

DRAFT Ashland Climate and Energy Action Plan

Cascadia Consulting Group

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Introduction

Home of the Shakespeare festival, Southern Oregon University, and abundant natural beauty and recreation opportunities, the City of Ashland is a great place to live and visit. Climate change threatens the vitality, livelihood, and surrounding environment that make Ashland what it is, with anticipated increases in severe heat, water scarcity, wildfire risk, and storm events. By the 2080s, scientists project that Ashland will experience more than an 80% decrease in winter snowpack, 90 more days of extreme heat annually, and more than an inch more rainfall during heavy storms.

The City of Ashland has a responsibility to address climate change risks, both by reducing Ashland's emissions of climate pollution and preparing the city for unavoidable impacts. Cities around the world are leading in this endeavor, including more than 125 cities and counties in the U.S. who signed the Compact of Mayors agreement to cut greenhouse gas emissions and prepare for climate change. Governments in the Pacific Northwest have led the charge on climate action, including Oregon state, which established a statewide target to reduce emissions by 75% below 1990 levels by 2050. Other Oregon cities that have set greenhouse gas action goals include Eugene, Portland, and Corvallis.

The City of Ashland has already taken important initial steps to address climate change. Achievements include the forward-thinking solar power incentive program, integration of climate change impacts in the Water Master Plan, home energy efficiency incentive programs, and community outreach and awareness events such as Climate Week in 2015. However, more needs to be done. To prevent the worst impacts of climate change, each Ashland resident, along with the rest of America, will have to reduce their personal carbon footprint by 8% per year, equivalent to each person planting 270 tree seedlings every year and letting each seedling grow for at least 10 years!

This foundational Climate and Energy Action Plan (CEAP) provides a strategic framework and long-term vision for reducing greenhouse gas emissions and preparing for climate change in Ashland. It represents the culmination of a year-long process of engagement, input, and review from the public, key community stakeholders, City staff, and a Mayor-appointed ad-hoc committee. These parties voiced their concerns and priorities through online surveys, in-person input at three public open houses, interviews, and facilitated workshops with City staff and committee members. This plan builds on this input and community progress-to-date by presenting a defined and coordinated suite of goals and strategies to guide City and community action.

This plan provides a roadmap for Ashland to sustain economic, social, and environmental prosperity for current and future generations of residents and visitors. **However, it represents just the beginning of an ongoing and evolving process.** Implementation of the actions and attainment of targets set forth in this plan will require a long-term, coordinated, and dedicated effort by the Ashland community and all City departments and staff. With time, as progress is made and actions are underway, this plan and future updates thereof will serve as a foundation for taking meaningful action toward reducing greenhouse gas emissions and building resiliency to climate impacts.

Plan Organization

The plan presents goals, targets, strategies, and potential actions for mitigating and adapting to climate change. It is organized into six focus areas:

- **Buildings and Energy:** energy used in residential, commercial, and industrial buildings, as well as opportunities to reduce energy use, expand renewable energy production, and prepare buildings for climate change.
- **Urban Form, Land Use, and Transportation:** the form and function of land and transportation systems, including ways to reduce GHG emissions through urban planning, design, improved land use practices, and clean and efficient transportation systems.
- **Consumption and Materials Management:** the lifecycle of goods and materials, including opportunities to reduce emissions associated with manufacturing, use, and disposal.
- **Natural Systems:** air, water, and ecosystem health, including opportunities to reduce emissions and prepare for climate change through improved ecosystem and resource management and conservation.
- **Public Health, Safety, and Security:** health and assistance programs for disadvantaged populations, including preparing health, social, and emergency systems for climate change.
- **Cross-Cutting Strategies:** activities that address climate change more generally or across multiple sectors

For each focus area, we tell the story of Ashland’s climate goals, progress to-date, and strategies and actions for achieving those goals. The strategies and actions are presented in order of priority as articulated by the public, City staff, ad-hoc committee, and the practices and plans of other cities and communities. They are organized in the following manner:

- **Strategies** represent a thematic groupings of actions that all work towards a specific goal. Strategies within each focus area are ordered by priority.
- **Priority Actions** are actions within a strategy that were prioritized, or shortlisted, from a broader set of potential actions. These actions underwent a more thorough assessment that evaluated cost, effectiveness, feasibility, and co-benefits. These actions are ordered from highest to lowest priority as identified through the evaluation process.
- **Other Actions** are opportunities that were identified as potential actions, but were not considered high priority through the public and stakeholder engagement process.

Priority Actions are labeled by scope of impact, as follows:

Breadth of Impact	Type of Impact
<p>(M): affects municipal operations and climate goals</p> <p>(C): affects community-wide operations and climate goals</p>	<p>(Mit.): addresses mitigation goals (lowers GHG emissions)</p> <p>(Adapt.): addresses adaptation goals (builds resilience to climate impacts)</p> <p>(Both): addresses both mitigation and adaptation goals</p>

Climate Change and Ashland

Climate Impacts

While the Pacific Northwest is expected to be spared some of the worst impacts of climate change, the Ashland area still faces significant climate-related risks. Increases in average temperature, combined with less consistent precipitation, will increase the frequency and severity of wildfires. More volatile rainfall patterns will also increase the frequency and severity of droughts and flooding. More frequent extreme heat events will pose a danger to vulnerable residents. Snowpack will decrease, putting the City's water resources at risk. Plant and animal species will also be negatively affected.

Regional projections indicate that by the 2080s, Ashland could experience the following climate-driven environmental changes:

- 7-12°F increase in temperature on the hottest day of the year
- 30% increase in probability of large wildfires, and 40% decrease in average time between fires
- 4-6 day increase in length of the longest dry spells
- 71-86% decrease in spring snowpack
- 0.8-1.3" of additional daily rainfall during heavy rains

These figures may seem abstract, but the impacts of climate change will have real, tangible effects on public health and quality of life for Ashland's residents and visitors. In addition to the obvious direct dangers of wildfires, flooding, and extreme weather events exacerbated by climate change—including injury and death, and the destruction of property and livelihoods—there will be a variety of lesser-known negative impacts on Ashland's population. Wildfire smoke, for example, can cause serious health complications, especially for those with asthma or other respiratory conditions. Similarly, more frequent and severe heat waves can be deadly, especially for young children and the elderly. Even more minor changes, such as decreased summer stream flow and reduced snowpack, will have significant quality-of-life impacts on Ashland's residents, many of whom enjoy outdoor recreation and all of whom rely on the water supplied by our local watershed for their livelihoods.

Unfortunately, many of these climate risks will disproportionately impact certain groups. Communities of color, immigrants, and low-income populations have historically been underserved by public programs and investments, resulting in limitations such as fewer transportation options, less resilient housing, and less reliable healthcare options. These structural inequities may limit these populations' ability to respond to the impacts of climate change.

Greenhouse Gas Emissions

In 2015, Ashland's GHG emissions footprint was approximately 300,000 metric tons of carbon dioxide equivalent (MT CO₂e), representing 0.5% of Oregon's total emissions. The vast majority (83%) of Ashland's emissions stem from five main sources:

- **Production of Residential Goods (22%)**, including emissions associated with the manufacture and transport of durable household goods produced outside of Ashland for use by Ashland residents.
- **Residential Travel (17%)**, including direct and upstream emissions associated with passenger cars and trucks used for non-commercial purposes.
- **Production of Residential Food (15%)**, including emissions associated with the production and transport of agricultural products grown outside of Ashland for consumption by Ashland residents.
- **Residential and Commercial Energy Use (13% and 11%, respectively)**, including electricity and stationary combustion (a gas-fired furnace, for example) used in homes and commercial buildings.
- **Upstream Energy Production (9%)**, including the emissions generated by the extraction and production of usable fuel products (e.g., refined gasoline or electricity) used in Ashland.

The good news is that Ashland's per-household GHG emissions have decreased nearly 6% over the past five years. Households in Ashland are ahead of the curve, producing nearly a quarter fewer GHG emissions than the average Oregon household. Nearly all of Ashland's GHG reductions can be attributed to efficiency improvements and resource conservation in the built environment. Together, residential, commercial, and industrial buildings saw their GHG emissions footprint decrease by 21% from 2011–2015.

The following section details some of the trends and policies that have contributed to this reduction, raised awareness of climate change, and contributed to advancing climate action in Ashland.

Building on a Foundation

Ashland has already made notable progress toward reducing both its community emissions and its vulnerability to the potential impacts of climate change. Although perhaps not explicitly developed and employed to address climate change, Ashland has a variety of plans, policies, programs, and studies that are connected to the needs and solutions for addressing climate change issues and challenges. This plan leverages and highlights these existing “levers,” and brings them together to address a common goal.

Plans	Policies	Programs	Studies
<ul style="list-style-type: none"> • Comprehensive Plan • Water Master Plan • Transportation System Plan / Regional transportation model • Economic Development Strategy • Neighborhood Master Plans • Emergency Management Plan • Community Wildfire Preparation Plan • 2016 Ashland Forest Plan • Natural Hazards Mitigation Plan • 10-Year Capital Plan for the Electric Utility • Downtown Strategic Parking Management Plan 	<ul style="list-style-type: none"> • Land use code • Wildland-urban interface (WUI) code and fire code • Energy contract with BPA • Franchise agreement 	<ul style="list-style-type: none"> • Emergency management • CERT • Firewise • Forest Resiliency Project • Water conservation incentive and outreach • Energy efficiency assistance • Solar incentives • RECs • Nature Center education 	<ul style="list-style-type: none"> • City facility efficiency/solar assessment • Solid waste and recycling annual report • Renewable energy assessment • GHG inventory

A Coordinated Effort

Climate change is a cross-cutting issue. Contributions of greenhouse gas emissions stem from activities across sectors and sources, from transportation and energy to buildings and materials management and consumption. Strategies to prepare for climate change also cut across traditional disciplines, ranging from water and natural resource management to public health and safety.

Multi-faceted issues require integrated solutions. Many of the solutions and strategies presented in this plan are not new, and many are already part of existing City plans, programs, and policies that are traditionally focused within individual City departments. This plan brings those solutions together in an integrated and strategic way to address the climate challenge. Implementing this plan will require forging relationships and coordinating across traditional departmental and stakeholder silos to form synergistic, efficient, and effective solutions that stick.

"Combatting climate change is a fundamental responsibility for everyone, everywhere. The *status quo* is clearly unacceptable. For the sake of future generations, making progress, together, as a community, is urgent."

-Rich Rosenthal, Ashland City Councilor

This plan primarily focuses on strategies and actions that Ashland City government can take to help address climate challenges. However, **all parties have a role and must be a part of the solution**, including Ashland residents, businesses, organizations, and government. To address the importance of these diverse roles, this plan also provides suggestions for actions that Ashland residents, visitors, businesses, and organizations can take to play their part in tackling climate change.

[insert diagram or graphic of the focus of the plan (City) and role of others (public, NGOs, businesses)]

Vision for the Future

Vision Statement

Ashland's climate vision for 2050 is to be a resilient community that has zero-net greenhouse gas emissions, embraces equity, protects healthy ecosystems, and creates opportunities for future generations.

Overarching Goals

This Ashland Climate and Energy Action Plan provides a strategic path towards achieving two primary goals:

1. Reduce Ashland's contribution to global carbon pollution by **reducing greenhouse gas emissions** associated with City, resident, commercial, and industrial activities.
2. Prepare the city's communities, systems, and resources for projected **climate change impacts**.

GOAL 1: REDUCE GREENHOUSE GAS EMISSIONS

Cities play an important role in reducing greenhouse gases (GHGs). Over 80 percent of Americans and 50 percent of the world's population live in urban areas. Therefore, the design of cities, including their built environment and transportation systems, strongly influence GHG emissions. Ashland recognizes that it must do its part as a city to minimize its contributions to the global challenge of climate change. While urgent action is needed, many climate actions cannot be completed overnight, so a long-term approach is needed to achieve deep reductions.

