan or as part of implementation. This evaluation effort will create an inclusive means to involve and engage with people directly affected by the changing climate. Past meetings and events have included free food and childcare, future events could offer the same or more/different ways to ease the burden of attending for community members.

- Aggregate available data and produce a progress report every 2–3 years.

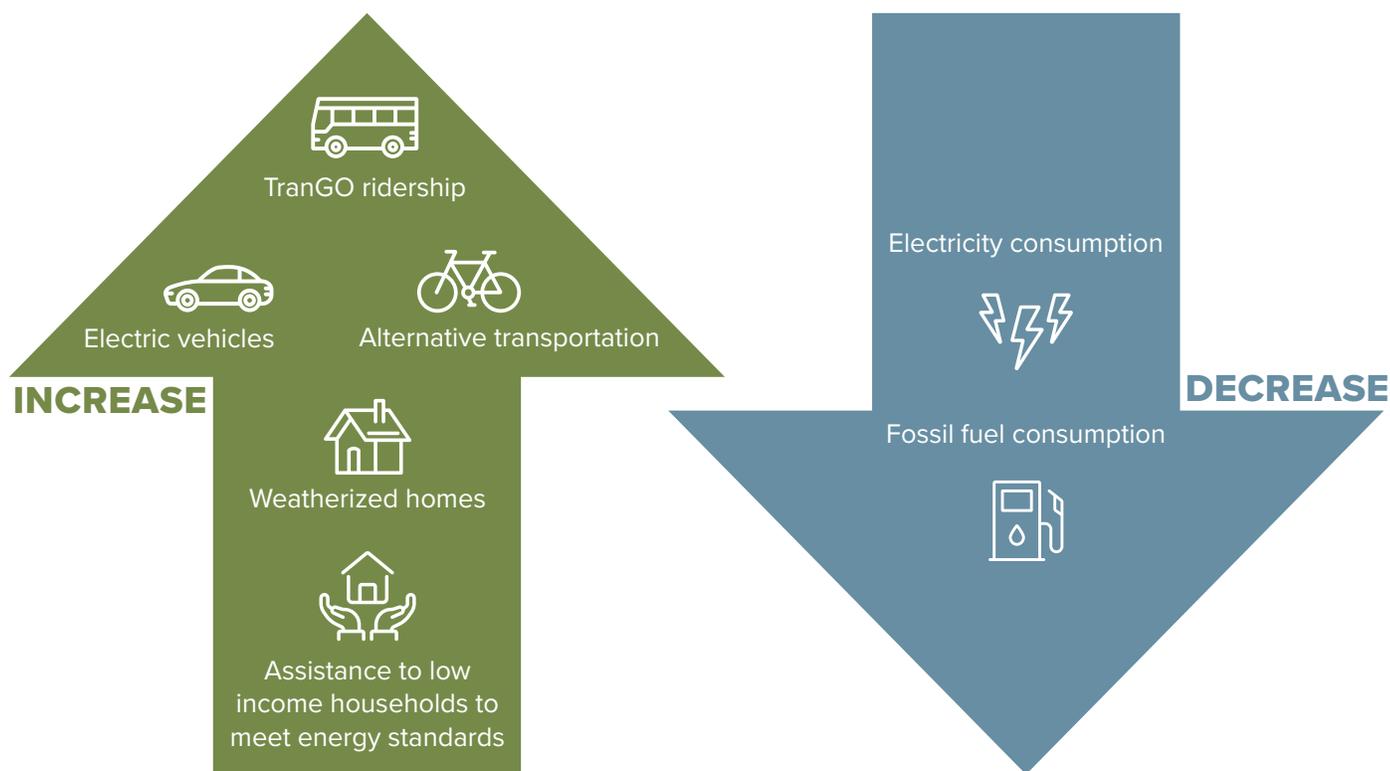


Figure 11. How we can evaluate our progress toward carbon neutrality.





