2021 STATE AGENCY CLIMATE CHANGE ADAPTATION FRAMEWORK

Produced by the Department of Land Conservation and Development in Collaboration with Multiple State Agencies

Participating State Agencies

Business Oregon
Department of Administrative Services
Department of Agriculture
Department of Consumer and Business Services - Building Codes
Department of Consumer and Business Services - Insurance
Department of Environmental Quality
Department of Fish and Wildlife
Department of Geology and Mineral Industries
Department of Land Conservation and Development
Department of State Lands
Geospatial Enterprise Office
Office of Emergency Management
Oregon Department of Energy
Oregon Department of Forestry
Oregon Department of Transportation
Oregon Employment Department
Oregon Health Authority
Oregon Housing and Community Services
Oregon Parks and Recreation Department
Oregon State Marine Board
Oregon State Police - State Fire Marshal
Oregon Water Resources Department
Oregon Watershed Enhancement Board
Public Utilities Commission

Acknowledgements

Celinda Adair
Jonathan Allan
Rose Anderson
Brenda Bateman
Jerri.L.Bohard
Andrew.Boulton
Maya Buchanan
Harmony S. Burright
Judith Callens
Shaun Clements
Alana Cox
Geoff Crook
Curtis Cude
Kristen Darmody
Renee Davis
Kathie Dello
Glenn Dolphin
Dan Elliott
Erica Fleishman
Shannon Flowers
Kuri Gill
Gabriela Goldfarb
Justin Green
Ali Hamade
Kim Herb
Laurel Hillmann
Amanda Ingmire
Lesley Jantarasmi
Kevin Jeffries

Anna L Johnson
Jim Johnson
Jennifer Kenny
Marian Lahav
Andy Lanier
Rachel Lovellford
Garrett Martin
Palmer Mason
Leigh McIlvaine
Ali Mirzakhalili
Danny Norlander
Stephanie Page
Davia Palmeri
Breeze Potter
Charlotte Regula Whitefield
Bill Ryan
Kristin Schafer
Julie Sifuentes
Katherine Silva
Lauren Slawsky
Ken Stahr
Trevor Taylor
Chas VanGenderen
David Wortman
Emily York
Andrew Yost
Alan Zelenka
Kathy Zarate

Special thank you to:

Oregon Climate Change Research Institute
OSU Extension

Executive Summary

Oregon is already experiencing the effects of the changing climate and ocean. Statewide, air temperatures are rising, winter snow packs are decreasing, and ocean chemistry is shifting – these drivers have cascading effects, impacting both our communities and the environment on which we depend. Climate impacts are not expected to affect all regions and communities equally with underserved populations, rural communities, and fragile ecosystems disproportionally affected. Oregon must act now to reduce future impacts and address social and financial inequities.

State government has a duty to our communities, businesses, and future generations not only to reduce emission of Green House Gases (GHGs), the primary cause of climate and ocean change, but to take action to address the impacts of change across all sectors. The 2021 Oregon Climate Adaption Framework (Framework) urges the state to plan for and respond to these impacts in a transformative, coordinated, and efficient manner amplifying our impact and minimizing redundant effort. Doing so will allow Oregon to take advantage of emerging opportunities and harness existing state resources to protect people and the environment.

The Framework was prepared by a work group of 24 state agencies, coordinated by the Department of Land Conservation and Development. Framework recommendations are designed to strengthen interagency coordination and consideration of equity, diversity, and inclusion in program planning and delivery. Although it is aimed at activities undertaken by state agencies, many of these programs and projects must be implemented in collaboration with local government and community partners.

The Framework is presented in *THREE PARTS*

Part One: Guiding Principles

To support state action to adapt to and mitigate climate change, Part One of the Framework identified three guiding principles that state agencies have already begun to implement.

- **Embrace flexibility in the face of climate change uncertainty**, through Oregon's use of adaptive management frameworks and community driven scenario planning.
- **Recognize that climate change is a "stress multiplier"** that exacerbates existing political, economic, social, and environmental tensions throughout Oregon.
- **Acknowledge climate change will not be borne equally by all people**, thus requiring Oregon state agencies to tailor programs and investments to redress inequities.

Part Two: Administrative Framework

The extensive scope and scale of adaptation demands a coordinated response. Part Two of the Framework presents five administrative actions that are necessary to achieve an integrated climate change adaptation program in Oregon.

- Establish a multi-agency leadership structure, ensure wide-ranging benefits, reduce conflicts, and achieve balance across the state's natural resources, economies, and communities.
- Ensure use of best practices in diversity, equity, and inclusion, when engaging communities to make certain that the state's future investments are targeted where they are needed most.
- Complete a comprehensive climate change vulnerability assessment, integrated across sectors and agencies, to identify key vulnerabilities, sources of resiliency, and opportunities for action.

- Improve interagency coordination and information sharing, by evaluating, prioritizing, and developing a range of tools to support effective interagency communication and collaboration.
- Integrate responses to climate change throughout agency operations, through fully incorporating actions into agency missions, authorities, programs, plans, and budget requests.

Part Three: Climate Change Adaptation Strategies

Part Three of the Framework describes adaptation strategies and approaches within six themes:

THEME	GOAL
ECONOMY	*Promote resilient, innovative, and inclusive Oregon economies that addresses climate change challenges and opportunities.*
NATURAL WORLD	*Support robust functioning of Oregon's terrestrial, aquatic, coastal, and marine ecosystems as the climate changes.*
BUILT ENVIRONMENT AND INFRASTRUCTURE	*Ensure Oregon buildings, utilities, and infrastructure are resilient to extreme weather and climate change.*
PUBLIC HEALTH	*Reduce climate-related health risks and promote Oregon community resilience, especially among people and communities who are disproportionately affected.*
CULTURAL HERITAGE	*Research, plan for, and adapt to the impacts of climate change on Oregon's cultural landscapes.*
SOCIAL RELATIONSHIPS AND SYSTEMS	*Create equitable, livable and engaged Oregon communities in response to the impacts of climate change.*

The strategies and approaches developed in the themes require multiple state agencies to implement, demonstrating the need for on-going coordination. Many more climate change adaptation projects will need to be implemented by individual agencies, using the Framework as a guide.

MOVING FORWARD

Publication of the Framework is a first step on a long path towards an equitable, prosperous future in the face of climate change. The next steps will require adjusting state agency budgets, programs and projects as recommended in the Framework. This will require on-going trade-offs and deliberation among agency leadership. Together we can rise to the challenge of adapting to climate change.

For more information about the 2021 Oregon Climate Adaption Framework visit:
https://www.oregon.gov/lcd/CL/Pages/Adaptation-Framework.aspx

---

Introduction

Framework Vision: Oregon's people and ecosystems thrive in the face of a changing climate.

