

Investing in Resilient Oregon Communities

Regional Climate Investments Sheets

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Investing in Resilient Communities

Central Oregon – Deschutes River Basin

Deschutes, Jefferson & Crook Counties

Climate change is already impacting Central Oregon, where higher temperatures, wildfires, declining snowpack and extreme weather events are disrupting agriculture, forestry, tourism and quality of life. For Bend, Prineville and surrounding areas to adapt and prosper, it is imperative to identify areas of risk and to invest in solutions that restore natural resources, protect communities and enhance the region's economy.

WATERWAYS & WATER SUPPLY

Drought and higher temperatures reduce water in rivers, streams, lakes reservoirs and aquifers in the region decreasing availability of water for domestic uses, harming fish populations and possibly leading to competition and conflict over water resources.

- **Fund** watershed restoration to enhance, protect and restore water quality and streamflow and recharge aquifers.
- **Implement** community water conservation strategies, including facilities upgrades and education programs.
- **Invest** in practices to prevent toxic algae outbreaks and public information to reduce exposure.

AGRICULTURE & IRRIGATION

Higher average temperatures combined with less snowpack in the Deschutes River Basin reduces surface water and groundwater available for irrigation and disrupts traditional agricultural and ranching practices. More intense storms and unpredictable weather also bring greater risk to farmers and ranchers. Some traditional crops may not adapt well.

- **Upgrade** Central Oregon's irrigation infrastructure.
- **Prioritize** measures to prevent unsustainable ground water withdrawals from aquifers.
- **Support** management practices that improve soil health and productivity and sequester carbon.
- **Provide** farmers and ranchers with support to offset costs of climate mitigation actions.
- **Assist** farmers and ranchers with cost-saving measures to reduce energy use.

LANDSCAPES & WILDFIRE

Central Oregon's forests, grasslands and sagebrush steppes are threatened by more frequent and intense wildfires.

- **Reduce** wildfire fuels in wildland-urban interface on public and private lands.
- **Foster** interagency and multi-jurisdictional cooperation to prevent and manage wildfires.
- **Assist** homeowners and landowners to implement fire risk reduction strategies.
- **Provide** resources for management practices that increase carbon sequestration and forest adaptation.
- **Support** strategies and capital investments for technological innovation and develop markets for wood derived from wildland fuels management.

LIVABILITY & SECURITY

Climate change impacts, combined with the region's rapid population growth, require investments to support the people who call Central Oregon home.

- **Collaborate** with Confederated Tribes of Warm Springs and other Tribes to protect shared natural resources and invest in community resilience.
- **Maintain** and enhance robust early warning systems for emergency response throughout the region.
- **Prioritize** economic diversification, job creation, skills training and workforce support for disrupted industries including, agriculture, timber, recreation and tourism.
- **Assist** low-and moderate-income residents with weatherization and energy conservation.
- **Invest** in health services and programs that address climate induced health risks.

[OCCRI Fourth Oregon Climate Assessment Report \(2019\)](#); [Oregon Global Warming Commission - 2018 Biennial Report to the Legislature](#); [Oregon Water Atlas \(2017\)](#); [U.S. Bureau of Reclamation - Deschutes River Basin Study \(2018\)](#); [USFWS Deschutes River Basin Habitat Conservation Plan \(2019\)](#); [ClimateWise: Integrated Strategies for a Vibrant and Sustainable Central Oregon \(2011\)](#)

Investing in Resilient Communities

North Central Oregon

Hood River, Wasco, Sherman, Gilliam, Wheeler, Morrow & Umatilla Counties

Climate change is already affecting North Central Oregon, where higher temperatures, drought, declining water supplies and wildfires are disrupting agriculture, forestry practices, tourism, recreation and overall quality of life. For this region to adapt and thrive, it is important to identify risks and to invest in solutions that safeguard and restore natural resources, protect communities and enhance the region's economy.

LANDSCAPES AND WILDFIRE

Forests and range fires are becoming more frequent and intense due to increased fuel loads in forests, insect-killed trees, higher temperatures and drought.