PATH TO IMPLEMENTATION

Path to Implementation

THIS CHAPTER highlights the approach developed to implement the Plan under the guidance of Resilient Methow, a community initiative. This section includes: an overview of the work of Resilient Methow; the emerging Climate Action Implementation Hub; the work of Action Partners (see below); tools for action planning; networking

and sharing; the Resilient Methow website; and information about further collaboration efforts throughout the implementation process. This Plan has been community-driven, and implementing these actions to mitigate and adapt to the effects of climate change will also take a community-wide approach.

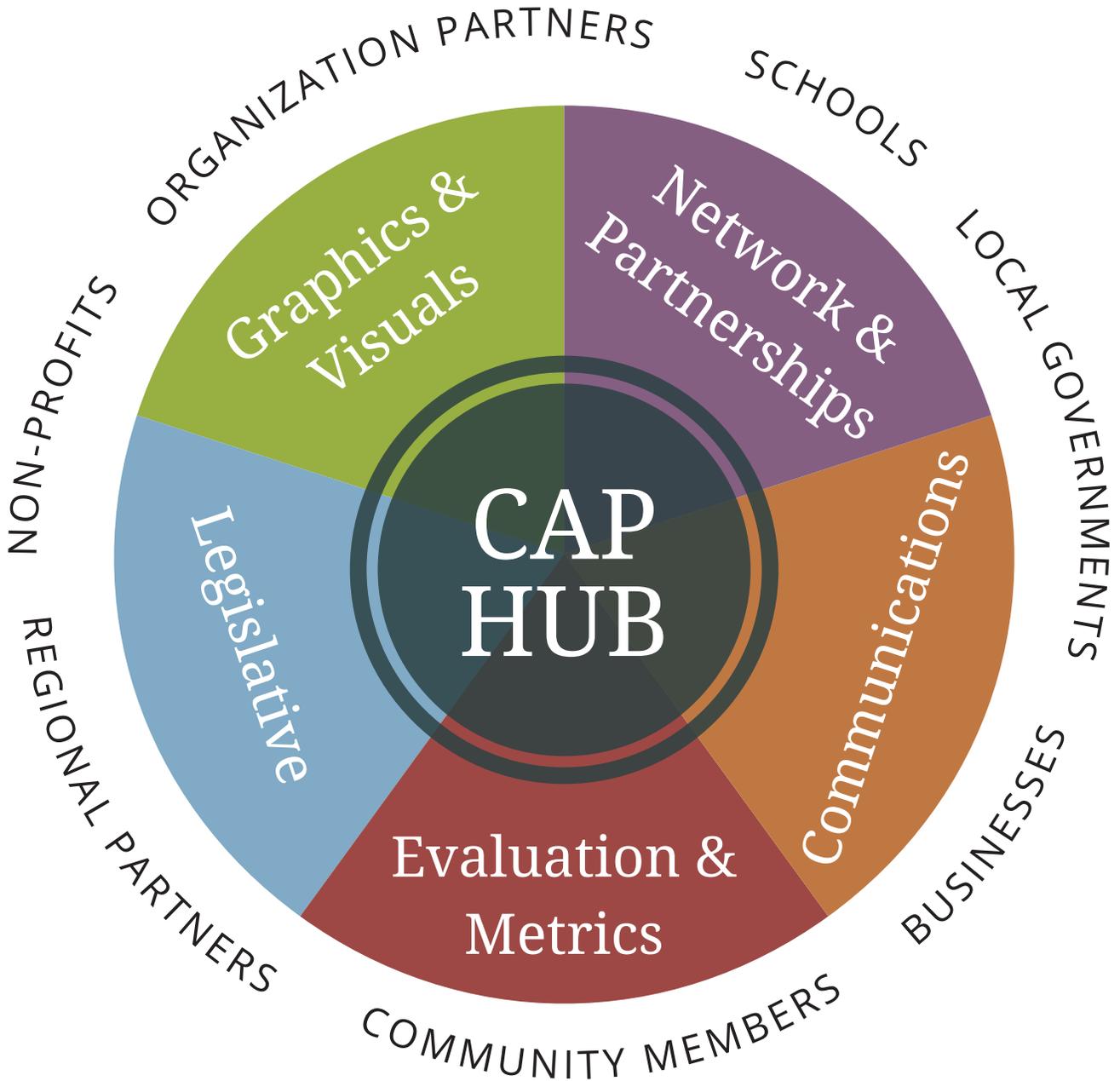


Figure 12. The Climate Action Plan Implementation Hub model

RESILIENT METHOW

Resilient Methow formed to provide leadership and support for climate action implementation. Resilient Methow will guide and coordinate the work of Action Partners and community partners via the Climate Action Implementation Hub, and lead outreach about the Plan and prioritized actions. Additionally, extensive stakeholder engagement and collaboration will be sought to broaden the network, ensure the actions are inclusive of a variety of perspectives, and expand the impact of the work. Throughout implementation, Resilient Methow will support Action Partners by providing action planning tools, including a network and website to share information while inspiring a broader sense of momentum, pride, and sustained engagement in the Methow community at large. This work also involves collaboration with tribes and regional entities, advocacy, and equity to ensure the actions continue to prioritize community members expected to experience the impacts of climate change the most.

Climate Action Implementation Hub

The Resilient Methow Climate Action Implementation Hub is a volunteer group working to support the successful implementation of the Methow Climate Action Plan. The Hub includes members from the Task Force, Planning Team, and Mitigation Group, as well as engaged systems and planning professionals. The Climate Action Implementation Hub has established five focus areas; work has already begun in several of the focus areas because some of the Action Partners are engaged in implementation. For example, the Legislation and Advocacy focus area was very active during the Spring 2021 Washington State Legislative session, and there is an Electric Vehicle (EV) workgroup currently researching and pursuing grant funding and strategies for extending EV use in the Methow.

The Climate Action Implementation Hub has five focus areas:

1. Public Communication.
2. Legislation and Advocacy.
3. Networking and Partnerships.
4. Graphics and Visual Communication Tools.
5. Evaluation & Metrics.

Implementing the actions will take committed and coordinated effort from local and state governments and agencies, organizations, businesses, individuals, and partners across the county and state. In addition to building partnerships with these organizations and groups, the Climate Action Implementation Hub will have an ongoing need for committed and