PURPOSE

The 2021 State Agency Climate Change Adaptation Framework (Framework) is intended to guide state leadership and staff as they make decisions about where to invest resources in response to climate change. Although the Framework is aimed at activities undertaken by state agencies, the authors recognize that many of these programs and projects will be implemented in collaboration with local government and community partners. The Framework was prepared by a work group (Workgroup) composed of staff representing 24 state agencies, coordinated by the Department of Land Conservation and Development. It is an update to the Oregon Climate Change Adaptation Framework[1], published in 2010, which identified likely risks facing the state related to climate change, and recommended actions to prepare for those risks. Progress was made toward implementing many of the recommended actions (Appendix B), but the state knows more about the risks and opportunities created by climate change now than in 2010, and the pace of change is faster than was expected. The time is right to update the Framework and advance its implementation as an integrated program that harnesses the existing capacity of the executive branch to ensure that Oregon's people, ecosystems, and economy thrive in the face of climate change.

STRUCTURE

The Framework is presented in five parts. **Part One** acknowledges that climate change is already happening in Oregon, and asserts that even with aggressive action to reduce greenhouse gas emissions, climate change effects will be experienced for decades to come. **Part Two** recognizes that the State of Oregon's response to these effects will demand coordinated actions of many state agencies. Recommendations are made with the intent to strengthen interagency coordination and consideration of equity, diversity, and inclusion in program planning and delivery. **Part Three** describes major changes the state can expect as a result of climate change within six themes: economy, natural world, built environment and infrastructure, public health, cultural heritage, and social systems. Strategies for responding to these changes are described within each theme. **Part Four** describes a brief summary of the Framework and an overview of key actions. **Part Five** is a complete copy of the 2020 Oregon Climate Equity Blueprint. Separate appendices provide resources that state decision makers may consult as they develop specific programs or projects in response to climate change.

Descriptions of climate change effects and vulnerabilities were summarized from climate change assessments prepared by the Oregon Climate Change Research Institute (OCCRI). Readers are invited to consult OCCRI's 2021 report to learn more about projected geophysical, social, and economic consequences of climate and ocean change in the state[2].

---

[1] https://www.oregon.gov/lcd/Publications/Climate_Change_Adaptation_Framework_2010.pdf

[2] Dalton, M.M., and E. Fleishman, editors. (2021) Fifth Oregon climate assessment. Oregon Climate Change Research Institute, Oregon State University, Corvallis, Oregon. https://oregonstate.app.box.com/s/7mynjzhda9vunbzqib6mn1dcpd6q5jka

Table of Contents

PART ONE: WHY WE MUST ADAPT

Oregon is already experiencing the impacts of a changing climate, and these are expected to intensify in the coming decades even if greenhouse gas (GHG) emissions are dramatically reduced[3,4]. Despite Oregon's efforts to mitigate GHG emissions, we can expect more frequent droughts, floods, wildfires, and heat waves to continue. Seas will continue to rise and the ocean will continue to become more acidic and hypoxic[5]. This is because GHGs stay in the atmosphere for decades[6].

State government has a duty to its communities, businesses, and future generations not only to reduce emission of GHGs without delay and encourage practices that sequester carbon, but also to adapt to changes caused by existing concentrations of GHGs in the atmosphere. Doing so will allow the state to take advantage of emerging opportunities, protect Oregon's people and environment, and make the most efficient use of limited state dollars.

Definitions

Mitigation – reducing the flow of heat-trapping greenhouse gases into the atmosphere by reducing sources of these gases (e.g., the burning of fossil fuels for electricity, heat or transport).
Sequestration – enhancing the "sinks" that accumulate and store these gases (e.g., the oceans, forests, and soil).
Adaptation – long term, transformative, actions implemented to adapt to life in a changed climate.

---

1. Climate and Ocean Projections in Oregon

The Oregon Climate Change Research Institute (OCCRI) conducts biennial assessments that describe expected effects of climate change in Oregon over the next 30 – 40 years. Findings from the 2017, 2019, and 2021 reports include the following:

- Incidence of stormy weather is likely to increase along the coast, causing flooding from storm surge, coastal erosion, landslides, and severe wind events.

- Sea levels will continue to rise, exacerbating damage caused by storms and affecting estuarine ecosystems, coastal infrastructure, and water supplies due to salt water intrusion.

- A longer growing season may increase crop productivity in some areas, but also increase weed and pest loads.

- Changes to Oregon's assemblages of plants and animals will affect people who depend on relatively stable ecosystems for their cultural identity, health, and livelihoods.

- The number of days per year exceeding 86 degrees Fahrenheit likely will increase in many inland areas of the state, threatening the well-being of outdoor workers, health-compromised individuals, the young and old, and the functioning of Oregon's infrastructure.

---

[3]Mote, P.W., J. Abatzoglou, K.D. Dello, K. Hegewisch, and D.E. Rupp (2019) Fourth Oregon Climate Assessment Report. Oregon Climate Change Research Institute. https://oregonstate.app.box.com/s/vcb1tdkxvisghzsom445l5wpu256ecqf
[4]Samset, B.H., Fuglestvedt, J.S. & Lund, M.T. (2020) Delayed emergence of a global temperature response after emission mitigation. *Natural Communities* **11,** 3261. https://doi.org/10.1038/s41467-020-17001-1
[5]Oregon Governor's Natural Resource Office. Oregon Ocean Acidification and Hypoxia Action Plan 2019 - 2025. August 2019. https://www.oregonocean.info
[6]https://archive.ipcc.ch/ipccreports/tar/wg1/016.htm

- Precipitation arriving as rain instead of snow will result in earlier runoff, flashier river systems, flooding, less groundwater recharge, less snowpack, and glacial retreat, in turn leading to summer water shortages, increased in-stream water temperatures, and lost recreational opportunities.

- Summer wildfire risk will increase due to a longer dry season and stress brought about by drought, pests, and disease, in turn causing increased incidence of air pollution events, floods, and debris flows.

- The effects of climate change will not be felt or borne equally by all people, communities, or sectors of the economy.

Anthropogenic carbon emissions, which drive climate change, also have caused many changes to Oregon's coastal oceans and estuaries. Oregon's Ocean Acidification and Hypoxia Council, in addition to other regional science groups, have identified several key ocean change drivers and impacts including:

- Ocean temperatures are warming, and warming events are increasing in intensity and duration throughout North Pacific (including events such as "Warm Blobs").

- Oceans and estuaries are becoming more acidic and less oxygenated, and these events are increasing in intensity and duration.

- Sea levels will continue to rise, exacerbating damage caused by storms and affecting estuarine and coastal ecosystems, coastal infrastructure, and water supplies due to salt-water intrusion.

- Combinations of ocean change drivers (e.g., warming, coastal currents and upwelling, ocean acidification, hypoxia) are causing large scale ecosystem shifts such as loss of key submerged aquatic vegetation (SAV) habitats and impacting Oregon's fisheries.