- **Invest** in rural fire protection districts' fire-fighting capacity and equipment.
- **Control** the expansion of western juniper and invasive plants to reduce wildfire fuel loads.
- **Foster** interagency, and multi-jurisdictional cooperation to manage and prevent wildfires and restore the environmental and economic values of forests and rangelands.
- **Work** with the Confederated Tribes of Umatilla Indian Reservation and Confederated Tribes of Warm Springs to manage and protect shared resources.

WATERWAYS & WILDLIFE

Decreasing stream flows, periodic drought and higher temperatures reduce the amount of clean water available for agriculture and domestic use, harm fish and wildlife and increases the potential for invasive species, water borne pathogens, and toxic algae blooms.

- **Fund** watershed restoration to improve water quality, stream flows and aquifer recharge.
- **Modernize** irrigation infrastructure to improve water conservation and provide preserve fish habitat.
- **Invest** in practices to prevent outbreaks of toxic algae and other water-borne pathogens.
- **Engage** with native tribes to protect and enhance fisheries.
- **Implement** measures to ensure the integrity and stability of groundwater aquifers.

AGRICULTURE & IRRIGATION

Hotter, drier summers and more intense storms increase risks for farmers and ranchers. Some traditional crops may not respond well to these hotter and drier conditions.

- **Invest** in technology to develop more efficient irrigation systems.
- **Implement** conservation practices and renewable energy projects to reduce energy costs on farms and ranches.
- **Invest** in soil health and carbon sequestration of farm and rangeland soils.
- **Assist** the dairy industry and confined animal feeding operations to reduce greenhouse gases.

LIVABILITY & SECURITY

The quality of life of those who live in North Central Oregon is at risk from climate change. Investments are necessary to protect the well-being of area communities.

- **Invest** in climate adaptation and mitigation strategies for Columbia River Gorge National Scenic Area and other waterways and features important to recreation and tourism.
- **Assist** low- and moderate-income residents with weatherization and energy conservation.
- **Provide** health services and programs to address climate induced health risks.
- **Invest** in developing products and markets for materials derived from wildlands fuels management.
- **Prioritize** job creation, skills training and workforce support for disrupted industries.

Investing in Resilient Communities

Northeast Oregon

Grant, Union, Baker & Wallowa Counties

Climate change is already affecting Northeast Oregon. Trends towards higher temperatures, drought, lower seasonal stream flows and wildfires disrupt the region's agriculture, forests, fish and wildlife habitat, tourism and outdoor recreation. For communities to adapt and prosper, it is important to identify areas of risk and to invest in solutions that safeguard and restore natural resources, protect communities and enhance the region's economy.

LANDSCAPES & WILDFIRE

Forests and range fires are becoming more frequent and intense due to increased fuel loads in forests caused by invasive species, insect-killed trees, past management practices, higher temperatures and drought.

- **Decrease** the prevalence and intensity of forest and range wildfires by reducing fuel loads and controlling the expansion of western juniper and invasive plants.
- **Promote** interagency and multi-jurisdictional cooperation to prevent and manage wildfires.
- **Invest** in rural fire protection districts' firefighting capabilities.
- **Invest** in the carbon storage potential of forests, rangelands, wetlands and riparian areas.

WATERWAYS & WILDLIFE

Decreasing seasonal stream flows, periodic drought and higher temperatures reduce clean water needed for agriculture and domestic use. This harms fish and wildlife and increases the potential for expansion of invasive species, water borne pathogens, and toxic algae blooms.

- **Fund** watershed restoration to improve water quality, stream flows, flood water retention and aquifer recharge.
- **Modernize** irrigation infrastructure to improve water conservation and fish habitat.
- **Invest** in practices to prevent outbreaks of toxic algae and other water-borne pathogens.
- **Monitor** aquifers to ensure their continued viability for agricultural, domestic and natural resource uses.

AGRICULTURE & IRRIGATION

Hotter, drier summers, declining snowpack and unpredictable weather pose risks for farmers and ranchers. Some traditional crops may not respond well to those changing conditions.