To meet this obligation, this Climate and Energy Action presents the following long-term targets for reducing greenhouse gas emissions associated with city and community activities:

- **Reduce Ashland community greenhouse gas emissions by 8 percent on average every year.**
- **For City of Ashland operations:**
 - **Reach carbon neutrality by 2030.**
 - **Reduce fossil fuel consumption by 50 percent by 2030 and 100 percent by 2050.**

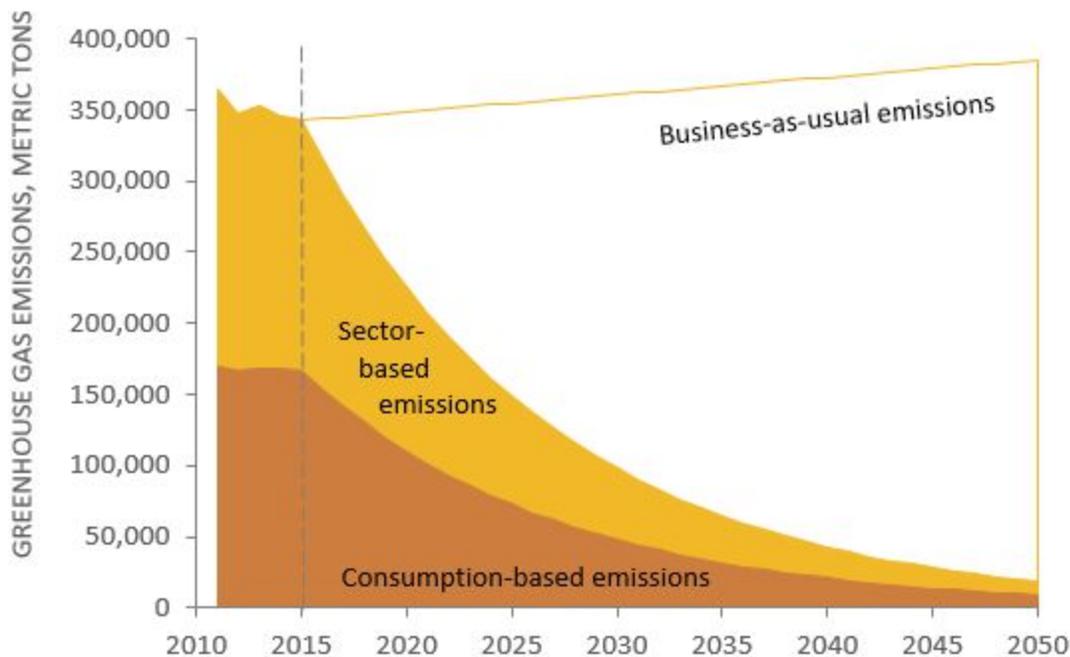
The 8-percent annual reduction target represents emissions reductions that are needed to achieve Ashland's proportional contribution to preventing the worst climate change impacts (see more information in Methodology appendix). Specifically, it identifies how much each person in the world would need to cut emissions each year to result in a scientifically acceptable concentration of carbon in the atmosphere, and then multiplies that amount by Ashland's population.

The strategies and actions presented in this plan provide a strategic starting point and framework for making and assessing progress towards this target over time. This plan does not provide a pathway for achieving this target, as the target represents a degree of action that cannot be accurately modeled using current greenhouse gas accounting methodologies. This means that some real-world reductions in Ashland may not be reflected in near-term GHG

inventories for the city. For example, available tools for evaluating Ashland’s consumption-related emissions do not currently capture changes in Ashland’s consumption behaviors. This plan assumes that methodologies will be refined in the future to enable accurate measurement of emission reductions.

Emissions reductions that can be measured with a degree of certainty were modeled against the proposed higher-level strategies in this plan. The “What’s Possible” section summarizes outcomes for that modeling exercise to reveal how various actions taken by the City and community could result in measurable emissions reductions for Ashland.

Ashland’s targeted GHG emissions - 8% per year reduction in total emissions.



GOAL 2: PREPARE FOR PROJECTED CLIMATE CHANGE IMPACTS

Ashland will feel different impacts of climate change to different degrees and at different times. As climate changes our environment and its systems and resources, Ashland will need to anticipate the change and take action to mitigate or adapt to the impacts.

This goal calls for Ashland to understand and recognize these climate change threats and take actions as necessary to ensure that Ashland can withstand the impacts while sustaining or improving the quality of life of all its citizens.

A Strategic Approach

Ashland is a unique place. **This plan presents a strategy that is customized to these unique characteristics.** Some aspects of Ashland that make it uniquely situated to take on or prioritize particular climate and energy strategies include the following:

- **Utility ownership.** Ashland's electricity utility is municipally owned, which grants the City direct control over utility operations, business decisions, and related program activities.
- **Energy mix.** Ashland purchases energy from BPA, which is largely sourced by low-carbon hydropower.
- **Engaged community.** Ashland citizenry are highly engaged in community issues and activities.
- **Political will.** Ashland's leadership is highly supportive of innovative actions and environmental leadership.
- **History of climate action.** Ashland has a long history of environment and climate-related policies and actions to build upon, including the first community solar project in Oregon and effective energy efficiency programs.
- **Heavy tourism influence.** Ashland's industry is highly tourist-based, which means that a portion of the city's greenhouse gas emissions come from the behavior of visitors, which the City has limited direct influence over.
- **Small city in a rural environment.** Ashland is a small town, which brings both benefits and challenges. Smaller communities have fewer available resources for climate action compared to larger cities, and advocating for changes at the state and national level could be more difficult.
- **Direct influence on water supply.** Ashland has direct ownership and control over its water supply.
- **Progressive state-level activities.** The State of Oregon has introduced ambitious climate policies and regulations, as well as tools and resources for supporting local climate action.

Given these unique characteristics coupled with information on Ashland's greenhouse gas emission sources and anticipated impacts from climate change, the following **overarching strategic initiatives** were identified to guide the strategies and actions presented in this plan. While the strategies and actions in this plan are organized by focus areas such as Buildings and Energy, Transportation and Land Use, and Natural Systems, these initiatives cut across these focus areas to emphasize synergistic and integrated solutions for addressing climate in Ashland.

TRANSITION TO CLEAN ENERGY.

Energy used for buildings and transportation makes up half of Ashland's historic greenhouse gas emissions. Most of these emissions are from the combustion of natural gas by residential and commercial buildings, electricity consumption, and gasoline used to fuel residential on-road travel.

Addressing energy-related emissions requires a combination of reduced and lower-carbon energy use. Ashland's current energy purchases are largely provided by low-carbon hydropower purchased from Bonneville Power Administration (BPA; 81%). Switching existing fuels, like natural gas and gasoline, to cleaner fuels such as low-carbon electricity can lower the

overall emissions profile of current energy use and reduce reliance on foreign fuels. Furthermore, the introduction of new clean energy sources, such as local renewable energy, as well as increased energy efficiency, can help offset the increased electricity loads caused by fuel switching and increased cooling demands anticipated under future climate change. These actions in combination act synergistically to reduce total energy-related emissions.

The following Climate and Energy Action Plan strategies are cornerstones of this clean energy transition:

- Support cleaner energy sources.
- Support more efficient vehicles.
- Improve energy demand management.

Example actions within these strategies include supporting community solar projects, installing smart grid technologies, and introducing actions and initiatives that accelerate fuel switching such as electric vehicle infrastructure requirements and codes.

Ashland’s Clean Energy Future: A Balanced, Cost-Neutral Approach

Transitioning to a clean energy future in Ashland will require a combination of increased fuel switching, clean energy sourcing, and efficiency. Taking this three-pronged approach will allow the electric utility to offset potential revenue losses from efficiency and off-grid electrical consumption with new revenues from switching gas-fueled cars and natural gas-heated homes to electric vehicles and electricity-heated homes. Through this strategy, Ashland will be able to lower its overall energy consumption, costs, and associated emissions.



MAXIMIZE WATER AND ENERGY EFFICIENCY AND REUSE.

The production and use of energy and water resources within the built environment greatly influences Ashland's greenhouse gas emissions and vulnerability to climate impacts. Energy used by buildings contributes almost a third of Ashland's greenhouse gas emissions. Water consumption for residential and commercial buildings and surrounding green spaces put considerable stress on community water resources, which may become scarcer and in higher demand as temperatures increase and summer water availability declines.

Reducing water and energy resource use associated with Ashland's built environment will cut emissions, ease loads on the utility, and help secure resource supply and resiliency in a changing climate. The introduction of cleaner energy sources can reduce energy-related emissions to an extent, but improved energy use efficiency will also be required to achieve deep emission reductions. In general, cutting emissions through energy efficiency improvements can be more cost-effective than adding new renewable energy sources. The following Climate and Energy Action Plan strategies support water and energy efficiency:

- Encourage increased building energy efficiency.
- Adapt buildings to a changing climate.
- Manage and conserve community water resources.

Example actions within these strategies include adjusting land use codes and incentives to support resource-efficient design and water reuse and/or on-site storage systems, sponsoring building energy retrofit programs and water conservation rebate programs, introducing rate-based incentives, and providing educational materials aimed at awareness and behavior change. The introduction of passive and heat-tolerant building principles can also reduce cooling energy needs during heat waves and minimize heat-related public health impacts.

SUPPORT CLIMATE-FRIENDLY LAND USE AND MANAGEMENT.

The use and management of Ashland lands play a significant role in both reducing greenhouse gas emissions and preparing for climate impacts. Development that promotes transit, bicycle, and pedestrian modes of transport reduce emissions from on-road vehicles, which account for the majority of transportation-related emissions. Proper management and conservation of land resources can also provide important ecosystem services like water storage and flow attenuation, shade, and biodiversity that make the city and its resources more resilient to threats posed by climate change.

Strategies in the Climate and Energy Action Plan that support climate-friendly land use and management include the following:

- Make Ashland more bike- and pedestrian-friendly to reduce dependence on vehicles.
- Support better public transit and ridesharing.
- Support more climate-ready development and land use.
- Promote ecosystem resilience.
- Manage ecosystems and landscapes to minimize climate-related health impacts.
- Manage and conserve community water resources.

Actions within these strategies include transit-oriented development and the provision of pedestrian and bicycle infrastructure. Also, improved management and conservation of lands that provide habitat for vulnerable species, enhance tree canopy and green space, use and store water efficiently and effectively, and minimize wildfire damage will help prepare the city for changes in temperatures, water availability, and wildfire risk.

REDUCE CONSUMPTION OF CARBON-INTENSIVE GOODS AND SERVICES.

The production and delivery of goods and services consumed by Ashland households contribute almost half of Ashland's greenhouse gas emissions. These goods and services include food; goods like furniture, home construction materials, electronics, and clothing; and the production of transport fuels, natural gas, and electricity. Certain foods, such as meats, are more carbon-intensive to produce than dairy and grains, and therefore contribute the largest proportion of food-related emissions.

Despite the large contribution of household consumption to Ashland's greenhouse gas footprint, the City of Ashland has little direct control over household purchasing behavior, and therefore City-initiated options to reduce emissions from this source are limited. Strategies in the Climate and Energy Action Plan that contribute towards reducing consumption of carbon-intensive goods and services include the following:

- Reduce consumption.
- Support sustainable and accessible local production and consumption.

Actions within these strategies that promote reduced consumption include facilitating marketplaces for reuse and sharing such as tool-lending libraries and reuse fairs; expanding the construction and demolition debris code to promote material salvage; sustaining local food production such as through farmer's markets and community gardens; and distributing outreach and education materials on the impacts of consumer choices.

INFORM AND WORK WITH RESIDENTS, ORGANIZATIONS, AND GOVERNMENT.