2. Responding to Change

Responding to these effects after they occur will cost much more than taking action in advance. A report published by the federal Multi-Hazard Mitigation Council estimates that implementing advance measures to reduce potential damage to buildings and infrastructure caused by natural hazard events returns four to six times the initial investment[7]. Investing in climate change adaptation before serious damage occurs to buildings and infrastructure has the potential to generate similar returns. But many of the disruptions caused by natural hazard events and climate change damage more than buildings and infrastructure, and cannot be measured in dollars:

- Disasters disconnect people from friends, schools, work, and familiar places. They ruin family photos and heirlooms and alter relationships. Large disasters may cause permanent harm to one's culture and way of life, and greatly impact the most socially and financially vulnerable people.

- Disasters may have long-term consequences to the health and collective well-being of those affected. Such events often hurt or kill pets and destroy natural ecosystems that are integral parts of communities.

- Disasters clearly disrupt populations in ways that are difficult to articulate, let alone assign monetary worth[8].

---

[7]Multi-Hazard Mitigation Council (2019). Natural Hazard Mitigation Saves: 2019 Report. Principal Investigator Porter, K.; Co-Principal Investigators Dash, N., Huyck, C., Santos, J., Scawthorn, C.; Investigators: Eguchi, M., Eguchi, R., Ghosh., S., Isteita, M., Mickey, K., Rashed, T., Reeder, A.; Schneider, P.; and Yuan, J., Directors, MMC. Investigator Intern: Cohen-Porter, A. National Institute of Building Sciences. Washington, DC. www.nibs.org
[8]Intergovernmental Panel on Climate Change. page 2. https://www.ipcc.ch/

Economic analysis of climate change adaptation has evolved from a focus on cost-benefit analysis to multi-metric evaluation that includes social and equity costs and benefits of alternative actions. Furthermore, as the Intergovernmental Panel on Climate Change (IPCC) makes clear, "Many adaptation and mitigation options can help address climate change, but no single option is sufficient by itself. Effective implementation depends on policies and cooperation at all scales and can be enhanced through integrated responses that link mitigation and adaptation"[9].

The expected natural, economic, and cultural changes described above will require many state agencies to modify their management objectives. This Framework describes what will be needed to inform and prioritize effective climate change adaptation decisions to ensure Oregon and Oregonians thrive as the climate changes. Although this document focuses on adapting to climate change, the state must not lose sight of the importance of reducing emissions of greenhouse gases to avoid potentially catastrophic climatic changes[10].

To this end, legislation enacted in 2007 (HB 3543) set forth specific GHG reduction goals:

- Arrest the growth and begin reducing GHG emissions by 2010.
- Achieve GHG levels that are 10 percent below 1990 levels by 2020.
- Achieve GHG levels that are at least 75 percent below 1990 levels by 2050.

In 2020, these goals were expanded by the Governor's Executive Order 20-04, which directed the state to reduce GHG levels to 45 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. The Executive Order directed state agencies to prioritize policies and actions that achieve these emissions reduction goals.

Coping versus Adapting

The terms "adapting" and "adaptation" in this Framework refer to long-term, transformational actions in anticipation of future changes. This is in contrast to the term "coping" and "coping responses", which are short-term reactions to climate change. For example, an adaptation to an expected increase in the number of very hot days would be to change buildings and urban landscapes to encourage passive cooling, whereas a coping response would be to open community cooling centers to reduce short-term harm. Coping responses may be needed initially, but eventually society will need to reduce reliance on coping and transition to practices that recognize changed conditions.

The state is not on target to achieve the original 2007 GHG emissions reduction goals, let alone the 2020 goals (**Figure 1**)[11]. To help achieve EO 20-04 targets, state agencies must prioritize implementation of adaptation actions that have the co-benefit of reducing GHG emissions or sequestering carbon.

---

[9] https://ar5-syr.ipcc.ch/topic_adaptation.php

[10] Gordijn, Bert & Have, Henk. (2012) Ethics of mitigation, adaptation and geoengineering. Medicine, health care, and philosophy. 15. 1-2. 10.1007/s11019-011-9374-4.

[11] https://static1.squarespace.com/static/59c554e0f09ca40655ea6eb0/t/5fe137fac70e3835b6e8f58e/1608595458463/2020-OGWC-Biennial-Report-Legislature.pdf
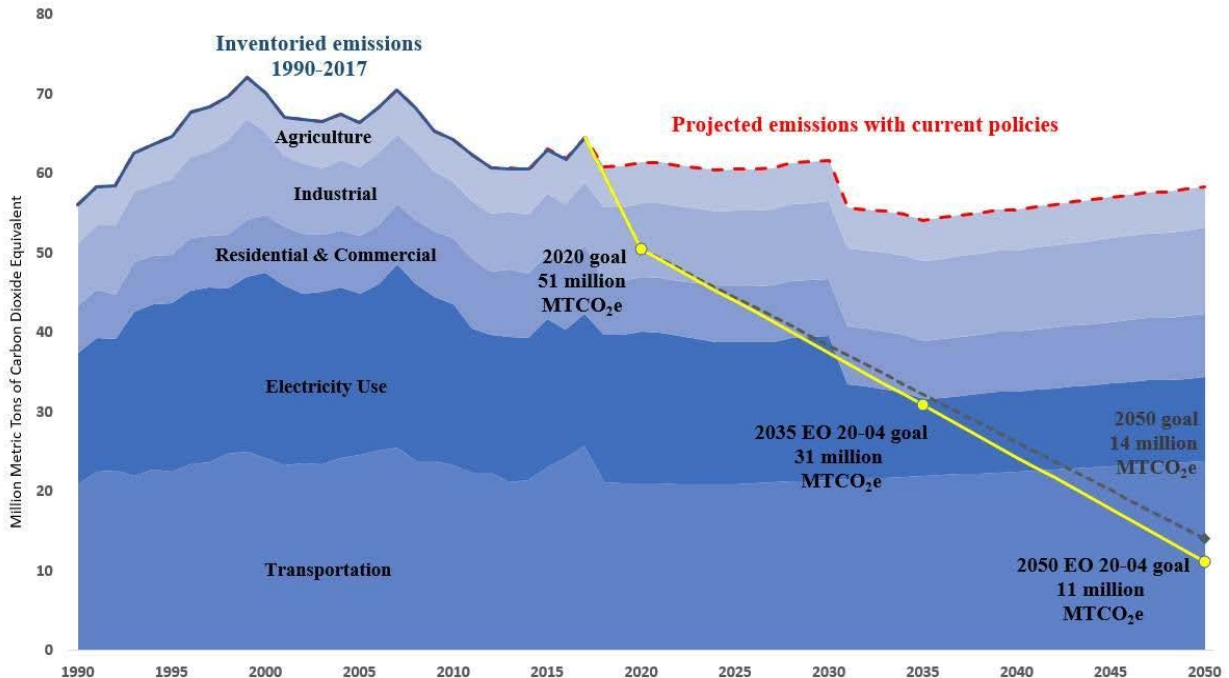
Figure 1: Greenhouse Gas Emissions in Oregon: Forecast & Goals for HB3543 (2007) and E.O. 20-04[12]. Source: 2020 Oregon Global Warming Commission Biennial Report

3. Adaptation Challenges

The changes brought about by climate change may be gradual or episodic. Gradual changes are likely to affect large areas, and with appropriate investments in monitoring, adaptations can be deployed within existing planning and budgeting horizons. The location, timing, scale, and consequences of episodic changes, such as those brought about by the catastrophic Labor Day 2020 wildfires, can be harder to predict. Response to these types of events are more disruptive to state agency operations. Nonetheless, both types of event share common challenges including:

- The need to embrace flexibility in the face of uncertainty.
- Acknowledgement that climate change is a "stress multiplier" exacerbating existing political, economic, social, and environmental tensions[13].
- Acknowledgement that the effects of, and the ability to respond to, climate change will not be borne equally by all people, thus demanding tailored responses.