- **Invest** in technology and innovation to create more efficient irrigation systems.
- **Assist** farmers and ranchers with cost-saving measures to reduce energy use and with the installation of off-grid solar and battery storage, and alternative power such as wind, biofuel, in-conduit hydropower and geothermal.
- **Invest** in soil health and carbon sequestration of carbon in farm and rangeland soils.
- **Control** western juniper and invasive plants to reduce wildfire risk and improve soil moisture.

LIVABILITY & SECURITY

Quality of life for residents of Northeast Oregon is at risk from climate change.

- **Engage** with Nez Pearce and regional Tribes to protect shared natural resources and invest in community resilience.
- **Invest** in projects and programs to mitigate climate change impacts on wilderness and other recreation areas and big game habitat.
- **Provide** health services and programs that address climate-induced health risks.
- **Develop** products and markets for materials derived from wildland fuel management and in jobs associated with forest, watershed and rangeland restoration and alternative energy development.
- **Prioritize** economic diversification, job creation, skills training and workforce support for disrupted industries including agriculture, ranching and tourism.

[OCCRI Fourth Oregon Climate Assessment Report \(2019\)](#); [Oregon Global Warming Commission - 2018 Biennial Report to the Legislature](#); [Oregon Water Atlas \(2017\)](#)

Investing in Resilient Communities

Oregon Coast & Coast Range

Clatsop, Tillamook, Lincoln, Coos, Curry, & Columbia Counties; parts of Lane & Douglas Counties

Climate change is already impacting the Oregon Coast, Columbia River Estuary and Coast Range, where weather and ocean patterns influence all aspects of life. For coastal communities to adapt and prosper, it is imperative to identify areas of risk and invest in solutions that restore natural resources, protect livelihoods and enhance the economy.

WATER & AGRICULTURE

Lower seasonal precipitation causes water shortages for domestic and agriculture use, and for aquatic species like salmon that need fresh water to survive. Higher temperatures and changes to ocean chemistry degrade the ecological functions of estuaries. Infrastructure such as dikes, levees, tide gates and agricultural fields are threatened by tidal influences and seasonal flooding. Toxic algae blooms may make surface waters periodically unsafe and unusable.

- **Prioritize** land use and infrastructure planning to address natural hazards intensified by climate change.
- **Upgrade** dikes, levees, tide gates, and structures to protect against seasonal or more frequent inundation.
- **Implement** community water conservation strategies, including facilities upgrades and education programs.
- **Support** practices to sequester carbon by restoring tidal wetlands and encouraging streamside plantings.
- **Support** cost-saving measures that help the dairy industry to reduce greenhouse gas emissions.
- **Restore** estuaries, streams and rivers to enhance and restore their natural resource functions.
- **Install** renewable energy systems such as wind, biogas electricity and solar when feasible.

FORESTS & WILDFIRE

Increased severity of wildfire in the Coast Range threatens lives and property as well as power, communications, transportation and water supplies. Higher temperatures and drought can increase tree disease and insect infestation.

- **Reduce** wildfire fuels in wildland-urban interface on public and private lands.
- **Assist** homeowners and landowners to implement fire risk reduction strategies.
- **Support** strategies for technological innovation and develop markets for wood derived from wildland fuels management.

UTILITIES & TRANSPORTATION

Sea-level rise combined with extreme storm events increase coastal erosion and flooding can endanger infrastructure such as roads, bridges, water and sewer systems.

- **Prioritize** the development of robust emergency response and communication systems.
- **Implement** ODOT's Climate Adaptation Strategy and fund state and local road improvements.
- **Address** weaknesses and threats to roads and bridges in geologic hazard areas.
- **Upgrade** water and wastewater treatment plants and their collection and distribution systems.
- **Expand** opportunities for business and industry to retrofit equipment for energy and water conservation.

LIVABILITY & SECURITY

Investments are needed to support the quality of life for people who call the Oregon Coast and Coast Range home.