engaged group members to quickly and efficiently transform the stated actions into functional programs, policies, and outreach opportunities, creating momentum and achieving initial outcomes.

Action Partners

Action Partners are community groups, organizations, businesses, governments, and other stakeholders taking the lead on implementing priority recommendations. The Partners' core work is twofold: 1) find and engage in work on an action in the Plan; 2) support community relationships and efforts by coordinating and collaborating with organizations, businesses, and governments on action items relevant to the Action Partner's organization. These partnerships are being formed with a combination of Task Force, community members, and organizational partners. Some partnerships are being formed by organizations whose missions or program areas align with the recommended actions, while others are being convened voluntarily by community members. Action Partners are currently engaged in the following initiatives: transportation; education materials; carbon sequestration; local food systems; zero waste; water; and a farm resiliency fund. Other areas with emerging community interest include: health and smoke-readiness, energy, forest health, and policy.

Tools for Action Planning

The Climate Action Implementation Hub is creating tools such as document templates for establishing team charters, setting meeting agendas, and planning to assist Action Partners in accomplishing the strategies in this plan. The templates provide a framework for identifying goals, resources, establishing timelines, and describing metrics. The Climate Action Implementation Hub will offer a workshop for each group on how to use the common tools, establish metrics, and communicate needs and progress moving forward.

Networking and Sharing

The implementation framework is intended to provide a means for Action Partners to network and stay connected, provide updates, share resources, opportunities, educational materials, success, and invite participation in the project actions. A few examples include quarterly action group networking meetings; and an easy-to-access, up-to-date resources page on the Resilient Methow website. Options for networking will become clear as more Action Partners are



Methow Valley Youth Climate Ambassadors meet with District 12 State Senator Brad Hawkins

engaged, and as COVID has a diminishing effect on the ability to gather and meet in person.

Resilient Methow Website

Resilientmethow.org is the information platform for the Action Plan and its implementation. Updates from the Climate Action Implementation Hub, Action Partners, and partners will be posted to the site as well as new information, resources, and progress reports. The website has a calendar of events with upcoming forums and opportunities for engagement. This site also invites visitors to donate to Resilient Methow.