FLEXIBILITY

Planners, engineers, resource managers, and others traditionally have relied on signals from the past to plan for the future. Useful tools – statistics, engineering equations, and qualitative research via interviews or surveys, for example– rely on discerning patterns from the past to project future conditions and behaviors. In this way, historic records and experience with similar problems lend confidence to future projections. Climate change reduces confidence in our predictions by throwing doubt on the idea that the past can be relied upon to predict the future. For this reason, planning for the future well-being of people, infrastructure, and natural systems in an era of climate change will be one

---

[12]https://www.oregon.gov/energy/energy-oregon/Pages/Greenhouse-Gas-Snapshot.aspx, modified by DEQ 7/7/2020
[13]https://climateandsecurity.files.wordpress.com/2012/04/climate-change-as-threat-multiplier_understanding-the-broader-nature-of-the-risk_briefer-252.pdf

of the greatest challenges that Oregon faces. State agencies will need to be flexible as projects are planned and designed[14].

It will be necessary, for example to:

- Avoid investing in capital intensive projects that rely on a specific projection of future conditions to protect life and property, and if they fail can cause loss of life or extensive damage. Failure of seawalls and levees are examples of projects that have the potential to cause significant harm when their design parameters are exceeded.

- Embrace exploratory scenario planning and other tools that evaluate ranges of plausible futures to inform adaptation planning[15,16].

- Increase innovative problem-solving through pilot projects and community-identified solutions.

- Regularly evaluate and update planning and engineering rules and design standards in response to changing conditions[17].

STRESS MULTIPLIER

Climate change is a stress multiplier because it heightens already existing local, regional, political, and social tensions. This was demonstrated during the health and economic crisis of COVID-19 and the Labor Day wildfires of 2020. Oregonians with jobs that can't be performed at home, those who work outside, children, the elderly, those who live in close quarters with others, and those with respiratory, nervous system or cardiovascular health issues suffered more from these events than those unencumbered by these preexisting stresses[18].

Another one of these tensions is distrust in government. Although government plays a significant role in ensuring safe, comfortable, equitable communities through resource planning and regulation, provision of public services and amenities, and emergency management, a long history of favoring the interests of privileged classes and dominant white culture has created deep distrust in government within some communities such as tribal nations, rural areas, disadvantaged neighborhoods, and communities of color. This dynamic will need to be considered as state agencies chart their course and engage with communities across Oregon. Even with good intentions, improvements will not be made without increased investment in rebuilding trusting relationships.

TAILOR RESPONSES TO REDUCE INEQUITIES

Not all people are able to take effective adaptive action in the face of climate change. These are often people who already are marginalized or rely on relatively stable ecosystems for their livelihoods. Likewise, individuals who lack access to power, employment, decent housing, and financial markets lack resources sufficient to prepare for and respond to the changes brought about by climate change.

---

[14]Chester, M., Underwood, B.S. & Samaras, C. (2020) Keeping infrastructure reliable under climate uncertainty. National Climate Change. **10,** 488–490. https://doi.org/10.1038/s41558-020-0741-

[15]https://www.cakex.org/documents/scenario-planning-climate-change-adaptation-guidance-resource-managers

[16]Goodspeed, Robert (2020) Scenario Planning for Cities and Regions: Managing and Envisioning Uncertain Futures, Lincoln Institute of Land Policy

[17]Anguelovski, I., Shi, L., Chu, E., Gallagher, D., Goh, K., Lamb, Z., & Teicher, H. (2016). Equity Impacts of Urban Land Use Planning for Climate Adaptation: Critical Perspectives from the Global North and South. Journal of Planning Education and Research, 36(3), 333–348 .https://doi.org/10.1177/0739456X16645166

[18]Climate Fixes Can Help Cities Lead Covid Recovery (2020) Bloomberg, https://www.bloomberg.com/news/articles/2020-12-22/climate-fixes-can-help-cities-lead-covid-recovery

State agencies must tailor their programs and investments to redress these inequities as they are expressed locally. In some cases, community-identified solutions may be different than what state officials would prioritize. However, solutions that are culturally and locally responsive are likely to produce co-benefits, some of which may not be initially considered by state programs designed to achieve single outcomes. The Climate Equity Blueprint presented in Appendix A of this document describes tools developed specifically for Oregon that state agencies can use to advance equitable climate adaptation planning and action.

PART TWO: IMPLEMENTING COMPREHENSIVE CLIMATE CHANGE ADAPTATION

Climate change adaptation requires integrated planning and action across many themes. Later in this Framework we discuss climate change adaptation organized under six themes. In this section, we present five actions necessary to implement a program of climate change adaptation that transcend themes:

1. **Establish a multi-agency leadership structure.**
2. **Ensure use of best practices in diversity, equity, and inclusion (DEI).**
3. **Complete a comprehensive climate change vulnerability assessment.**
4. **Improve interagency coordination and information sharing.**
5. **Integrate responses to climate change throughout agency operations.**

1. Establish a Multi-agency Leadership Structure

The state needs a short-term and a long-term plan for leading, directing, and resourcing a coordinated statewide strategy to advance meaningful climate change adaptation. State agencies often are fragmented by law, statutory authority, mission, budget, and programs. The policy directions, regulatory decisions, and coping or adaptation actions that benefit one sector may align or conflict with the interests of another. A coordinated government response would ensure wide-ranging benefits, reduce conflicts, and achieve balance among sectors in a way that maximizes outcomes for the state's natural resources, economy, and communities.

Such a system of leadership and coordination will foster:

- A balanced adaptation response that promotes equity among sectors and communities impacted by climate change.

- An efficient and effective response that makes the best use of limited resources.

- A culture of agencies working collaboratively to increase the likelihood of achieving desired outcomes.

- Expeditious implementation of critical adaptation measures that avert climate change impacts to Oregon's economy and environment at decreased cost.