- **Collaborate** with Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians, Confederated Tribes of the Siletz and Coquille Indian Tribe to protect shared natural resources and invest in community resilience.
- **Prioritize** economic diversification, job creation, skills training and other workforce support in communities and for industries disrupted by climate change, including fisheries, timber, agriculture and tourism.
- **Create** job opportunities in infrastructure improvement and natural resources restoration and management.
- **Assist** low-and moderate-income residents with weatherization and energy conservation.

[OCCRI Fourth Oregon Climate Assessment Report \(2019\)](#); [Oregon Global Warming Commission - 2018 Biennial Report to the Legislature](#); [NOAA Fisheries - Record Warming Drives Unprecedented Ocean Change \(2019\)](#); [Oregon DAS - Oregon Acidification and Hypoxia Plan \(2019\)](#); [Partnerships for Coastal Watersheds - An Overview of Oregon's South Coast \(2010\)](#)

Investing in Resilient Communities

Portland Metropolitan Region

Multnomah, Washington & Clackamas Counties

Climate projections in the Portland Metro area are characterized by hotter, drier summers with an increased frequency of high-heat days, and warmer winters with more intense rain events. With a combined population of about 1.85 million in these three counties, the impacts of climate change will be most evident in large cities. For these urban areas to adapt and thrive, the region is planning to invest in solutions that build resilient infrastructure and foster community resilience.

INFRASTRUCTURE & GOVERNANCE

Climate change will impact existing public infrastructure systems. It is essential for public safety and welfare to retrofit existing infrastructure and invest in new systems built to withstand climate change impacts.

- **Plan** for future water shortages and institute water conservation and efficiency measures.
- **Renovate** and build public infrastructure systems that are resistant to climate change impacts.
- **Ensure** that energy and communications systems provide consistent and reliable service
- **Support** the transition to renewable energy sources.
- **Develop** interconnected transportation systems with an emphasis on non-automobile travel.
- **Develop** an electric and low carbon vehicle fueling infrastructure.
- **Minimize** the environmental impacts of wastewater discharge and surface water run-off.
- **Develop** green infrastructure systems to mitigate urban heat island impacts, and to filter stormwater run-off.
- **Maximize** waste recycling and composting to reduce greenhouse gas emissions.
- **Implement** building codes and standards to ensure high standards of energy efficiency.
- **Reduce** greenhouse gas emissions in government and business operations and by domestic uses.
- **Sequester** carbon on public and lands within the region to the extent feasible.
- **Protect** and enhance the ability of wetlands, riparian corridors and floodplains to accommodate floodwaters.
- **Maintain** a compact regional urban form.
- **Maintain** a robust planning and management system to address climate emergencies.
- **Monitor** climate change conditions and participate in research.

LIVABILITY & SECURITY

Climate change will require new skills and capabilities to address environmental and quality of life impacts. Vulnerable populations including children, the elderly, those in poor physical and mental health, houseless and low-income Oregonians will be more impacted.

- **Provide** services and programs that address climate and other environmental health risks.
- **Assist** low and moderate-income residents with weatherization and energy conservation.
- **Promote** education, job creation, skills training and workforce support to provide the services, products and materials needed to mitigate climate change impacts.
- **Support** food security systems including access to locally grown foods.
- **Provide** systems for wellness checks and cooling centers for populations most vulnerable to heat.
- **Manage** the increased risk of disease due to changes in vector populations.
- **Strengthen** emergency management capacity to respond to weather-related emergencies
- **Improve** community capacity, especially of populations most vulnerable to climate change impacts, to understand, prepare for and respond to climate emergencies.

[City of Portland and Multnomah County - Climate Action Plan \(2015\)](#); [Metro Climate Strategy \(2015\)](#); [Center for Disease Control - Climate Effects on Health \(2019\)](#)

Investing in Resilient Communities

Southeast Oregon

Lake, Harney & Malheur Counties

Climate change is already impacting Southeast Oregon. Higher temperatures, wildfires, declining snowpack and extreme weather events are disrupting farming, ranching, wildlife and traditional livelihoods. For Oregon's Outback to adapt and prosper, it is important to identify areas of risk and invest in solutions that restore natural resources, protect communities and enhance the region's economy.