Tribal Collaboration

As implementation of the Methow Valley Climate Action Plan moves forward, partnership with the Confederated Colville Tribes, Yakama Nation and other tribal agencies and organizations is critical. The Confederated Colville Tribes and Yakama Nation have existing climate plans. Resilient Methow will provide regular briefings to the Colville Business Council, Yakama Nation Tribal Council and include lead staff from relevant tribal agencies in the planning and implementation of various projects, especially those that align with tribal interests.

Additionally, implementation of the Methow Valley Climate Plan will seek to align and support existing and future efforts from the tribes to address climate change within their reserves, trust lands, agencies, and traditional territories, including the Methow Valley.

Regional Collaboration

Regional collaboration offers the potential for accessing increased support from the State in addition to the benefits of sharing resources, knowledge, and strategies. Technical assistance, networking support, and guidance has been invaluable via the ongoing

partnership with the Environmental Protection Agency, Federal Emergency Management Agency, and the Federal Reserve Bank of San Francisco, and separately from the Washington State Governor's Office, and the Washington State Department of Commerce. Resilient Methow will continue to cultivate these relationships and partnerships in addition to continuing efforts to collaborate with other communities implementing climate action plans.

Youth Involvement

Youth involvement at the local, regional, and state level is critical to maintain momentum in climate actions. Local youth are already involved many organizations and efforts to advance climate actions. For example, in March of 2019, a delegation of Methow Valley youth lobbied the Washington State Legislature to act on climate change. The youth prepared testimony in response to legislation being considered and listened to house and senate deliberations. Similarly, the Methow Valley Citizen's Council maintains a youth board member to capture the important voices of the next generation and hosts a high school internship for the leadership of the Liberty Bell Youth Climate Group, which continues to meet weekly and lobbied actively during the 2021 legislative session for the passage of climate-related legislation.

Action Partners and organizations working in climate actions can host youth interns and hire youth employees to help sustain enthusiasm and interest in climate change. These positions can provide youth with opportunities to apply their knowledge and skills to make a difference in their community.

Western Washington University Project Support

In the summers of 2020 and 2021, the Sustainability Pathways program through Western Washington University placed undergraduate students in paid

internships with local organizations to help advance sustainability initiatives in the Methow Valley as part of a residential Community Learning Lab. In 2020, students worked on Climate Action Plan related projects which included a report on equity in climate action plans, and a proposal for a local carbon sequestration and offset program. In 2021, the program had 17 students working within 14 local organizations, businesses, and governmental offices on a range of climate, sustainability, and equity projects, including supporting implementation of the CAP, working with the Town of Twisp Tree Board, Town of Winthrop in transportation planning, and doing course projects looking at models for community gardens, creating a Youth Community Climate Corps, supporting pollinator research for the Confederated Colville Tribes Environmental Trust's climate plan, and reviewing how the historic climate legislation that passed in Washington State in 2021 intersects with and can support the goals and strategies of the CAP. Many of the students in the 2021 cohort are also completing the newly launched Climate Leadership Certificate at WWU.

Advocacy in the Legislative Arena

In 2021 the Washington State Legislature passed historic legislation to combat climate change, and create

a clear path to environmental justice for citizens across the state. Many Methow Valley citizens lobbied our legislators in support of this legislation. The Methow Valley Citizens Council Action Fund actively supported this legislation by conducting outreach in the Valley, connecting with legislators, and maintaining an active and action-oriented email listserv throughout the legislative session. Additionally, students in the Liberty Bell High School Youth Climate Group participated in many legislative sessions, and were vocal and consistent supporters of the climate bills.

These historic bills will support climate-oriented work in communities like the Methow, and though this is a groundbreaking start, there is more to do in the legislative arena in coming years. The Methow Valley Citizens Council Action Fund and the Liberty Bell High School Youth Climate Group will continue to lobby for and track climate legislation in future sessions, and will work to build community interest and participation moving forward. Citizen engagement will continue to be an important element of the action items outlined in this plan and the Climate Action Hub will continue to work with partners to amplify the voices of Methow citizens supporting climate-focused policies and legislation.





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