The Workgroup recommends that the state implement a two-stage approach to climate change adaptation leadership. In the near term, the state should quickly mobilize existing interagency structures to satisfy the need for initial coordination in recognition of the urgency of climate change threats. This mobilization also addresses the limitations of current budget and capacity challenges associated with responding to COVID-19 and the Labor Day 2020 wildfires. For the longer term, the state needs to evaluate options for, and implement, a transformative approach to climate change adaptation leadership.

STRATEGIC RESPONSES

Immediately Initiate a Near-Term Leadership Structure

The Workgroup recommends that the Natural Resources Cabinet take an immediate leadership role in advancing climate change adaptation. Recognizing that the Cabinet is composed of executives from a large number of state agencies, we recommend that a small subgroup of directors and senior staff be

assembled under the auspices of the Cabinet. This subgroup would work through the details of issues before deliberations take place at the Cabinet level. Senior staff from many agencies already are active in adaptation. They would serve as members of the subgroup, and interact with staff of other agencies where issues require additional input. Examples of such agencies are the Oregon Health Authority (OHA), Oregon Watershed Enhancement Board (OWEB), Oregon Department of Fish and Wildlife (ODFW), Oregon Department of Forestry (ODF), Oregon Department of Environmental Quality (ODEQ), Oregon Department of Land Conservation and Development (DLCD), Oregon Department of Energy (ODOE), Oregon Department of Transportation (ODOT), and Oregon Business Development Department (DBA Business Oregon). These agencies also are included in Executive Order 20-04.

The subgroup, working at the direction of Natural Resources Cabinet, can immediately:

- Identify existing initiatives and programs that could benefit from increased cross-agency collaboration and develop recommendations to improve integration of adaptation and equity actions.
- Select recommendations from the Climate Equity Blueprint, discussed later in this Framework, to advance immediately.
- Develop recommendations to address critical gaps or barriers (e.g., programs, administrative rules, statutory changes) to the state's adaptation response.
- Advise on a scope of work for a comprehensive vulnerability assessment (if funded in 2021 Oregon legislative session).

This near-term leadership structure is intended to elevate climate change adaptation, including consideration of diversity and equity, as a high priority in state government decision-making, and to take initial, strategic actions to address adaptation, while being mindful of the state's resource constraints. The leadership structure will not be sufficient to implement the transformative actions needed to achieve long-term climate change adaptation across the breadth of state government. The need remains to institutionalize climate change adaptation leadership.

Coordinate a Process to Establish a Long-Term Leadership Structure to Guide Transitional Change

Long-term (30+ year) strategic coordination and direction is needed to advance climate change adaptation. The Workgroup recommends that during the 2021-2023 biennium, the Governor's office coordinate a process to identify a leadership model that best addresses current and future challenges associated with climate change.

A transformative leadership structure would:

- Integrate with efforts to mitigate greenhouse gas emissions and sequester carbon.
- Have the authority to balance conflicting policies and goals around land, water, and energy planning and siting to avoid working at cross purposes and to align regulations.
- Have the authority to align policies and actions with existing science and to develop new science, incentive programs, and regulations across all sectors to achieve adaptation and preparedness goals (which may vary spatially among sectors).
- Optimize the use of funds or other state efforts to achieve health, equity, economic, and other co-benefits related to climate change adaptation and preparedness.

- Plan over multiple biennia, developing coordinated budgets and prioritizing the use of state funds for adaptation and preparedness efforts.

2. Use Best Practices in Diversity, Equity, and Inclusion (DEI)

The Workgroup identified the need to involve diverse communities in planning and implementing climate change adaptation measures to ensure that the state's future investments are targeted where they are needed most. In response, the Workgroup formed a Climate Equity Subgroup to help identify and integrate best practices into the state's climate related decision-making. Their work resulted in a set of activities and recommendations intended to build the state's capacity to address issues related to DEI.

Key Findings from the 2020 Climate Equity Survey:

50% of state agencies reported not yet operationalizing DEI best practices within their climate-related work, and 38% said they were "just beginning" to do so. Oregon agencies may not systematically use DEI best practices when engaging the public because doing so is not specifically required.

Many agencies said they lacked capacity and expertise within their climate programming to appropriately engage with community-based organizations. Agencies identified the need for:

- Leadership and communication about how to incorporate DEI best practices into climate-related work.
- Greater awareness among climate staff of existing state-level DEI policies and directives.
- Training on how to review policies with an equity lens and incorporate DEI best practices into climate decision-making.
- Tools to identify and involve diverse and frontline communities, including tribes, communities of color, and low-income and rural communities.
- Opportunities and mechanisms for sharing best practices across agencies.

To establish a baseline of shared understanding, the Climate Equity Subgroup identified the need for Workgroup agencies to receive baseline DEI training. With support from the Oregon Health Authority and the Oregon Department of Forestry, the Climate Equity Subgroup retained a team of consultants to design and deliver training and guidance. The resulting DEI "level-setting" training was informed by input received through a Climate Equity Survey to which 16 state agencies responded in early 2020[19]. The Subgroup, with consultant support, also published a Climate Equity Blueprint to be used by state agencies.

STRATEGIC RESPONSES

Use the Climate Equity Blueprint Developed by the Climate Equity Subgroup

The Workgroup recommends that state agencies use the Climate Equity Blueprint (PART 5) while planning and implementing climate change adaptation measures. The Blueprint provides key term definitions, best practices, case studies, and resources. The Blueprint draws from a series of meetings

---

[19]https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/CLIMATECHANGE/Documents/2020/Climate%20Equity%20Training/Climate-Equity-Interagency-Level-Setting-Training.pdf

held by the Climate Equity Subgroup, the Oregon Environmental Justice Task Force (EJTF) Best Practices Handbook[20], and other resources and input from advisors and community partners.

Implement the enterprise-wide recommendations from the climate equity consultants

In the course of developing the Blueprint, the consultants identified the need for enterprise-level strategic investments in equity and environmental justice, which are provided in a letter included in the Blueprint. They include:

- Establishing new requirements for workforce training in environmental justice, community engagement and equity.

- Developing sector-specific climate equity goals and metrics.

- Dedicating staff resources to actively lead and participate in an ongoing interagency climate justice 'community of practice' where community partnerships, data, resources, and best practices can be shared and leveraged across the enterprise.

- Articulating processes that agencies can use to identify climate-vulnerable communities most affected by State policy, planning, and project-level decisions.

- Designating an entity (agency, office or other body) to create and manage a new climate justice capacity-building fund that enables community based organizations (CBOs) to engage in and co-lead State climate projects.

Connect to the work of the Interagency Workgroup on Climate Impacts and Impacted Communities

Many of the agencies involved in updating this Framework also are engaging in an interagency workgroup on climate impacts and impacted communities established through Governor Kate Brown's Executive Order 20-04. This work, along with a proposed vulnerability and resilience assessment (discussed in Section 3 below), will further define and identify populations in Oregon most at risk from climate change (**Figure 2**). Information on approaches to identifying affected communities is found in the Social Systems section of this document.