AGRICULTURE & IRRIGATION

Climate impacts in Oregon's basin and range region reduce stream flows and groundwater available for irrigation, disrupt traditional agricultural and ranching practices, and compromise the quality of forage for livestock. Prolonged higher temperatures affect the health of ranchers, farmworkers, and livestock.

- **Invest** in water conserving irrigation infrastructure and more efficient on-farm systems.
- **Prioritize** strategies to restore and sustain the quality and capacity of the region's groundwater resources.
- **Assist** farmers and ranchers with cost-saving measures to reduce energy use and with the installation of off-grid solar and battery storage, wind, biofuels, in-conduit hydropower and geothermal power.
- **Invest** in soil health and carbon sequestration, and in the health and productivity of rangelands.

WATERWAYS & WILDLIFE

Higher temperatures, declining snowpack and drought are reducing water in rivers, streams, lakes and wetlands. Wetlands in southeastern Oregon are essential to migratory birds along the Pacific Flyway. Higher temperatures and poor water quality impact fish and wildlife habitat and increase the risk of toxic algae blooms.

- **Fund** restoration and enhancement of rivers, lakes and watersheds to enhance water quality, streamflow, flood water retention, and groundwater recharge.
- **Implement** practices to prevent toxic algae outbreaks and public information to reduce exposure.
- **Engage** adjoining states and Tribal governments to assess the impacts of declining snowpack on the Owyhee and Malheur Rivers and to plan for the region's water future.

LANDSCAPES & WILDFIRE

Range and forest lands in Lake, Harney and Malheur Counties are threatened by more frequent and intense wildfires.

- **Reduce** wildfire fuels on public and private lands, foster interagency and multi-jurisdictional cooperation to prevent and manage wildfires, and assist homeowners and landowners to implement fire risk reduction strategies.
- **Manage** invasive species and the expansion of western juniper.
- **Support** strategies and capital investments for technological innovation and develop markets for wood derived from wildland fuels management.

LIVABILITY & SECURITY

Climate change impacts require investments to support the people who call Southeast Oregon home.

- **Collaborate** with the Burns Paiute Tribe to protect shared natural resources and invest in community resilience.
- **Prioritize** economic diversification, job creation, skills training and workforce support for disrupted industries including agriculture, ranching and tourism.
- **Invest** in projects, facilities and programs to mitigate climate change impacts on tourist destinations and attractions such as Malheur National Wildlife Refuge, the Owyhee River, and Steens Mountain Wilderness Area.
- **Provide** health services and programs that address climate-induced health risks.

Investing in Resilient Communities

Southwest Oregon

Douglas, Josephine & Jackson Counties

Climate change is already impacting Southwest Oregon where higher temperatures, wildfires, recurring drought, declining snowpack and extreme weather events are disrupting agriculture, forests, tourism and outdoor recreation. For Southwest Oregon to adapt and prosper, it is imperative to identify areas of risk and to invest in solutions that safeguard and restore natural resources, protect communities and enhance the region's economy.

LANDSCAPES & WILDFIRE

Forests in the Rogue and Umpqua River watersheds are threatened by more frequent and intense wildfires.

- **Reduce** wildfire fuels in wildland-urban interface on public and private lands.
- **Foster** interagency and multi-jurisdictional cooperation to prevent and manage wildfires.
- **Assist** homeowners and landowners to implement fire risk reduction strategies.
- **Provide** resources for management practices that increase carbon sequestration and forest adaptation.
- **Invest** in the carbon storage potential of forests, wetlands and riparian areas.

WATERWAYS & WILDLIFE

Higher temperatures, periodic drought and lower river and stream flows can increase demands on Southwest Oregon's water resources, harm native fish, promote invasive species and increase the potential for toxic algae blooms.

- **Fund** watershed restoration to enhance natural functions, streamflow and aquifer recharge.
- **Preserve** intact habitats, including old-growth forests and wildlife migration corridors.
- **Implement** community water conservation strategies, including facilities upgrades and education programs.
- **Invest** in practices to prevent outbreaks of toxic algae and other water-borne pathogens.
- **Monitor** groundwater aquifers to ensure their continued viability for domestic and agricultural uses.