Reducing greenhouse gas emissions and building resilience to climate impacts in Ashland is a communitywide effort. Everyone, including residents, businesses, organizations, institutions, and departments within the City itself, must understand what is needed and work together to take action. This strategy involves the City working closely internally and with the public, local stakeholder groups, and other jurisdictions and agencies to communicate climate priorities, coordinate action, and inspire change. The City must also continue to learn from and listen to these parties to ensure that actions are coordinated, relevant, and effective. This strategy also involves paying particular attention to equity considerations in the context of climate change (see "Climate and Equity" section on page 17). Specific strategies within the Climate and Energy Action Plan that support this education and coordination effort include the following:

- Educate and empower the public.
- Educate and empower City staff.
- Mainstream climate considerations.
- Enhance City communication and coordination to minimize public health impacts.
- Enhance City communication and coordination to minimize public safety impacts.
- Promote a sustainable local economy that minimizes emissions and vulnerability.

- Engage with other governments and organizations around regional, statewide, national, and international climate policy and action.

LEAD BY EXAMPLE.

Although emissions from Ashland City operations make up a relatively small proportion of the community's overall greenhouse gas emissions, City leadership in reducing its own operational emissions can inspire community action, enhance operational efficiencies, and reduce costs. This strategy involves the City taking actions to reduce its own GHG emissions footprint and make City operations more climate resilient, including by training internal staff, optimizing City facilities, and improving equipment and purchasing processes. Strategies in the Climate and Energy Action Plan that support this City leadership include the following:

- Maximize efficiency of City facilities, equipment, and operations.
- Increase the efficiency of City fleet and employee commuting.
- Improve sustainability of City operations and purchases.
- Conserve water use within City operations.
- Optimize city operations/programs to minimize employee health impacts.

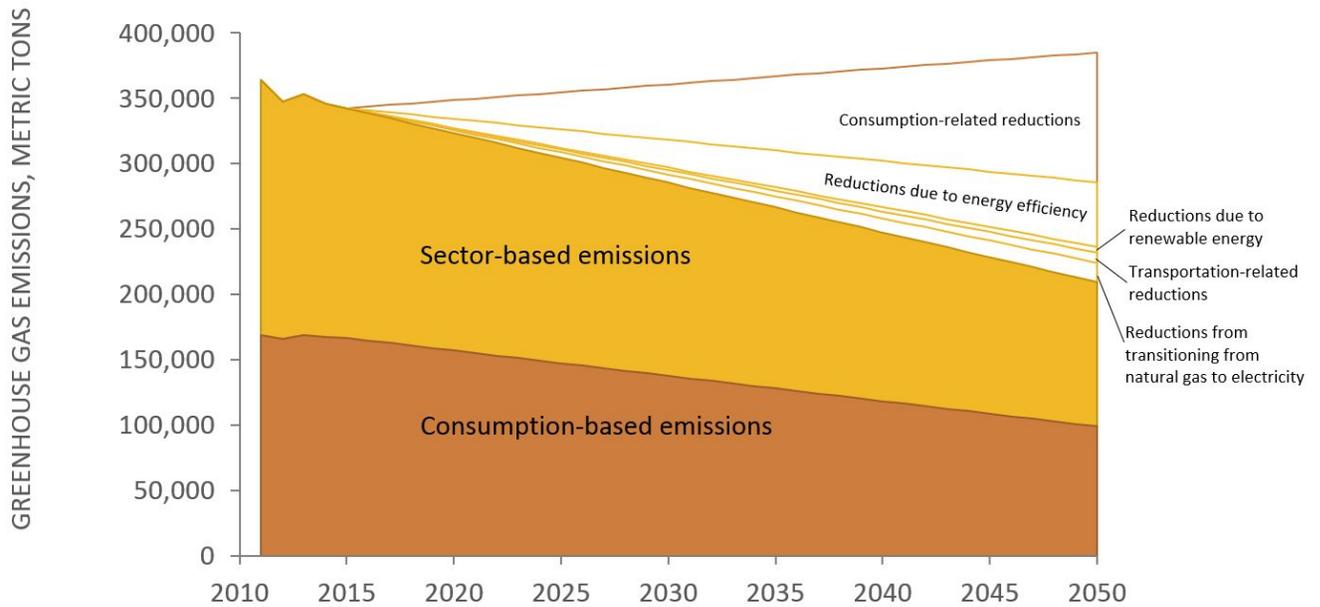
What's Possible

The strategies in this plan will result in tangible emission reduction benefits that significantly reduce Ashland's greenhouse gas footprint. Specifically, if the Ashland community made the achievements listed in the table below by 2050, then the community would be able to reduce its greenhouse gas emissions by an estimated 46% below 2015 levels by 2050--equivalent to each Ashland resident and business reducing their footprint by about 1.4% per year. These achievements were based on assumptions from similar analyses conducted by other municipalities and organizations in the Pacific Northwest.

The progress Ashland makes toward reducing its GHG emissions will also be subject to broader state, regional, national, and international initiatives and policies. The federal Clean Power Plan, for example, if enacted, will reduce the GHG emissions associated with the U.S. energy grid by making power plants operate more cleanly and efficiently and expanding the capacity for zero- and low-emitting power sources. In 2016, the State of Oregon enacted legislation requiring Oregon's major electricity suppliers to obtain 50 percent of their power from renewable sources by 2040. The law also sets a timetable for eliminating coal-fired electric power in the state, and establishes a community solar program for Oregon. These and other anticipated regulations and programs, such as changes to the federal Corporate Average Fuel Economy (CAFE) standards, will further contribute towards Ashland's emissions reduction goals, and were taken into account in this analysis.

We could achieve a 46% reduction in greenhouse gas emissions by 2050 if we...

<p>Building Energy</p> <ul style="list-style-type: none"> ● Reduced energy use by 50% through energy efficiency measures. ● Offset 14% of our grid electricity consumption through distributed renewable energy generation. ● Transitioned 90% of our natural gas used in buildings to electricity. 	<p>Transportation</p> <ul style="list-style-type: none"> ● Shifted 50% of our motorized travel to walking or biking. ● For the remaining motorized travel: <ul style="list-style-type: none"> ○ Shifted 80% of private vehicles to electric vehicles. ○ Shifted 33% of commercial vehicles to electric vehicles. ● Increased the average fuel efficiency of light duty vehicles to 53 miles per gallon.
<p>Consumption</p> <ul style="list-style-type: none"> ● Reduced consumption-related emissions by 50% through activities such as product reuse, reducing meat consumption, or introduction of a carbon tax on products and services. 	



What if...?

A significant driver of Ashland's modeled emissions reductions is the transition of liquid fuels like gasoline and diesel to electricity as more drivers switch to electric vehicles. However, there is some uncertainty around the exact makeup of Ashland's future electricity sources. The model above assumes that 55% of electricity is from zero-emission sources by 2050. However, if Ashland were to have zero-emission electricity by 2050, then the emission reductions would increase from 46% to 54%—equivalent to an average reduction of 1.9%, instead of 1.4%, per Ashland resident per year.

Climate and Equity

Equity is central to addressing climate change.

Many of the countries most responsible for contributing to climate change, such as the United States, will not bear the brunt of global climate change impacts. Countries and communities that were not large historical emitters of greenhouse gases, such as small island nations, Arctic villages, and developing coastal communities, are facing a rapidly changing environment of thawing ice, flooded coasts, and extreme storms. Many of these communities do not have the resources or capabilities to protect, restore, or adapt to these changing conditions. It is the responsibility of the U.S. and its communities, as historical contributors to the problem, to be a committed and proportionate part of the solution. **This plan provides a foundation for ensuring that Ashland contributes in kind to being part of the climate change solution.**

Climate change will also have a disproportionate impact on local populations. In Ashland, the elderly, low-income, and minority populations will be most vulnerable to many changing climate conditions, such as threats from severe heat, wildfire smoke exposure, and flooding. These populations may also suffer from other secondary impacts of climate change, such as risks to seasonal employment and agricultural productivity. **Ashland will need to commit special focus on these at-risk populations to ensure their continued prosperity and quality of life in the face of a changing climate.**

Actions to address these inequities, such as by reducing urban heat islands or providing disaster preparedness assistance to at-risk communities, will pay dividends not just for those populations, but also for the greater Ashland community. When everyone is healthy, employed, and safe, the community enjoys greater economic and social prosperity.

In addition to these larger societal benefits, many strategies and actions in this plan result in other co-benefits, such as enhanced natural aesthetic or quality of life. For example, the introduction energy-saving equipment and behaviors not only address climate goals, but can also lower energy costs for residents and citizens. **This plan prioritizes these “win-win” solutions that benefit both the climate and other facets of the Ashland community.**

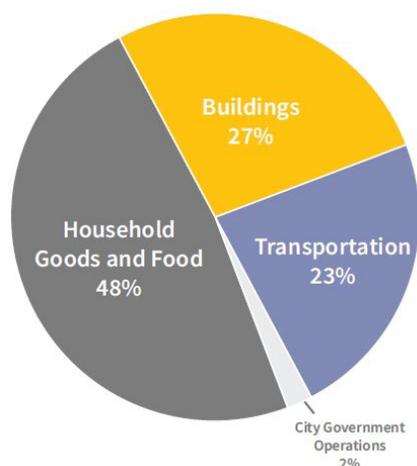
Co-benefits considered in prioritizing the strategies and actions of this plan include the following:

- **Public health.** In some cases, actions that reduce greenhouse gas emissions also promote healthier lifestyles, such as supporting more pedestrian and bicycle travel and eating less carbon-intensive foods.
- **Quality of life.** Many climate actions can also improve quality of life for Ashland citizens, such as the creation of more comfortable and inviting homes through energy efficiency improvements.
- **Recreation and aesthetics.** In addition to enhancing ecosystem resilience, minimizing heat impacts, and storing carbon, actions that improve natural habitat and tree cover can also enhance natural beauty and provide recreational opportunities for visitors and residents.

Buildings and Energy

Why it matters

When many people think of greenhouse gas emissions, they picture cars and trucks, but commercial, residential, and industrial buildings are also some of the largest energy users—and, by extension, responsible for a large proportion of greenhouse gas emissions. In fact, Ashland's built environment accounts for over a quarter of the city's total emissions, more than all types of transportation combined. This represents a significant opportunity to reduce emissions and help Ashland meet its ambitious reduction targets.



On the plus side, because their emissions are primarily due to the energy they use for electricity, heating, and cooling, buildings can reduce their emissions relatively easily by increasing their energy efficiency. Installing efficient lighting, HVAC systems, windows and insulation, and other upgrades can significantly reduce the amount of energy a building requires. Also, because most buildings' energy use is predominantly in the form of electricity, changes in the fuel mix used to generate electricity—for example, by replacing a coal-fired power plant with wind turbines—reduce the GHG

emissions footprints of all buildings that draw electricity from the grid. These factors, among others, contributed to an impressive reduction of 21 percent in the built environment's overall emissions from 2011 to 2015. The impact of energy efficiency improvements is especially pronounced among residential homes, which saw a 9 percent decrease in electricity demand over the same period.

Climate change will have complicated effects on Ashland's built environment. On one hand, warmer winters will mean buildings require less energy to heat; a significant portion of the reduction in energy use seen in the city's buildings from 2011 to 2015 was due to a series of warmer winters, which caused natural gas use to decline. The number of heating degree days—a measure of the number of degrees that a day's average temperature is below 65°F, commonly used to describe heating energy demand in buildings—decreased by 20 percent of this period, contributing to a 13 percent drop in natural gas use. At the same time, however, reduced snowpack due to climate change may affect regional hydropower capacity, and increased temperatures will increase energy demand for cooling during the dry summer months. The projected increase in wildfire frequency and severity may also put transmission lines at risk, making electricity less reliable in the city.

Progress To-Date

Ashland's commercial, residential, and industrial building energy use declined 21 percent from 2011 to 2015. These changes were due largely to increased renewable electricity in the regional grid, decreased electricity use in the residential sector, and reduced natural gas use from warmer winters.