---

[20]https://www.oregon.gov/gov/policy/environment/environmental_justice/Documents/2016%20Oregon%20EJTF%20Handbook%20Final.pdf

Figure 2: Climate Equity Blueprint: Best Practices.

How do we know if application of an equity lens to climate work is successful?

Success is achieved when:
- People most affected by climate-driven disruptions are centered in the solutions and their voices and leadership are amplified in all discussions.
- Strategies that are developed collectively, and through collaboration with communities, reflect the priorities and address the concerns of the most marginalized communities.
- Quantitative and qualitative data demonstrates meaningful progress and sharing of co-benefits.
- The disparities brought on by historical inequities decrease, and data demonstrate an improvement in the quality of life for those most marginalized by societal systems.

3. Identify Climate Change Challenges and Opportunities

Oregon's climate is changing, impacting people, communities, the economy, and the environment. The impacts are complex and inter-related. In order for the state to fulfill its duty to protect people and the environment, avoid unnecessary costs, focus limited agency resources and staffing, and take advantage of emerging opportunities, the state needs a comprehensive understanding of the challenges and opportunities presented by climate change.

The Framework uses the term "social resiliency assessment" to refer to assessment of social vulnerability because by taking action to increase social resilience, vulnerability to climate change stress can be reduced. Efforts have been made in Oregon to characterize climate change vulnerability. The biennial climate assessments produced by OCCRI largely focus on describing geophysical effects of

climate change. These are used by state agencies to examine how these might impact agency operations and projects. While valuable, these agency assessments use different methods and baseline information, and are limited in scope to each agency's mission and authorities. As a result, they are difficult to compare and coordinate across the enterprise of state government. Furthermore, almost none assess social resiliency.

Social scientists have pointed out a community's susceptibility to harm, given comparable levels of exposure to physical changes associated with climate change, is driven by the capacity of an individual, household, or community to prepare for, cope with, or adapt to impacts. Social adaptive capacity varies widely by factors such as income race, age, health status, community cohesion, and degree of isolation[21]. Because harm to people varies both by exposure and social factors, it is useful to distinguish between physical and social vulnerability when completing a vulnerability assessment. The Oregon Health Authority's Social Resilience Project looks at the importance of social factors in strengthening resilience to climate stressors and protecting physical and mental health. This is an important first step towards including people in building resilience in the face of climate change.

Similarly, when applied to asset management, vulnerability assessments identify what is at risk of harm due to climate change and develop strategies for reducing the magnitude or consequences of that harm. Natural resources, and the ecosystem services they provide to people, also are vulnerable to harm due to climate change. Vulnerabilities in these systems are assessed by evaluating how climate change is likely to affect natural systems, how sensitive they are to permanent change, and what actions might be taken to reduce the consequences of that change to ecosystem function and services they provide to people.

STRATEGIC RESPONSES

Complete a Comprehensive Climate Change Vulnerability and Social Resiliency Assessment

The Workgroup recommends that the state invest in a comprehensive climate change vulnerability and social resiliency assessment, beginning sooner rather than later. The assessment should be integrated across themes and agencies, and identify key vulnerabilities as well as sources of resiliency and opportunity (**Figure 3**). Vulnerability assessments have long been the cornerstone of climate change adaptation planning.

In general, three factors determine a system's vulnerability in the face of climate change:
- **Exposure** – the nature and degree to which a natural or social system is exposed to climatic variation or state change.
- **Sensitivity** -- a system's tendency to persistently or permanently change as a result of exposure.
- **Adaptive Capacity** – the ability of a system to adjust to changes.

---

[21]https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/CLIMATECHANGE/Pages/social-resilience.aspx
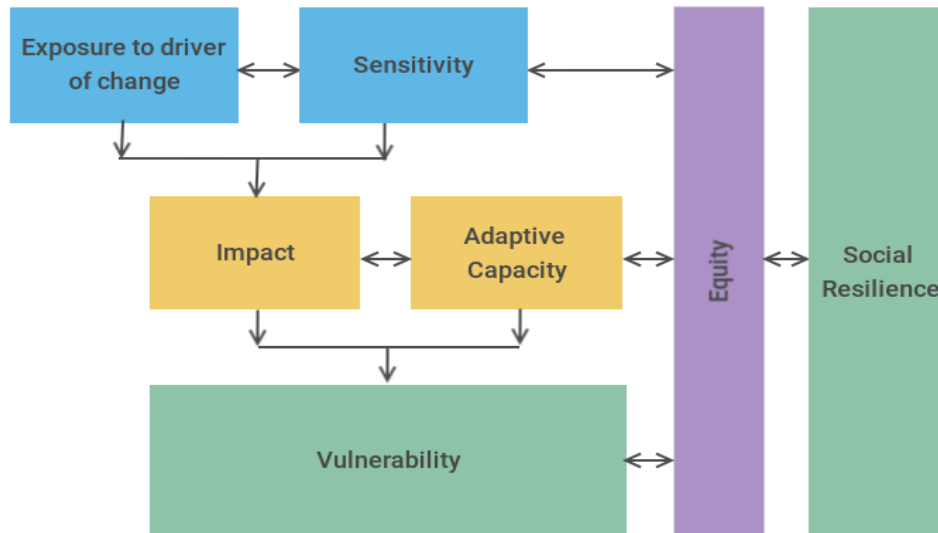
Figure 3: Climate change vulnerability and social resilience assessment model [22].

The Workgroup recommends that this model be adjusted to place equity at its core. Such a comprehensive assessment help direct resources where they are needed most by:

- Identifying people, infrastructure, and activities especially affected by climate change.
- Better understanding connections and dependencies among sectors, natural resources, infrastructure, and people.
- Better understanding the locations where conflicts and opportunities might arise.
- Identifying actions that will build social, environmental and economic resilience.
- Identifying gaps in our knowledge and understanding.

The Workgroup recommends that a steering committee, assembled from staff across the state agencies, develop a scope of work and a "request for proposals" (RFP) with the intent of engaging an experienced contractor to carry out a comprehensive vulnerability and social resilience assessment. Recognizing that some agencies are already working on assessments that address their sphere of influence, the Workgroup recommends that the project begin with the steering committee assembling what has already been done, or is in progress, across the government enterprise. Using their knowledge of state government operations, the steering committee can look for synergies, conflicts and opportunities. This baseline will form the starting point for the contractor's work. The RFP should include a task to share the baseline with local health, mental health, social service, religious organizations, and local people to discover how these activities are likely to affect social resilience. It should also task the contractor to collect climate change adaptation measures described in local natural hazard mitigation plans and local climate action plans to ensure local climate change adaptation measures are supported by state agency programs and investments.