AGRICULTURE & IRRIGATION

Hotter, drier summers and more intense storms increase risks for farmers. Some crops may not adapt rapidly to warming conditions and water shortages will impact productivity. Wildfire smoke brings risk and uncertainty, particularly for the wine industry, and creates health risks for farm workers.

- **Invest** in water conservation measures and more efficient irrigation infrastructure.
- **Assist** farmers and ranchers with cost-saving measures to reduce energy use and with the installation of off-grid solar and battery storage, wind, biofuels, in-conduit hydropower and geothermal power.
- **Prevent** the spread of invasive plants, insect species and plant diseases.
- **Invest** in soil health and carbon sequestration in farmland soils.

LIVABILITY & SECURITY

Climate change impacts require investments to support the people who call Southwest Oregon home.

- **Collaborate** with the Cow Creek Band of Umpqua Tribe of Indians and other Tribes to protect shared natural resources and invest in community resilience.
- **Prioritize** economic diversification, job creation, skills training and workforce support for disrupted industries including agriculture, recreation and tourism.
- **Develop** job opportunities including wildland fuels management, restoration, and infrastructure development.
- **Assist** low-and moderate-income residents with weatherization and energy conservation.
- **Provide** health services and programs that address climate-induced health risks.

[OCCRI Fourth Oregon Climate Assessment Report \(2019\)](#); [Oregon Global Warming Commission - 2018 Biennial Report to the Legislature](#); [ClimateWise: Climate Change Preparation in the Rogue River Basin \(2009\)](#); [Oregon Wildfire Risk Explorer \(2019\)](#); [Oregon Water Atlas \(2017\)](#)

Investing in Resilient Communities

Upper Klamath Basin – Klamath County

Climate change is already impacting Klamath County and the Upper Klamath Basin, where decreasing snowpack, higher temperatures, invasive species and wildfires are disrupting farming, ranching, forests and tourism. Recurring drought, and past water management and land reclamation practices, already have contributed to the decline of natural systems. For the region to adapt to climate change, it is critical to identify risks and invest in solutions that restore natural resources, protect communities and enhance the region's economy.

AGRICULTURE & WATER RESOURCES

Climate change impacts decrease the amount of water available for irrigation. Tribal water rights prioritize Upper Klamath Basin flows needed to sustain native fish runs and aquatic habitat in the Klamath Basin.

- **Upgrade** the Upper Klamath Basin's irrigation infrastructure and support water conservation measures.
- **Assist** farmers and ranchers with ways to reduce energy costs and to develop alternative energy systems.
- **Invest** in agricultural and rangeland soil health, productivity and carbon sequestration.
- **Provide** support to agriculture to offset costs arising from climate change adaptation and mitigation.
- **Prioritize** measures to reduce depletion of groundwater resources and prevent contamination of aquifers.

WATERWAYS & WILDLIFE HABITAT

Many streams, rivers and waterbodies need restoration to prevent further decline and to foster resilience.

- **Fund** restoration and enhancement of waterways, wetlands, aquifers and riparian areas.
- **Engage** California stakeholders and Tribes to collaboratively plan for the entire basin's future.
- **Invest** in practices to prevent outbreaks of toxic algae and waterborne disease.
- **Invest** in monitoring the health of the Upper Klamath Basin's surface and groundwater resources.

FORESTS & RANGELAND LANDSCAPES

Invasive species and more frequent and intense wildfires pose threats to communities, watersheds and traditional hunting and food gathering areas for Klamath Tribes.

- **Reduce** wildfire fuels on public and private lands.
- **Foster** interagency cooperation to prevent and manage wildfires.
- **Assist** homeowners and landowners with risk reduction strategies.
- **Manage** invasive species and western juniper expansion.
- **Support** technological innovation and develop markets for wood derived from wildland fuels management.
- **Promote** practices that improve forest health, economic potential and sequester carbon.

LIVABILITY & SECURITY

Investments are needed to support the quality of life for people who call the Upper Klamath Basin home.