Ashland owns its own electric utility, which means that the City has greater control over its electricity rates and programs than other cities. This arrangement has contributed to the City's great progress in supporting community renewable energy and improving building systems efficiency. The City has implemented three successful programs focused on expanding renewable energy sources and improving the energy efficiency of existing residential, commercial, and government buildings:

- A retro-commissioning incentive program provides financial and technical assistance to tune up energy systems in commercial and residential buildings. This program offers incentives to building owners and occupants to upgrade or replace building systems—lighting, HVAC, heating—with newer and more efficient equipment.
- Solar Pioneer II, a 63.5kW City-sponsored community solar project, gives citizens the opportunity to “adopt” one of its 363 panels as a way to purchase local renewable energy.
- A City Facilities Energy Audit identified energy efficiency opportunities at the City's own facilities.

Solar Pioneer I and II

From 2000 to 2002, Ashland, in collaboration with the Bonneville Environmental Foundation, implemented the Solar Pioneer I project, which involved installing photovoltaic arrays totaling 30 kW at the Civic Center, Oregon Shakespeare Festival, and Southern Oregon University. The project was funded in part by voluntary contributions from over 260 ratepayers, who paid small surcharges on their utility bills to support the project. In addition to bringing renewable energy to the city, the program aimed to familiarize and educate Ashland residents about solar energy.

Building on the success of the first round of the program, in 2007 Ashland launched Solar Pioneer II, which used the same community funding mechanism to finance a 63.4 kW photovoltaic system on the City service center.

Goals and Indicators

Goals:

- Reduce greenhouse gas emissions associated with Ashland's energy use.
- Increase energy and water efficiency in City and private buildings.
- Maximize protection of Ashland's buildings stock and energy supply to future climate impacts.

Indicators:

- Commercial and residential building energy use and associated emissions
- Number of City buildings that use heat-resistant materials, passive buildings, and/or white roofs

Strategies and Actions

CITY-LED ACTIONS

Strategy BE-1. Support cleaner energy sources.

Efforts to support cleaner energy sources will minimize harmful pollution associated with energy use and help meet the additional energy needs as climate change causes temperatures to rise. This strategy deals with enhancing the use of cleaner fuels through fuel switching in residential and commercial buildings and renewable energy production and generation.

Priority Actions

(C) (Mit)	BE-1-1. Develop a comprehensive plan for the Municipal Electric Utility to transition to 100% clean energy, maximize building efficiency, and electrify the transportation and building sectors, including evaluation of rate structures.
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The transition to low-carbon energy will require taking a broad-level approach that transcends traditional utility boundaries. Although some aspects would not lie under the traditional purview of the utility, a comprehensive energy plan for the Municipal Electric Utility that addresses clean energy, energy efficiency, and electrification of the transportation sector will provide a more strategic path forward for maximizing societal benefits and achieving climate goals. This plan would set targets, address issues, and identify potential solutions related to comprehensive energy planning. For example, the plan could delineate energy efficiency program funding levels, goals and targets for installation of solar PV within the City's distribution grid, a long-term strategy for wholesale power acquisition and demand management.

(C) (Both)	BE-1-2. Facilitate and encourage the installation of a large-scale community solar project.
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Local generation of renewable energy can offset emissions associated with energy consumption from the electric grid, and in some cases, may also mitigate climate-related risks to the electricity supply due to changes in precipitation and increased drought risk. It is worth noting, though, that City-sponsored community solar has faced cost challenges in the past, so this action would need to address potential financial hurdles, such as by finding a non-governmental organization or institution to sponsor the project.

(C) (Both)	BE-1-3. Enhance production of on-site solar energy from City facilities.
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Enhancement of solar energy production capacity at City facilities would reduce electricity demand from the grid, set an example for the Ashland community, and provide reliable power for both the City operations and broader community.

Other Actions

- Establish a solar recognition program for neighborhoods that meet a certain percentage of electricity needs through renewable energy.

- Coordinate with Oregon cities to promote and reinforce higher renewable energy standards.
- Develop promotional materials that encourage solar investments.

Strategy BE-2. Encourage increased building energy efficiency.

In addition to changing the energy source, cutting energy use within buildings presents another opportunity to reduce emissions. This strategy presents actions to reduce energy consumption through efficiency improvements in the commercial and residential sectors.

Priority Actions

(C) (Mit)	BE-2-1. Identify and adopt strategies to reduce energy efficiency barriers in rent/lease properties.
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Residents and businesses who own their properties are often more incentivized to invest in energy efficiency technologies and equipment. Although more difficult to motivate, the introduction of energy efficiency approaches in rental and lease properties presents a significant opportunity for reducing emissions from buildings.

(C) (Both)	BE-2-2. Increase outreach efforts to expand participation in energy efficiency programs and promote climate-friendly practices in building and construction such as passive house construction principles.
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Ashland currently provides energy conservation incentives and educational materials to residents and businesses through its electric energy efficiency programs. The program currently provides guidance for conducting home energy audits, as well as incentives for weatherization, improved heating and cooling, and more efficient appliances. Expanded outreach efforts will ensure that all Ashland residents are aware of these valuable programs and understand actions they can take to be more energy efficient in the home.

(C) (Both)	BE-2-3. Require building audits for large buildings to identify cost-effective energy efficiency improvements.
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Energy used in Ashland’s building stock accounts for almost a third of the city’s greenhouse gas emissions. Because it would be difficult to visit every home and business in the city, a good starting point for addressing these emissions through energy audits is at larger buildings that likely contribute a higher proportion of emissions than other buildings. The City could require and facilitate conducting energy audits for the largest buildings. The audits would provide an opportunity to educate property managers about energy use and opportunities, as well as help facilitate implementation of energy-saving measures.

(C) (Both)	BE-2-3. Establish minimum energy efficiency standards for the affordable housing program.
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Ashland’s Affordable Housing Program is an ongoing program that provides incentives to promote affordable housing development and requirements for affordability. The establishment of minimum energy efficiency standards for these housing units present a valuable opportunity to make homes more comfortable and energy efficient for residents, while also lowering energy bills and supporting those most in need.

Other Actions

- Launch a program for providing home energy scores when a house is listed for sale.
- Coordinate with other cities to establish and implement more energy-efficient building code standards.
- Restart the energy and green business challenges.
- Expand partnership with the school district to support energy efficiency programs and solar installation.
- Enhance retailer, contractor, and building professional training and awareness of best practices and rebates.
- Implement a program to pay for actual energy savings instead of up-front payments for modeled savings.

Strategy BE-3. Maximize efficiency of City facilities, equipment & operations.

Although City buildings contribute only a small proportion of the city’s overall emissions, efficiency improvements to City facilities can allow the City to lead by example and communicate to residents that energy efficient buildings can be beautiful, affordable, and comfortable. This strategy aims to reduce emissions associated with the City’s built environment and promote energy conservation.

(M) (Mit)	BE-3-1. Use results from City Facilities Energy Audit to prioritize City Facilities CIPs and maintenance improvements.
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City facilities frequently undergo routine maintenance and improvement projects. This action calls for using an evaluation of City facilities to identify opportunities for energy (and water) efficiency upgrades. The evaluation could be used to integrate more energy efficient practices and equipment into City maintenance schedules and prioritize efficiency upgrades within capital improvement projects (CIPs).

Other Actions

- Continue to monitor and adjust load-shifting measures at the wastewater treatment facility.
- Pursue LEED or ENERGY STAR certification for existing and new City buildings. Adopt the LEED EB rating system or equivalent to guide operation, management, and upgrade of existing building inventory.

Strategy BE-4. Improve demand management.

Managing the timing and intensity of energy demand can help make sure that dirtier energy is not needed during peak times of high demand.

Priority Actions

(C) (Mit)	BE-4-1. Expand the current net meter resolution to include and incorporate virtual net metering.
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Net metering allows customers who generate their own electricity to sell the excess electricity back into the grid. Traditional net metering works at the level of your electricity meter, where excess energy supplied to the grid results in running your meter backwards. Virtual net metering, on the other hand, credits energy generation that occurs at another location against your electricity bill. Working outside the utility meter enables residents to experience the financial benefits of generating renewable energy even if they are unable to generate the electricity on their property. Expanding current net metering will make energy generation more cost effective and available to Ashland's residents, including through mechanisms like community solar.

(C) (Mit)	BE-4-2. Implement utility-level smart grid technologies to facilitate efficiency and distributed energy solutions, such as storage.
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Implementing new energy solutions requires bringing the electricity delivery systems, or the “grid,” into the twenty-first century. Updating the grid involves enabling, automation, remote control, and two-way communication. This allows the grid to handle sources of electricity like wind and solar power and integrate electric vehicles. Smart grids also collect more data that allows residents to better understand their energy use and identify energy saving opportunities. Therefore, implementing smart grid technologies will enable the adoption of clean energy solutions--complementary strategies promoting renewable energy, electric vehicles, and energy efficiency will ensure that the environmental benefits of the smart technologies are realized.

Strategy BE-5. Prepare and adapt buildings for a changing climate.

The City can promote actions that help adapt buildings to withstand climate impacts such as extreme heat and wildfire, as well as protect building dwellers and visitors from those impacts through improved design and functionality.

Priority Actions

(C) (Adapt)	BE-5-1. Encourage heat-tolerant building approaches such as cool roofs and passive cooling.
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Buildings play a role in both withstanding climate change impacts as well as providing infrastructure to protect people from impacts. Buildings will be subject to potential increased flooding, extreme temperatures, and exposure to wildfires, At the same time, buildings can also shelter inhabitants and visitors from many of these impacts. To optimize the built environment to address climate change, the City can encourage heat-tolerant building approaches, such as cool roofs that block heat and passive cooling features such as improved air circulation designs. There are many venues available to encourage the public and developers to adopt these building approaches, including through education and monetary incentive programs.

Other Actions

- Consider future climate conditions when designing or upgrading City buildings and incorporate resilience-building elements such as heat-resistant materials, passive cooling, and white roofs.
- Enhance resiliency of building energy to fluctuations in energy markets and supply.

THE ROLE OF THE COMMUNITY

Here are some actions that everyday Ashland residents and organizations can take to make a difference in addressing climate change within our buildings and energy systems:

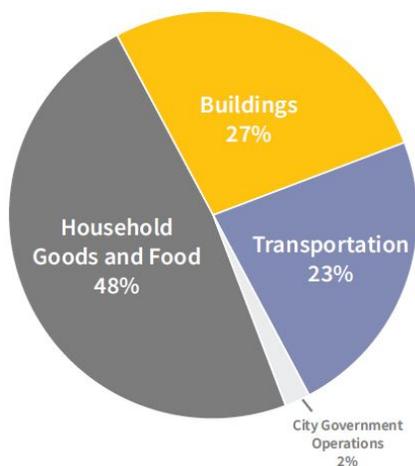
- **Make your home or business energy and water efficient.** Simple switches and improvements can make a big difference for energy and water use. Weatherization, equipment upgrades, and simple behavior changes can also make your space more comfortable and lower utility bills.
- **Explore participation in renewable energy programs.** Community solar programs provide opportunities for residents to participate in renewable energy programs without having to install solar panels on their roofs. There are increasing options for residents to participate in these programs, including the development of a new statewide community solar program that will soon be available to all Oregon residents.
- **Think before you rent or buy.** Consider what size home or business you need, and consider downsizing to avoid having to spend more on energy.

Case Study: Southern Oregon University

Southern Oregon University (SOU) has used its position as one of Ashland's leading institutions to push sustainability programs forward, both on campus and by serving as a hub to connect with and support the community. SOU's ongoing sustainability efforts include implementing energy efficiency and solar power projects, reducing waste, and conducting greenhouse gas inventories to assess its progress in reducing emissions. SOU was one of the first universities in the country to offset 100% of its energy and water use—with on-site renewable energy generation, carbon offset credits, and Water Restoration Certificates—and created a Climate Leadership Awards series to honor SOU's sustainability champions.