The Department of Land Conservation and Development submitted a Policy Option Package (POP) as part of the 2021-2023 biennium state budgeting process to fund delivery of a comprehensive, statewide vulnerability/resilience assessment. This POP is reflected in the 2021-23 Governor's budget. Any general

---

[22]Füssel, H., Klein, R.J.T. (2006) Climate Change Vulnerability Assessments: An Evolution of Conceptual Thinking. Climatic Change 75**,**301–329.

funds made available to conduct a statewide vulnerability and social resiliency assessment can be used as non-federal match to obtain federal Hazard Mitigation Grant funds, which would allow for production of additional regionally focused assessments.

Integrate the Climate Change Vulnerability and Resilience Assessment into the Oregon Natural Hazard Mitigation Plan

A climate change vulnerability and social resilience assessment extends the natural hazards risk assessment prepared for the Oregon Natural Hazard Mitigation Plan (ONHMP). The Workgroup recommends that the completed climate change assessments be integrated into the ONHMP. This will put the climate change vulnerability assessments on the 5-year review cycle required of the ONHMP and avoid future duplication of effort.

Develop and Monitor Key Indicators

Because vulnerability and resiliency are not static, the state will need to be flexible as climate change progresses and adaptation actions are implemented. Therefore, the Workgroup recommends that the state develop and monitor a set of key indicators needed to adaptively manage its response. The indicators should be drawn from drivers identified in the vulnerability and resilience assessments.

4. Improve Interagency Coordination and Information-Sharing

While the vulnerability and resilience assessment would provide a comprehensive snapshot of what is at stake, state agencies will need to collaborate to align policy and programming, coordinate data collection and analysis, leverage resources, and effectively engage with the public. Oregon state agencies continuously collect data and information that can inform decision making about climate change adaptation actions, but efficient collection, analysis, and sharing of these data among state agencies can be difficult because of a lack of:

- Coordinated data collection programs and standards -- multiple agencies are collecting similar data for different purposes.
- Funding -- allocations should be guided by the recommendations in Vulnerability and Social Resiliency Assessments.
- Information technology infrastructure to support storing and sharing the raw data within and among agencies.
- Standardized information technology platforms and tools for agencies to communicate virtually and store, share, and display processed information in partnership with other agencies or the public.
- A shared geographic information system platform for integrating and displaying data from different sources.

These challenges result in significant losses in staff productivity and are a barrier to effective coordination and decision making, potentially leading to duplication of effort. The strategic responses set forth below are consistent with those found in a number of recent state and federal policy documents related to climate change, including those from the transportation, health, water, energy, and natural resources policy sectors.

Interagency Climate Priorities Identified Leading Up to CCAF Update

From 2017-2019, over a dozen state agencies were involved in informal meetings to assess where climate work intersected across state agencies. At that time, participating agencies identified the common need for:

- An integrated strategy for engaging with Oregon's frontline communities.
- A common language and communications strategy for statewide climate work.
- Identification of work at the nexus of climate mitigation and climate adaptation efforts, especially those that are shared across agencies.
- A clearinghouse of current and future climate projects to facilitate interagency collaboration, alignment, and leveraging of resources.

STRATEGIC RESPONSES

Share Baseline Knowledge

Climate change data and interpretive tools can be collected from a variety of sources. To ensure temporal, spatial, and methodological consistency, the Workgroup recommends that:

- State agencies use a set of standard climate projections from OCCRI, including common baselines and scenarios.

- Where appropriate information is not available from OCCRI, state agencies should consult with OCCRI on the fitness for use of data collected from elsewhere.

- Fund OCCRI to perform these tasks to ensure that agencies have access to the most up to date guidance on interpreting and integrating projections of future climate for planning purposes.

Coordinate Climate Adaptation Planning with state Boards, Commissions, and Governor's Policy Offices

Climate adaptation leadership team should coordinate with activities undertaken by state boards, commissions, and policy offices. These entities include the Sustainability Board, Environmental Justice Task Force, and the Governor's Resilience Office. Although their focus may be differ from that of the climate adaptation leadership team, overlap may be found in data collection, relationship building, and project planning and execution.

Enhance Data Collection and Storage

The State already collects a variety of data needed to plan, evaluate, and monitor climate change adaptation projects. To improve efficiency and access to these data, the Workgroup recommends that:

- State agencies coordinate the collection, storage, and analysis of data relevant to shared information needs. This can be accomplished with existing resources if prioritized at the technical level.

- The Governor's office direct existing multi-agency bodies to identify and improve coordination of existing and new data collection efforts. For example, collection of water quantity or quality data could be better coordinated through the Water Core Team, Stream Team, and projects funded through the Oregon Watershed Enhancement Board.

- The Governor's office, or designee, perform a thorough scoping of interagency data sharing needs and platforms.

Improve Geospatial Data Management and Analysis Tools:

The Workgroup recommends that the Oregon Geospatial Enterprise Office (DAS-GEO) be tasked to coordinate climate change adaptation geospatial data and tools to:

- Elevate attention to the climate theme in the Geospatial Framework program.

- Enhance climate-related data available from the Oregon Spatial Data Library.

- Enhance inventories of natural and man-made features crucial to climate change adaptation such as wetlands, vegetation, estuaries, groundwater recharge areas, soils, glaciers, snow fields, healthy ecosystems, impervious surfaces, and structures.

- Improve access to location-specific demographic data and location-specific data about the economy related to natural resources (e.g., fishing, timber).

- Spatially integrate geographical datasets to ensure analytical accuracy.

Standardize Cross-Agency Information Sharing and Communication

- The remote working environment resulting from the COVID-19 pandemic makes it clear that the variety of virtual meeting platforms and services adopted by state agencies create barriers to collaboration. The Workgroup recommends that the state implement a consistent approach to hosting interagency and public meetings. Not only will a consistent platform ease interagency communication, it also will make it easier for members of the public to engage with state agencies

- Establish and update Memoranda of Understandings (MOUs) and Inter-Agency Agreements (IAAs) to advance equity-focused, cross-sector collaboration on climate change.

Establish Enterprise Public Communications and Engagement Strategies

To avoid overloading the public with information related to climate change adaptation and requests for input from multiple agencies, the Workgroup recommends that the state:

- Maintain a multi-agency, informational, web page dedicated to climate change adaptation that links to climate-related programs and resources across the enterprise.

- Develop a coordinated approach to engaging with diverse community partners to ensure that State agencies are providing data and tools that are useful and responsive to community decision-making needs, especially among communities most impacted by climate change. CBOs have limited capacity to engage on State projects and programs, and therefore a coordinated approach is needed.

- Implement engagement recommendations outlined in the Climate Equity Blueprint and expand on them by resourcing CBOs to partner with the State to provide culturally appropriate communications and engagement services.

- Establish user-friendly platforms or systems for collecting qualitative and quantitative data from community partners, such as through a citizen science approach or social media platforms, to increase dialogue with diverse observers and to better understand local impacts, concerns, and solutions. Citizen Science, also known as crowd-sourced science, civic science, public participation in scientific research, and volunteer monitoring, is scientific research conducted, in whole or in part, by amateur (or nonprofessional) scientists.