- **Work** with Klamath Tribes to protect shared natural resources and foster community resilience.
- **Prioritize** economic diversification, job creation, skills training and workforce support for disrupted industries including agriculture, ranching and tourism.
- **Invest** in projects and infrastructure to mitigate climate change impacts on tourist destinations and activities.
- **Assist** low-and moderate-income residents with weatherization and energy conservation.
- **Provide** health services and programs that address climate induced health risks.

[OCCRI Fourth Oregon Climate Assessment Report \(2019\); Oregon Global Warming Commission-2018 Biennial Report to the Legislature; ClimateWise: Climate Change Preparation in the Klamath River Basin \(2010\); Water Education Foundation - 2018 Annual Report](#)

Investing in Resilient Communities

The Willamette Valley

Washington, Multnomah, Clackamas, Yamhill, Polk, Marion, Benton, Linn & Lane Counties

Climate change is already impacting the nine counties in the Willamette Valley where higher temperatures, wildfires, declining snowpack and extreme weather events are disrupting agriculture, forestry, tourism and quality of life. For communities, farms and businesses to adapt and prosper, it is imperative to identify areas of risk and invest in solutions that safeguard and restore natural resources, protect communities and enhance the region's economy.

WATERWAYS & WATER SUPPLY

Higher temperatures and periodic drought increase demands on the Willamette Valley's water resources. Water shortages will become more common for communities and industries including agriculture. Warming temperatures and low river and stream flows are hazardous for native fish, promote invasive species and increase the potential for toxic algae blooms.

- **Fund** watershed restoration to increase stream flows, groundwater recharge and flood protection.
- **Upgrade** water infrastructure and emphasize water-use efficiency and conservation.
- **Invest** in practices to prevent toxic algae outbreaks and public information to reduce exposure.
- **Restore** wetlands, floodplains, riparian and bottomland forests to contain and manage flood waters, improve water quality and provide wildlife habitat.

AGRICULTURE & IRRIGATION

Hotter, drier summers and more intense storms increase risks for Willamette Valley farms. Some crops may not adapt rapidly to warming conditions and water shortages will impact productivity. Wildfire smoke brings risk and uncertainty, particularly for the wine industry, and creates health risks for farm workers.

- **Prioritize** measures to reduce depletion of surface and ground water resources and prevent contamination.
- **Provide** farmers and ranchers support to offset costs of climate mitigation.
- **Assist** farmers and with cost-saving measures to reduce energy use.
- **Support** methods that protect soil productivity and enhance its capacity for carbon sequestration.
- **Develop** renewable energy sources to reduce energy costs for valley farms, businesses and communities.

LANDSCAPES & WILDFIRE

Forests surrounding and within the Willamette Valley will experience more and greater impacts from wildfires. Fires in the wildland-urban interface threaten communities, especially those along the Coast Range and Cascade foothills.

- **Reduce** wildfire fuels in the wildland-urban interface on public and private lands.
- **Assist** homeowners and landowners to implement fire risk reduction strategies.
- **Foster** management practices that increase forest climate adaption, carbon sequestration, and resilience to fire.
- **Support** capital investments for innovation and develop markets for wood from wildland fuels management.

LIVABILITY & SECURITY

Approximately 70% of Oregon's population resides in the Willamette Valley, contributing to a substantial portion of the state's economy, including agriculture in the lowlands and timber in the Coast Range and Cascades.

- **Maintain** and enhance robust early warning systems for emergency response throughout the region.
- **Prioritize** economic diversification, job creation, skills training and workforce support for disrupted industries including, agriculture, timber and tourism.
- **Collaborate** with Confederated Tribes of the Grand Ronde to protect shared natural resources and invest in community resilience.
- **Invest** in health services and programs that address climate induced health risks.

[OCCRI Fourth Oregon Climate Assessment Report \(2019\)](#); [Oregon Global Warming Commission - 2018 Biennial Report to the Legislature](#); [Oregon Water Atlas \(2017\)](#); [Willamette Water 2100 Project \(2017\)](#); [ClimateWise: Climate Change Preparation for the Upper Willamette River Basin \(2009\)](#)