Urban Form, Land Use, and Transportation

Why it matters



The movement of goods and services is central to Ashland’s economy and community—and one of the largest GHG-emitting sectors. Emissions from the transportation sector made up nearly one quarter of the city’s total emissions in 2015. Residential on-road vehicle use accounts for nearly three-quarters of the sector’s emissions, followed by residential air travel.

While emissions from buildings have decreased markedly from since 2011, transportation emissions have seen no significant change. This speaks to the challenge of reducing emissions from vehicles, the vast majority of which burn fossil fuels and which, unlike buildings, are extremely difficult to retrofit in ways that improve their efficiency or

reduce emissions. While electric vehicles are becoming more available and affordable, near-term progress on reducing Ashland’s transportation-related emissions can focus on reducing reliance on personal vehicles by improving public transit access and convenience, and by improving the design of streets and public spaces to improve multimodal access. Also worth noting are potential climate-driven impacts on alternative forms of transportation: with increased temperatures and wildfire-induced smoke, biking and walking may become more hazardous and increase reliance on vehicles. Addressing challenges like these will be crucial to improving the resilience and reducing the greenhouse gas emissions footprint of Ashland’s transportation sector.

Climate change will also put Ashland’s infrastructure at greater risk of damage or destruction. More frequent and severe wildfires and floods may threaten roads, bridges, and real estate, and hotter summers may increase the rate of deterioration of some building materials. Culverts and road crossings may not be sized to withstand increased flooding, and roads bordering rivers and streams may be at risk of inundation. The City, its residents, and private property owners will need to work together to reduce the risks that extreme weather events pose to Ashland’s infrastructure.

Progress To-Date

Ashland has made strides in incorporating climate and sustainability priorities into its land-use policies. Many of Ashland’s existing plans and standards address activities that contribute toward emissions from the transportation sector, including the Transportation System Plan, local land use code, and Comprehensive Plan. Some examples of climate-friendly actions and requirements in these plans include the following:

- Street standards and street classifications in the Transportation System plan promote shared streets that incorporate bicycle, pedestrian, and mass transit infrastructure.

- The City’s Comprehensive Plan and street standards highlight connectivity as requirement in new development.
- The City’s land use code has a “Pedestrian Places” component, which encourages the creation of walkable mixed-use areas that “encourage walking, bicycling, and transit use.”

Goals and Indicators

Goals

- Reduce community and City employee vehicle miles traveled.
- Improve vehicle efficiency and expand low-carbon transport, including within the City’s fleet.
- Support local and regional sustainable growth.
- Protect transportation infrastructure for climate impacts.

Indicators

- Passenger vehicle emissions
- Community vehicle miles traveled
- Emissions per mile traveled
- Average city “Walk Score”
- Transit and bicycling ridership

Strategies and Actions

CITY-LED ACTIONS

Strategy ULT-1. Support better public transit and ridesharing.

Rogue Valley Transportation District (RVTD) provides Ashland’s primary public transit service for visitors and residents. The District provides intercity and regional public transit within Jackson County, serving the city of Ashland as well as Talent, Phoenix, and Medford with fixed-route bus and dial-a-ride paratransit service.

Residents have voiced a desire for expanded public transit options, including more frequent and accessible downtown bus service, cleaner public transit vehicles (e.g., electric buses), and other public transit systems such as shuttles or trolleys. These options can reduce per capita emissions associated with residential on-road transportation, as well as reduce congestion, save fuel costs, and provide transportation options for those who cannot afford a personal vehicle.

Priority Actions

(C) (Mit)	ULT-1-1. Coordinate with neighboring local governments to promote use of transit, carpooling, and car sharing.
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Ashland is already a member of the Rogue Valley Transportation District, which provides shared bus service to cities throughout the greater Jackson County area. Using RVTD as a model, the City, together with nearby jurisdictions, can provide additional service offerings, such as

carpooling and car-share programs, that expand transportation options and strengthen important connections to other areas in the Rogue Valley.

(M) (Mit)	ULT-1-2. Work with RVTD to implement climate-friendly transit, including electric or diesel-electric hybrid buses, electronic real-time bus schedule information, and off-board payment options.
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The City and neighboring jurisdictions in the RVTD already have a longstanding and successful partnership that has brought public transit to residents throughout the area. This action calls on Ashland to use its position as a partner in the RVTD to improve the sustainability and accessibility of its services by upgrading the fleet and updating its schedule and payment methods.

(C) (Mit)	ULT-1-3. Establish policies to support development near transit hubs without displacing disadvantaged populations.
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Transit-oriented development (TOD) is a popular tool for reducing car use by increasing housing density within walking distance of transit hubs. Creating a TOD zoning overlay or similar policy could reduce car use, but Ashland will need to design any policy carefully to avoid unintended consequences, such as gentrification that displaces vulnerable populations.

(M) (Mit)	ULT-1-4. Evaluate feasibility of City-owned and operated transit, such as a trolley or electric bus.
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Rogue Valley Transportation District currently offers the only bus service in Ashland, and service and routes are limited. This action calls on the City to evaluate the possibility of developing its own intra-city service to augment RVTD service and provide more public transit options to residents. This assessment would involve determining demand, identifying possible routes, and estimating costs associated with purchasing and operating a transit fleet.

Other Actions

- Provide additional park-and-ride lots to promote public transit and reduce downtown congestion.

Strategy ULT-2. Make Ashland more bike- and pedestrian-friendly.

On-road transportation generates nearly one-fifth of Ashland’s total emissions. It is difficult to substantially improve the efficiency of existing cars and trucks, so one of the most feasible methods of reducing emissions from them is to make alternative forms of transportation more desirable. A more walkable and bikeable city not only reduces the need for residents to drive, but offers the public health co-benefit of encouraging exercise.

Priority Actions

(C) (Mit)	ULT-2-1. Implement bicycle-friendly Transportation System Plan actions, such as: 1) installation of bike intersection safety improvements; 2) increased bike lane infrastructure; and 3) expansion of on- and off-street bike racks, shelters, and sharing.
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For bicycling to be considered a viable alternative to driving, the City will need to invest in infrastructure to improve its safety and convenience.

(M) (Mit)	ULT-2-2. Explore opportunities to convert to shared streets where appropriate to provide multi-modal connectivity.
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Shared streets are popular because they offer improvements for pedestrians and bicyclists while preserving vehicle access. This action will spur Ashland to assess which streets or corridors may make sense to convert to shared streets due to their current use, potential future use, location, or other considerations.

Other Actions

- Provide incentives for employer-sponsored bicycle programs, including for City employees.
- Conduct a community survey to understand barriers to biking.
- Implement projects that reallocate a portion of the right-of-way to pedestrian-friendly spaces, such as installation of parklets where appropriate.
- Further evaluate options for reducing vehicle use downtown during future updates of the transportation system plan.

Strategy ULT-3. Support more efficient vehicles.

With on-road vehicle use responsible for nearly 20 percent of Ashland’s overall emissions, improving the overall efficiency of the cars and trucks use throughout the city could have a significant impact on meeting greenhouse gas reduction goals. While vehicles already on the road are likely not feasible to retrofit, the City can make progress by focusing on educating, incentivizing, and supporting the use of hybrids, electric vehicles (EVs), and other alternative fuel vehicles.

Priority Actions

(C) (Mit)	ULT-3-1. Implement a local gas tax, in part as a mechanism to track fossil fuel use.
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Having a sense of the baseline use of fossil fuels for transportation can help Ashland shape the most effective fuel-switching policies and incentives possible. A local gas tax would serve as an indicator of fuel demand, while also providing the City with money that could be used to improve transportation infrastructure, fund public transit options, or invest in other actions. A gas tax would also encourage drivers to change their behavior to minimize their use of fossil fuels.

(C) (Mit)	ULT-3-2. Revise land use codes to require EV charging infrastructure at multi-family and commercial developments.
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In general, one of the primary barriers to more use of electric vehicles is the lack of charging infrastructure. Additionally, residents in multifamily buildings have little, if any, say in whether their buildings offer the charging equipment necessary to support electric vehicle use. Requiring new multifamily and commercial developments to provide charging stations will make electric

vehicle use possible and practical for a much larger segment of Ashland’s population by giving them the ability to charge their vehicles near where they live, work, and shop.

(C) (Mit)	ULT-3-3. Provide information about electric and hybrid vehicles and rebates on the City’s website.
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The technology and market for hybrids and EVs can be difficult for consumers to decipher. Educating the public on these vehicles—and the rebates and incentives available for them—is an easy and low-cost early step that can make the process of choosing and purchasing on of these vehicles more straightforward.

Other Actions

- Assess feasibility of a City-sponsored carbon offset program whereby drivers can offset their emissions.
- Expand and increase enforcement of anti-idling policy.
- Initiate a partnership with Tesla to install a supercharging EV station in Ashland.
- Promote low-carbon fuels and technologies in taxi and for-hire vehicles.

Strategy ULT-4. Support more climate-ready development and land use.

Ashland’s population is growing, and with a larger population comes new development. Updating zoning requirements and land-use policies can shape new development in the city to be as climate-resilient as possible.

Priority Actions

(C) (Adapt)	ULT-4-1. Consider regulating further construction or expansion in the Wildland Urban Interface (WUI) part of the urban growth boundary (UGB).
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The WUI zone includes areas on the fringe of Ashland where homes and buildings are in close proximity with undeveloped lands. Evidence from other cities indicates that wildfires are most deadly and destructive when they burn into denser neighborhoods on the outskirts of town. Expanding the WUI and/or limiting construction can limit the density of these areas, reducing the risk of severe damage as the frequency and intensity of wildfires increase.

(C) (Mti)	ULT-4-2. Revise community development plans to favor walkable neighborhoods and infill density.
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Ashland has a series of long-range planning documents that guide development across Ashland districts, neighborhoods, and natural areas. Revisiting these plans to ensure that they support climate-ready development needs, such as multi-modal transportation and climate adaptation features, will ensure that Ashland development is consistent with the City’s climate goals and commitments.

(C) (Adapt)	ULT-4-3. Modify the WUI code to include construction techniques appropriate for wildfire-prone areas.
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Ashland’s WUI zones are the most wildfire-threatened parts of the city, and the risk of wildfires affecting these areas will only increase as climate change increases the frequency and severity

of fires. Modifying the WUI code to require more resilient construction techniques can minimize the risk that new structures built in the WUI are damaged or destroyed by fire.

Other Actions

- Require, through a Brush Ordinance, property construction and maintenance for “defensible space.”
- Consider regulating further construction or expansion in the WUI part of the urban growth boundary (UGB).
- Evaluate future climate impacts on transportation infrastructure and operations, including critical needs for emergency response, goods and services movement, and community access.
- Change zoning to minimize development in high flood risk areas.

Strategy ULT-5. Increase the efficiency of City fleet and employee commuting.

To push Ashland toward a future of low-carbon transportation, the City should lead by example. While the City’s own emissions are relatively small compared to personal and commercial vehicle use, there is an opportunity to make internal improvements that demonstrate its commitment to supporting efficient vehicles, alternative fuel sources, and public/shared transportation.

Priority Actions

(M) (Mit)	ULT-5-1. Provide carpool and vanpool parking, charging stations, and preferred parking for EVs for City employees.
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Supporting multiple commute options for City employees is an important early step on the path to reducing the use of fossil fuels for transportation—one of Ashland’s biggest sources of greenhouse gas emissions. Encouraging the use of ridesharing, vanpooling, and alternative fuel vehicle use among City staff will set an example for private citizens and serve as tangible evidence of the City’s commitment to sustainability. Furthermore, some of this infrastructure—EV charging stations, for example—can be opened to the public, increasing its positive impact.

(M) (Mit)	ULT-5-2. Conduct a city fleet audit and use it to set policy and targets for higher efficiency vehicles, vehicle sharing across departments, and out-of-town vehicle use.
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Conducting an audit of the City’s vehicles is a straightforward and low-cost action that sets the stage for policies to govern the fuel efficiency of the fleet and/or mandate a transition to alternative fuel vehicles over time.

(M) (Mit)	ULT-5-3. Purchase carbon offsets to offset City staff travel.
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Ashland has no control over the policies, fuel sources, and infrastructure of jurisdictions beyond the city limits. Purchasing carbon offsets is a straightforward action that allows the City to extend its commitment to reducing its emissions to staff who travel for work reasons.

Furthermore, if the City's offset payments are invested in local projects, they can provide a wide range of co-benefits to the local community.

Other Actions

- Improve biking amenities at City facilities such as showers, lockers, and covered/secured bike parking.
- Take advantage of potential opportunities under the new state clean fuels program.
- Increase incentives for sustainable City employee commuting such as through competitions or cost shares.

THE ROLE OF THE COMMUNITY

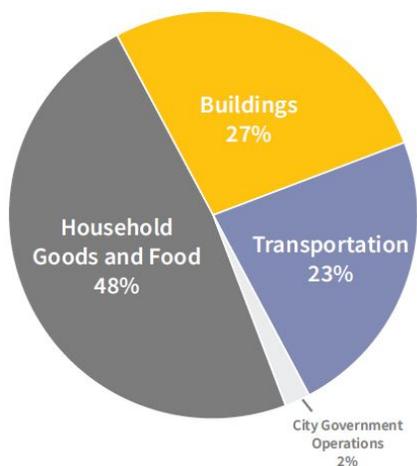
- **Take a walk, ride a bike, or take public transit.** Ditching your personal vehicle when commuting or running errands can make a big difference for your carbon footprint, and can also be a more healthy and enjoyable alternative to driving.
- **Purchase a fuel-efficient vehicle.** When purchasing your next personal vehicle, consider more efficient alternatives such as hybrid or electric vehicles.
- **Consider where you live.** Next time you move, think about the proximity of where you live to where you need to travel. Are there opportunities to live closer to where you need to go? Living within walking, biking, or public transit distance to your work, school, or retail stores can save you time, money, and headaches!

Case Study: Rogue Valley Transportation District

The Rogue Valley Transportation District pools resources and shares service across a number of cities in the greater Jackson County area—while keeping costs down by taking advantage of economies of scale. The RVTD currently operates seven routes that provide vital inter-city public transit connections that enable car-free travel throughout the Rogue Valley, reducing the need for Ashland residents to own cars and providing greater mobility for children, students, the elderly, and others who may not be able to drive. In addition to providing standard bus service, the RVTD operates a paratransit service that is available to senior citizens, people with disabilities, or others who are unable to use the standard bus service. In 2016, Jackson County voters approved a levy that restored Saturday and evening services, as well as expand service to Southwest Medford, Rogue Regional Medical Center, and the Rogue Community College Table Rock Campus.

Consumption and Materials Management

Why it matters



Upstream emissions from the production and transportation of food and goods account for 48 percent of Ashland’s total emissions—more than any other sector. A large portion of food emissions are from the production of meat, and emissions from household goods are largely from home construction, furniture, clothing, and vehicle purchases. Because Ashland’s industrial sector is small and there is no significant agriculture within city limits, the Ashland community relies almost entirely on imported goods, food, and energy products to meet its needs; encouraging greater local food production would have emissions-reduction benefits while simultaneously improving food security and availability for Ashland’s residents. Climate change may disrupt global supply

chains and thereby affect the cost of household goods and services that local residents and businesses rely on.

While these emissions are large, they are “indirect” emissions that are not under the same level of community control as the local, sector-based emissions. While Ashland might change local development codes to address building energy, there is no similar ability to influence production efficiencies for imported goods and services. Therefore, Ashland’s potential actions related to consumption and materials management mostly center on influencing consumption behavior and supporting a variety of local and/or more sustainable purchasing options for its residents.

Climate change is also expected to increase stressors like pests, disease, and drought on the small local agriculture sector, potentially reducing the availability of local food. Global climate change could also disrupt global markets and supply chains, potentially resulting in global price increases and resource scarcities.

Progress To-Date

Ashland exemplifies its commitment to reduced waste and local sourcing through a variety of programs, ordinances, and offerings, such as:

- **Bans on plastic bags and polystyrene containers:** In 2014, the City approved an ordinance to substantially reduce consumption of single-use plastic carryout bags. The City also bans polystyrene foam food packaging at local restaurants, retail food vendors, and non-profit food providers.
- **Community garden programs, farmers markets, and co-ops:** Ashland enjoys a number of venues for growing and purchasing locally-produced food, including at four City-sponsored community gardens, the Rogue Valley Growers and Crafters Market, and at retailers like the Ashland Co-Op.

- **Residential curbside recycling programs and outreach:** Recology Inc. provides curbside recycling service to Ashland residents, as well as education and outreach programs on backyard composting and reduce/reuse best practices. Recology also provides an on-site recycling center for hard-to-recycle materials.

Goals and Indicators

Goals

- Increase waste diversion through waste prevention, recycling, and composting.
- Reduce consumption of climate-intensive food, products, and services.
- Support locally-produced products.

Indicators

- Waste emissions (from landfill)
- Waste diverted from landfill to recycling and composting

Strategies and Actions

CITY-LED ACTIONS

Strategy CW-1. Reduce consumption of carbon-intensive goods and services.

Since the City cannot directly influence how goods are produced outside its jurisdiction, its only feasible option is to attempt to reduce the use of targeted carbon-intensive goods and services by convincing residents to change their consumer habits—and support programs that reduce the need to own products by promoting bartering or shared use.

Priority Actions

(C) (Mit)	CW-1-1. Implement an education campaign for waste and consumption reduction strategies such as replacing inefficient appliances, opting-out of junk mail, and reuse stores.
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Private consumption of food and goods is the largest single source of Ashland’s greenhouse gas emissions. While the City does not have the ability to directly control or reduce these emissions, it can encourage sustainable habits and purchasing decisions that target common sources of waste and carbon-intensive consumption.

(C) (Mit)	CW-1-2. Support “collaborative consumption” community projects like tool libraries and repair cafes, such as through mini-grant programs.
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Collaborative consumption reduces demand for new products by facilitating the sharing and/or repair of existing products in the community. Tool libraries, for example, allow community members to avoid purchasing new tools by instead borrowing from a communal pool of donated tools. The City can explore how best to encourage these types of sustainable consumption and sharing activities.

Strategy CW-2. Support sustainable and accessible local production and consumption.

Supporting environmentally responsible production of goods and food locally—in or around Ashland—is beneficial both because it eliminates the emissions associated with shipping goods produced far away to the city, and because the City can have greater influence on encouraging sustainable production practices.

Priority Actions

(C) (Mit)	CW-2-1. Partner with nonprofit organizations to promote the purchase of local produce and products, such as through a “buy climate-friendly first” food purchasing initiative for public institutions.
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One way the City can support sustainable local food production is to work with independent organizations to showcase and support climate-friendly retailers and products.

(C) (Both)	CW-2-2. Expand community gardening and urban agriculture opportunities at community gardens, schools, parks, and rooftops.
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Increasing the land and resources available for local agriculture can help satisfy a portion of the city’s demand for food, reducing the quantity of food that must be imported from outside the region. “Greening” public spaces can have numerous co-benefits, too, including offsetting the urban heat island effect and providing garden space to those who do not have yards of their own.

Other Actions

- Consider climate change-related risks to local supply chains in implementation of the economic development strategy.
- Work with nonprofits and universities to create outreach and training materials about agricultural practices that reduce greenhouse gas emissions and increase diversity and drought resistance.

Strategy CW-3. Expand community recycling and composting.

Diverting more waste from the landfill is one of the most direct strategies Ashland can focus on to reduce the environmental impacts of the city’s consumption. While the City cannot influence upstream production methods at factories and farms beyond its city limits, minimizing downstream waste has a clear and measurable positive impact that will help Ashland move toward its sustainability goals.

Priority Actions

(C) (Mit)	CW-3-1. Improve recycling programs to make them easier to use and implement new education and outreach to increase recycling in all sectors; expand public space recycling.
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Making recycling a convenient and straightforward process is crucial to getting Ashlanders to adopt more responsible disposal practices. Education and outreach, better signage, and placing more bins in public areas are just some of the potential ways to improve recycling in Ashland.

(C) (Mit)	CW-3-2. Strengthen the Demolition Debris and Diversion ordinance to enhance enforcement and increase diversion and reuse.
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Due in large part to the sheer quantity of material involved, home demolition has an outsized impact on Ashland’s materials management strategy. Targeting buildings for reuse and salvage not only reduces the quantity of material being sent to the landfill, but creates a local market of recovered building materials that can be used again in new construction projects, remodels, and landscaping. This actions calls for enhancing Ashland’s current Demolition Debris and Diversion ordinance so that it is more strictly enforced and encourages further diversion and reuse of materials.

Other Actions

- Implement an education campaign for waste and consumption reduction strategies such as replacing inefficient appliances, opting-out of junk mail, and reuse stores.
- Update the multi-family recycling ordinance to encourage more diversion.
- Examine options for expanding commercial and residential composting; assess the feasibility of establishing a permitted facility to compost or anaerobically digest organic materials and food waste.
- Improve City facilities to incentivize reduced waste, such as by installing water bottle filling stations.

Strategy CW-4. Reduce food waste.

Production of food is a large emissions source, and, unfortunately, much of the food that makes it into Ashland’s homes and businesses goes bad or is otherwise wasted. Reducing this waste—and using the remaining waste productively—will ensure that Ashland gets the most benefit possible out of its food and does not purchase food that is not consumed. As a bonus, in addition to reducing the emissions associated with wasted food, edible food that would otherwise have gone to waste can be donated to residents who might otherwise struggle to afford groceries.

Priority Actions

(C) (Both)	CW-4-1. Support edible food donation through coordination with the food bank and donations from City and community partner events.
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In addition to the obvious environmental benefits of reducing food waste means there is more food to share with those in need. This action calls on the City and community to work with the food bank to make sure edible food left over or not used at public events ends up on dining tables, not in the landfill.

(C) (Both)	CW-4-2. Provide a kitchen best practices guide to help households and businesses reduce food waste and consumption.
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Educating residents and businesses on how to reduce food waste is a low-cost option to reduce wasted food—a preventable source of greenhouse gas emissions.

(C) (Both)	CW-4-3. Facilitate recycling of commercial food waste for fuel/energy, including use of cooking oil for biodiesel and biofuels.
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While reducing food waste by addressing its root causes is the best option, some food waste will always remain. The City can serve a central role in taking advantage of this waste stream by arranging for discarded food to be used for energy production,

Other Actions

- Seek grant funds to launch a food waste reduction campaign for residents, such as EPA’s Food: Too Good to Waste program.

Strategy CW-5. Improve sustainability of City operations and purchases.

While City operations account for a relatively small portion of Ashland’s emissions, they are a relatively easy target for sustainability improvements because the City has direct control over them.

Priority Actions

(M) (Mit)	CW-5-1. Introduce City environmentally preferable purchasing (EPP) guidelines for City procurement, such as requiring evaluation of products using the Electronic Product Environmental Assessment Tool (EPEAT).
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Creating an EPP policy is a low-cost action that would guide City staff to choose more sustainable products and services by modifying the procurement process. While the complexity of Ashland’s existing procurement process may make this action more difficult to implement, it is worth considering since a wide range of cities similar to Ashland have successfully implemented EPP policies of their own.

(M) (Mit)	CW-5-2. Assess the feasibility of co-digesting food waste and biosolids to generate electricity at the wastewater treatment facility.
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Generating electricity from the gases captured from decomposing organic matter is a win-win strategy: it prevents harmful GHGs from entering the atmosphere, and creates electricity that can offset the wastewater treatment facility’s energy use or be fed back onto the grid.

Other Actions

- Promote online citizen services (permitting, bill pay, etc.) to reduce paper use and vehicular trips.
- Evaluate the use of low-carbon concrete and/or recycled asphalt shingles on City buildings.
- Evaluate feasibility of increased use of recycled aggregate in residential street construction and sidewalks.

THE ROLE OF THE COMMUNITY

- Eat less dairy and meat.
- Waste less food.
- Buy less new stuff. Consider buying reused or borrowing.

- Buy things that last.

Case Study

The Rogue Valley Farm to School program's mission is to educate children about our food system through hands-on programs, and bring healthy, local foods to their school cafeterias. RVF2S has relationships with five local farms in the valley, including The Farm at SOU. The organization facilitates the purchase of locally grown produce by schools, assists food service staff with estimating annual produce needs, and helps farmers use this information to plan their seasonal planting. It also facilitates field trips to farms and the establishment of sustainable on-site gardens at schools.

Natural Systems

Why it matters

Although not formally accounted for in Ashland’s greenhouse gas emissions inventory, natural ecosystems such as forests and wetlands capture and store carbon, acting as a greenhouse gas “sink.” Proper ecosystem management can optimize this process of carbon sequestration, as well as minimize the potential risk of greenhouse emissions from catastrophic wildfires.

Many of Ashland’s natural systems and surrounding natural areas will be harmed by climate change, threatening the important services they provide such as water filtration, flood abatement, pollination, recreation, and fire protection. Importantly, the effects of climate change on natural systems are interrelated and may compound each other; for example, more frequent and severe droughts will increase the risk of wildfires. Changes in temperature, snowpack, and the abundance of diseases and pests will stress sensitive and high-elevation plants, wildlife, and ecosystems such as the Northern Spotted Owl, anadromous fish populations, and mid-elevation coniferous forests. Other stressors, such as habitat loss and pollution, exacerbate this risk.

Progress To-Date

The City of Ashland works within its city limits and with partners outside its limits to promote sustainable management and conservation of its natural ecosystems. Here are some ways the City is currently taking action:

- The **Ashland Forest Resiliency Project** has produced planning documents that consider optimized forest fuel management and wildfire planning in the face of climate change.
- A new city **Water Master Plan** will incorporate future climate risks to water supply and quality into future service planning and activities.
- The City promotes **drought-tolerant landscaping** through education, outreach, and technical assistance.
- The City water utility has a **tiered rate structure** to incentivize conservation among the largest water uses.

Goals and Indicators

Goals

- Enhance ecosystem health and resilience.
- Ensure sustained access to clean air and drinking water.

Indicators

- Acres of protected and restored habitat
- Stream water quality.
- Water supply.

Strategies and Actions

CITY-LED ACTIONS

Strategy NS-1. Promote ecosystem resilience.

Climate change has the potential to significantly disrupt local ecosystems by altering precipitation patterns, increasing average temperatures, and making extreme weather events more frequent and severe. These changes can impact a wide range of ecosystem features and functions, from causing fish die-offs to disrupting pollinators. Local government policies and actions will play a key role in protecting ecosystem elements from climate-related threats.

Priority Actions

(C) (Adapt)	NS-1-1. Manage forests to retain biodiversity, resilience, and ecosystem function and services in the face of climate change. Use best available science to inform fire management and planning to manage ecosystem health, community safety, and carbon storage.
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Responsible management of existing natural areas within and surrounding Ashland will bolster ecosystem health and prevent the breakdown of important ecosystem functions. Incorporating climate change projections specifically into the City’s management and planning processes will ensure they account for possible scenarios—more common wildfires, for example—that threaten ecosystem stability and public health.

(C) (Adapt)	NS-1-2. Use green infrastructure such as bioswales, permeable pavement, other pervious surfaces to reduce flood risk and minimize sediment entry into creeks from trails and roads.
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Runoff from rainwater and snowmelt can carry pollutants and sediment into ecologically sensitive waterways. Pollution due to runoff and flooding will likely become a more common—and more serious—problem for Ashland as climate change alters precipitation patterns and increases the frequency of severe rainstorms. Green infrastructure allows water to infiltrate back into the soil, reducing the amount that flows into sensitive creeks, wetlands, and other waterways.

(C) (Adapt)	NS-1-3. Undertake restoration efforts to retain and restore native fish and riparian species, including enhancement of fish-friendly operations and habitat at Reeder Reservoir and in Ashland and Bear Creeks.
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The fish and riparian species that call southern Oregon home will likely be increasingly stressed by water scarcity and other climate-driven impacts on the health of local waterways. Undertaking habitat restoration and protection efforts not only supports healthy stocks of these species, but can provide co-benefits to residents and visitors by creating beautiful natural environments for visitors to enjoy.

(C) (Adapt)	NS-1-4. Map and protect areas that provide ecosystem services, such as remnant spring, wetland, and old growth habitats, through improved public lands
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	management/ownership and promotion of conservation easements and private open spaces.
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This action focuses on identifying and prioritizing the protection of the most important elements of the local ecosystem through public ownership and/or by incentivizing the use of conservation easements.

Other Actions

- .Update the City’s approved street tree guide and landscape design standards for new development for tree species appropriate for a future local climate.
- Assess the deployment of ecosystem market approaches as a means to efficiently and effectively protect and restore ecosystems, such as by paying upstream landowners for water-friendly management of their lands.

Strategy NS-2. Manage and conserve community water resources.

While minimizing the City’s water use internally is important, conserving water in the community is arguably much more valuable due to its scale. The City can, through a combination of education, policy, and incentives, encourage the community to make meaningful changes to reduce its water use.

Priority Actions

(C) (Both)	NS-2-1. Evaluate the value and potential for incentives for practices that reduce use of potable water for non-potable purposes and recharge ground water, such as greywater reuse, rainwater collection, and rain gardens.
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Incentives can be a valuable tool to reduce water use and encourage the installation of rainwater collection and water reuse systems. As a bonus, these systems offer stormwater prevention co-benefits. Similar incentives have been used successfully in a number of other cities.

(C) (Both)	NS-2-2. Explore water-efficient technologies on irrigation systems and consider requiring them during the permitting process.
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Landscaping irrigation uses large quantities of water. Requiring advanced irrigation systems, especially for large commercial or multifamily properties, could have a large impact on the city’s water use.

(C) (Both)	NS-2-3. Expand water conservation outreach and incentive programs for residents and businesses.
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Providing additional education and support to residents and businesses can help reduce water use on private properties by identifying easy, cost-effective ways to reduce water use like installing low-flow fixtures and faucet aerators. The city may consider providing additional financial incentives to encourage widespread adoption of these upgrades or to make more costly water-saving upgrades financially feasible.

Other Actions

- Introduce a system whereby when a new building is permitted, a conversation is triggered around the introduction of feasible new technologies that reduce water and wastewater.
- Manage upstream flows to minimize downstream flood risk, such as through habitat protection/restoration and/or adjusted reservoir management.
- Explore new technologies for treating wastewater for use.

Strategy NS-3. Conserve water use within City operations.

While the City’s internal operations account for a relatively small portion of Ashland’s overall emissions, conserving resources sets a visible example that residents and businesses in the community can follow. Water use, in particular, will be important to minimize in the future: with more frequent and severe droughts due to climate-driven changes in precipitation and snowpack, Ashland and the surrounding area will have to manage its water resources to minimize the impacts of increasing water scarcity.

Priority Actions

(M) (Both)	NS-3-1. Evaluate the potential for installation of rainwater collection systems at City facilities for greywater uses, and investigate opportunities for greywater reuse at existing and new City facilities and properties.
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This action aims to reduce the quantity of filtered, potable water used at City facilities by using rainwater for greywater uses. greywater recycling could further reduce the quantity of fresh, clean water used by the City for non-potable purposes.

(M) (Both)	NS-3-2. Implement efficiency recommendations from the City facilities water audit.
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The City is currently in the process of conducting an audit of water use at its facilities. The audit will help the city identify opportunities to reduce waste and improve the water efficiency of its operations.

Other Actions

- Update City landscaping standards for reducing water consumption and chemical use.

THE ROLE OF THE COMMUNITY

- **Install rain gardens or rain barrels on your property.** Work with the City to learn about options for reducing stormwater runoff and increasing water storage and reuse at your home or business.
- **Be waterwise in your daily household water consumption.** Install water-efficient fixtures, take shorter showers, irrigate at night, etc.
- **Support habitat protection and restoration.** Volunteer at a restoration event, donate to land conservancy or education organizations, and get outside!

The Ashland Forest Resiliency Project

The Ashland Forest Resiliency Project is a ten-year stewardship program that aims to reduce wildfire risk and protect ecosystem features on approximately 7,600 acres of land. The project—a collaborative effort between the U.S. Forest Service, the City of Ashland, the Nature Conservancy, and the Lomakatsi Restoration Project—focuses on thinning small trees and conducting controlled burns to prevent wildfires from spreading, while prioritizing saving large, old trees and preserving key habitat elements. In addition to implementing sustainable forestry techniques, the project includes an education component and has delivered presentations and field activities to over 2,000 local students.

Public Health, Safety, and Security

Why it matters

While at first climate change may seem removed from issues of health, safety, and security, its effects may have significant impacts on Ashland's population. Increased heat waves, flooding, and wildfires will threaten the health and safety of all residents, but Ashland's outdoor industry workers, the elderly and very young, and low-income populations will be especially vulnerable. Rafting, skiing, and other outdoor recreation industries may suffer from reduced snowpack and reduced summer flows, affecting workers throughout the local tourist industry. Increased wildfire risk will stress emergency services and increase the number of homes within wildfire risk areas. While many of the strategies and actions in other sections of this report have positive direct impacts or co-benefits on public health and safety, these issues are important enough to merit specific discussion; without healthy, happy, and secure citizens, Ashland cannot continue to thrive.

Note: Emissions associated with public health, safety, and security services are encapsulated in other sectors of the greenhouse gas inventory, and therefore cannot be independently evaluated.

Progress To-Date

Although the City of Ashland has limited influence over the health and social services of its residents, the City has made great strides in supporting the local economy and preparing for emergency events. For example:

- **Firewise Ashland** provides residents of the wildland urban interface with the knowledge and skills necessary to prepare for wildfires.
- The **Social Service Grant and Community Development Block Grant** programs support disadvantaged and at-risk populations.
- The annual **Ashland is Ready** workshop provides emergency planning assistance and information for residents.

Goals and Indicators

Goals

- Protect public health from air pollution and climate impacts.
- Improve community capacity to understand, prepare for, and respond to climate change security risks.

Indicators

- Number of people that can be accommodated by available cooling centers
- Tree canopy cover
- Percent of Ashland residents experiencing health issues such as asthma

Strategies and Actions

CITY-LED ACTIONS

Strategy PHSS-1. Manage ecosystems and landscapes to minimize climate-related health impacts.

With average temperatures on the rise and extreme weather events predicted to become more common due to climate change, Ashland will need to consider adapting its management of the cityscape and ecosystems to protect its residents' quality of life.

Priority Actions

(C) (Adapt)	PHSS-1-1. Promote the expansion of tree canopy in urban heat islands or areas that need air conditioning such as schools.
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The urban heat island effect can have serious impacts on public health and quality of life, including causing heat-related fatalities among elderly or otherwise vulnerable people. The City can reduce this effect by increasing tree canopy cover in targeted areas that do not currently have adequate shade or air conditioning.

Other Actions

- Evaluate and implement slash removal methods that minimize smoke production, such as air curtain burners.
- Develop an incentive program to convert fuel-burning lawn equipment such as lawn mowers and blowers to electric.
- Evaluate opportunities to plant additional trees near city facilities to reduce heat island.

Strategy PHSS-2. Promote a sustainable local economy that minimizes emissions and vulnerability.

Becoming more sustainable and preparing for the effects of climate change will require more than just government action—the private sector will also play a central role. The City can serve as a thought leader, facilitator, and central coordinator to spur climate action by a wide variety of independent businesses.

Priority Actions

(C) (Both)	PHSS-2-1. Engage leading employers in a dialogue on climate action, for example, by organizing and facilitating roundtables.
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This action involves bringing local employers together with City staff and independent experts to discuss how climate change will impact their businesses, how to minimize those risks, and how to incorporate climate and sustainability concerns into their businesses in effective ways.

(C) (Adapt)	PHSS-2-2. Support organizations, such as SOU, in evaluating risks to local food sources under climate change.
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As discussed in Strategy CW-2, local food production minimizes greenhouse gas emissions associated with food transport, supports the local economy, and carries other sustainability benefits. As part of the City’s work to support and expand local agriculture, it can consider taking a supporting the work of other organizations to evaluate how local food sources may be stressed or impacted by climate change, and how best to navigate the challenges to ensure that local farms remain viable and productive. This would include researching new crops, technologies, and innovative approaches, and working with farmers to adapt.

Other Actions

- Work with businesses to assess their climate change vulnerability and plan for the future.

Strategy PHSS-3. Optimize City services to minimize public health impacts.

Many of the facilities and services provided by the City, such as libraries, parks, and emergency management services, can also serve as important venues for adapting to climate change. This strategy identifies ways that the City can adjust or repurpose its current activities and facilities to help minimize public health threats from climate change such as from severe heat, wildfire smoke, and flooding.

Priority Actions

(C) (Adapt)	PHSS-3-1. Work with vulnerable neighborhoods to create site-specific adaptation strategies to address public health risks.
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While the effects of climate change will be fairly uniform throughout the Ashland region, some neighborhoods will be more vulnerable to these impacts than others. The City can work to minimize the impacts on its most at-risk neighborhoods—for example, outlying areas exposed to wildfires or communities with infrastructure that is susceptible to flood damage—by collaborating with residents and local organizations to create localized adaptation plans.

(C) (Adapt)	PHSS-3-2. Identify and minimize potential urban heat impacts, such as by designating cooling centers through the city; improving cooling systems in schools and senior centers; and incentivizing cooling strategies such as cool roofs/pavements and expanded tree canopy.
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Climate change is expected to increase the number and severity of heat waves in Ashland, putting vulnerable people at greater risk of heat-related health complications and reducing the quality of life for all Ashland residents. The City can take steps to minimize the risks presented by heat waves by identifying where heat-related impacts will be most pronounced and working to encourage and/or directly implement strategies for offsetting these impacts.

(C) (Adapt)	PHSS-3-3. Develop or enhance heat-warning systems for employees and the public.
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Heat-warning systems help minimize the health dangers associated with extreme heat by giving the public a chance to plan ahead to avoid being outside or take refuge at a designated cooling center during the hottest periods.

Other Actions

- Educate public and public health professionals about health risks posed by climate change, including potential changes in air quality and impacts on mental health.
- Adjust City-sponsored outdoor activity schedules and plan for indoor alternatives to accommodate longer and hotter summer seasons.

Strategy PHSS-4. Optimize City services to minimize public safety impacts.

Climate stress can add additional burdens on City services to protect public safety. This strategy involves taking measures within City operations and current services to protect the public from injuries caused by extreme events such as wildfires and flooding.

Priority Actions

(C) (Adapt)	PHSS-4-1. Update the City's emergency response plan and ensure that preparation and updates recognize and address likely climate change impacts.
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From wildfires to floods, the emergencies Ashland faces will increasingly be linked to climate change. The City can help protect its citizens from these emergencies by incorporating climate projections and likely impacts into its existing emergency response plan.

(C) (Adapt)	PHSS-4-1. Identify and address essential City services that are within the 100-year flood zone.
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Climate-driven changes in precipitation and snowmelt patterns will likely increase the frequency and severity of flooding in the city. One way Ashland can mitigate the damage of severe floods is by identifying essential services in flood-prone areas and working to relocate or protect them.

Other Actions

- Expand and publicize the Ready, Set, Go! Evacuation program.
- Utilize federal and state reporting and monitoring assets, such as NOAA's Hazard Mapping System, to prepare for smoke and wildfire impacts.

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- **Assemble an emergency kit.** Jackson County offers tips and checklists to help residents create emergency kits for their homes and cars. Visit the Jackson County Emergency Management website or contact Jackson County for more information.
- **Stay informed.** Sign up for Citizen Alert!, a free program from Jackson County that sends community alerts to your phone and email when you register online.
- **Prepare your home for the extremes.** Understand the risk of flooding or wildfire to your home, and take action to safeguard your home. Ashland provides free Firewise assessments for properties at potential risk of wildfire. Find more information at the City's *Ready, Set, Go! Evacuation* website.
- **Understand the risks and how to mitigate them.** Injuries from heat exhaustion and wildfire smoke can be exacerbated by conditions such as dehydration, diabetes, heart conditions, and obesity. Staying healthy, avoiding harmful activities, and taking proper

precaution can make sure you and your family are safe from deadly heat- and smoke-related illnesses.

Firewise Ashland

Ashland is part of Firewise Communities, a national program that educates homeowners and community members on wildfire home safety. The city received its first Firewise Communities recognition award in 2011, and now has a dozen different neighborhoods that are recognized by the program. The program provides residents within the wildland/urban interface (WUI) with knowledge and skills for taking action to prevent wildfire losses, such as by addressing home construction and landscaping. These actions can help houses withstand wildland fire without intervention such as as the fire service. For more information or to become a Firewise neighborhood, visit firewise.org or call Ashland Fire and Rescue.

Cross-Cutting Strategies

Why it matters

Addressing climate change requires that we work across sectors to incorporate climate change considerations into all that we do. Only through a coordinated and multi-pronged effort can significant progress be made.

Progress To-Date

The City of Ashland has demonstrated a commitment to comprehensive climate action through development of this Climate and Energy Action Plan. Prior to the plan, the City also completed its first citywide greenhouse gas inventory, which served as an essential benchmark for understanding and taking action against the community’s greatest greenhouse gas emission sources. The City has also hosted a number of public outreach and engagement events around climate change and sustainability, including the Ashland Climate Challenge in 2015.

Goals and Indicators

Goals

- Increase awareness of city climate goals and needs.
- Integrate climate change considerations into day-to-day City operations, planning, and decisionmaking.

Indicators

- Public and City staff knowledge and understanding of climate change issues and actions.
- Proportion of other City plans or activities that incorporate climate change considerations.

Strategies and Actions

CITY-LED ACTIONS

Strategy CC-1. Educate and empower the public.

Addressing community-wide emissions starts with ensuring that the public understands climate change and what they can do to address the challenge. This strategy involves not just enhancing public knowledge, but also continuing to learn and understand the needs and challenges the public faces in taking action. This strategy also involves finding ways to address the public’s needs and challenges through incentives, education, and behavior change programs.

Priority Actions

(C) (Both)	CC-1-1. Create a formal public outreach and education plan to inform the community about climate actions and progress.
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The community play a tremendous role in reaching Ashland’s , and an informed community is a critical part of empowering and The outreach and education plan will inform about climate actions, what they accomplish, how they can be accessed/used, and how the community is progressing toward its targets.

(C) (Both)	CC-1-2. Support capacity of neighborhood and community groups to implement climate mitigation and adaptation initiatives.
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Every community is unique in how it affects and is affected by climate change. To accommodate these differences and empower communities to take action, the City should provide resources and support for neighborhoods that wish to tackle climate change head-on. Options could include providing resource guides or checklists, venues for community meetings, or mini-grant programs for specific adaptation actions.

Other Actions

- Develop a climate-ready recognition program.

Strategy CC-2. Educate and empower City staff.

Ultimately tasked with implementing the Climate and Energy Action Plan, City staff and leadership must understand threats and issues related to climate change and actions needed to address it. This strategy deals with ensuring that all City departments educate their staff about the Climate and Energy Action Plan and clarify roles and expectations for its implementation.

(M) (Both)	CC-2-1. Ensure all City departments educate their staff about the Climate and Energy Action Plan.
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This action includes identifying the expectations, roles, and responsibility of each department in meeting specific community and City operations actions within the Climate and Energy Action Plan.

Strategy CC-3. Mainstream and integrate climate considerations.

As an inherent cross-cutting issue, climate change should be integrated into all other activities and processes, as relevant. For example, climate change could be considered in all City Council policy, budgetary, or legislative decisions, and as part of regular City Council communications..

(M) (Both)	CC-3-1. Consider climate change in all Council policy, budgetary, or legislative decisions (e.g., triple bottom line evaluation). Incorporate climate action considerations/relationship as part of the Council Communication document template.
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Council decisions present key points in the policy setting process for incorporating and considering City priorities. Asking how policy, budgetary, and legislative decisions may impact or be affected by climate change during these key decision points will provide further assurance that no new policy or decisions hinder progress toward reaching Ashland’s climate goals.

(M)	CC-3-2. Consider CEAP goals in future updates of city plans.
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(Both)	
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To enhance integration of climate change across City activities, climate mitigation and resiliency goals set for in this plan should be promulgated through future updates of related City plans. Example plans to which this action would apply include the City Comprehensive Plan, Water Master Plan, Transportation System Plan, Neighborhood Master Plans, and Emergency Management Plans.

Strategy CC-4. Engage with other governments and organizations around regional, statewide, national, and international climate policy and action.

There is much to learn from the experience of others, and more power in a unified voice. This strategy involves coordinating with other local governments that have set ambitious climate targets, such as Eugene, Portland, Seattle, and Fort Collins, to learn from their experiences, share best practices, and together advocate for broader regional, state, and national action and leadership.

(M) (Both)	CC-4-1. Engage with other governments and organizations around regional, statewide, national, and international climate policy and action.
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Ashland should continue to collaborate with its neighbor cities to share information and foster coordinated and unified action. The City should lead and pursue a partnership model, such as the King County-Cities Climate Collaboration in Washington, to coordinate and enhance the effectiveness of local government climate and sustainability action within its region.

Next Steps

The goals, strategies, and actions presented in this plan signify an ambitious step forward for the Ashland community. Although sustainable living, operations, and management is not new to Ashland, this plan pulls together the great momentum and action that already exists in the city, and provides a coordinated and intentional strategy forward. Making progress on these goals will require Ashland's government and community to work together and commit dedicated time and resources for making it happen.

This plan is only the beginning of an ongoing process. The accompanying Implementation Plan (Appendix X) provides a framework for launching into the implementation phase of the plan. This phase will require the City and community to begin diving into priority actions--outlining specific plans of action and resource needs among responsible parties--and monitoring and benchmarking progress along the way. As details are outlined, more specific quantitative goals and milestones can be created, driving the pace of strategy implementation. The Implementation Plan also details the proposed structure for ongoing plan implementation, monitoring, evaluation, and adaptive management, as well as a list of key actions to be taken in the first year of implementation. It concludes with a discussion of how the goals and strategies of this plan fit in with a potential ordinance binding greenhouse gas emission reduction targets.

Through careful and committed action by all Ashlanders, and with this plan as a basis, the city can achieve its vision of becoming a resilient community that has zero-net greenhouse gas emissions, embraces equity, protects healthy ecosystems, and creates opportunities for future generations.

Appendices

- Implementation Plan
 - Ongoing structure for implementation, monitoring, evaluation, and updates
 - Priority actions, by timeframe and responsible department
 - Discussion of ordinance tie-in
- Climate Trends Summary
- Public Engagement Process Overview
- Emissions Modeling and Target Setting Methodology
- Ashland GHG Inventory?
- Glossary