- Regularly update an evidence-based climate change communications strategy that enables state agencies to effectively and consistently communicate climate science and the State's priorities for addressing current and future climate impacts.

- Regularly inform state agency staff and Oregon residents of trends in climate change, and report progress towards implementing mitigation, adaptation, and sequestration actions. This could be accomplished by hosting an annual Adaptation Summit (modelled on the state DEI conference) for state employees to solicit ideas, discuss new research, and share models being implemented in other states or countries. The Summit would allow broad representation of engaged staff, not just agency leadership, as well as provide opportunities to dive into sector specific and geography-specific challenges.

Actively participate in regional, cooperative forums such as the Pacific Coast Collaborative (PCC)

Continue to participate in regional forums, including implementing near-term priorities for regional climate resilience outlined in the soon to be released 2021 PCC Climate Resilience Framework. These priorities are:

- Mainstream climate resilience in public processes and decisions.

- Enhance regional coordination with respect to wildfire prevention and response, and other natural disasters.

- Share and develop tools and methods for measuring carbon sequestration potential from natural and working lands, including forests as well as aquatic and marine ecosystems.

- Explore and share information about Innovative financing, investment, and insurance that supports climate resilience.

- Jointly invest in and undertake analysis to build regional understanding of the likelihood and potential cost of regionally specific climate risks as well as the near-term and long-term benefits of action.

5. Integrate Responses to Climate Change throughout Agency Operations

Since climate change has the potential to affect almost all state agencies, adaptation (and sequestration and mitigation) must be fully integrated into agency missions, authorities, programs, plans, and budget requests. The Governor's Executive Order 20-04 moves agencies in this direction, however more attention needs to be paid to funding and accountability.

STRATEGIC RESPONSES

Require state agencies to develop rolling 5-year climate change adaptation plans

- These can be integrated within other strategic and operational plans. Where possible, strategies should link back to this Framework, and later with the comprehensive vulnerability and resilience assessment.

Fund Climate Change Adaptation Measures

- Establish agency biennial funding targets for climate change adaptation.

- Direct state agencies to cooperatively develop and put forth climate change adaptation actions in their biennial budget requests and to frame their budget requests as they relate to adaptation.

- Allow financial resources to be dedicated to CBOs for place-based and culturally specific services either by agencies or through a coordinated interagency mechanism.

Ensure Accountability

- In partnership with the Natural Resources Cabinet (or other leadership entity), develop performance metrics against which progress toward adaptation is compared.

- Require that progress towards and challenges with completing climate-related projects identified in previous budget requests are reported with each new agency budget request.

- In partnership with the Environmental Justice Task Force, develop a system that holds agencies accountable to use of the Climate Equity Blueprint in climate adaptation planning and action.

PART THREE: CLIMATE CHANGE EFFECTS AND STRATEGIC RESPONSES BY THEME

Climate change adaptation requires integrating planning and action across many sectors. The Workgroup organized their analysis round six multi-sector themes, loosely based on categories examined in the IPCC's Fifth Assessment report[23].

The Executive Branch has responsibilities in each one of these:
1. **Economy**
2. **Natural World**
3. **Built Environment and Infrastructure**
4. **Public Health**
5. **Cultural Heritage**
6. **Social Systems**

This section identifies a goal for each theme, briefly describes the effects that climate change is having and is expected to have relative to that theme, identifies potential resulting vulnerabilities, and recommends multi-agency adaptation strategies. The brief descriptions of effects and vulnerabilities summarizes our current state of knowledge, and would benefit from more rigorous assessment. This section also does not address adaptation strategies that are specific to one agency. These are expected be developed within each agency's climate change adaptation plan (described above). Bulleted items listed under each strategy illustrate the types of multi-agency activities that might be undertaken to fulfill the goals of each strategy. They are not meant to be all-inclusive or limit action.

The Workgroup recognizes that climate change impacts and adaptive strategies do not fit neatly within the identified themes, as demonstrated by the September 2020 wildfires in Oregon. This event came about from interactions of numerous phenomena, including but not limited to weather (e.g., high winds), human activities ranging from alleged arson to downed electric power lines, development patterns, dry vegetation, and strained local and state response capacity. Communities experienced the impact of these fires differently depending on the health, income, and social status of affected individuals, social connections, and their cultural ties to the burned areas.

i

---

[23]IPCC's Fifth Assessment report (2014) https://www.ipcc.ch/assessment-report/ar5/

1. Economy

Promote the development of a resilient, innovative, and inclusive economy that addresses the challenges and opportunities posed by climate change

CLIMATE CHANGE EFFECTS AND VULNERABILITIES

Climate Change Effects

Climate change has broad and deep effects on Oregon's economy. Extreme events such as storm surges, floods, storms, and landslides, cause businesses to experience interruptions as they clean up, handle insurance issues, refinance, rehire, rebuild, and reopen. Similarly, heat-related events—droughts, fires, smoke, insect infestations, and algal blooms—disrupt supply chains, food supplies, utilities, recreation, tourism-related industries, and ecosystem services, driving up costs [24],[25,26]. The severity and frequency of such events determine whether these disruptions are temporary or permanent.

Economic Vulnerabilities

Oregon's local economies are at risk from climate change, particularly in underserved communities and those that depend on natural resources for their livelihood: agricultural and timber communities, fishing communities, Tribes, and communities that rely on outdoor recreation and tourism. Soil and forest health, stream temperature and flow, ocean health, and reliability of, or access to, public and private infrastructure all affect the economic vitality of these communities.

Regulatory Vulnerabilities

Climate-driven policies will shape the global market for Oregon-produced goods and services in manufacturing, forest products and agriculture. Recent trade agreements, like the Trans-Pacific Partnership (TPP) and the United States-Mexico-Canada Agreement (USMCA), include for the first time environmental conditions- setting a new global standard. Three of Oregon's key target export markets (Canada, Japan, and the EU) have set net zero emissions goals by 2050. In 2019, Germany made swift policy changes when it passed the first ever climate law that details required emission reductions by industry sector, and as a response to COVID-19 has passed an enormous $50 billion stimulus bill for investment and development of future industries that address climate change. In fast-growing emerging markets like Latin America and Southeast Asia, governments are responding to public pressure by developing sustainable policy solutions to improve air, water, and ground systems to address rising

---

[24]Oregon: Changing Climate, Economic Impacts, & Policies for Our Future (2016) https://www.e2.org/wp-content/uploads/2016/07/Oregon_Business_Climate_Report.pdf
[25]Oregon: 2017 Wildfire Report (2018) https://www.oregon.gov/odf/Documents/fire/2017_ODF_Protection_Fire_Season_Report.pdf
[26]Oregon Forest Report (2019) https://theforestreport.org/wp-content/uploads/2019/07/OFRI-2019-EconSummary-Web.pdf

pollution, traffic congestion and overpopulation. Oregon companies who wish to sell into these markets will need to position their goods and services to appeal to the New Economy.

A Commitment to Mitigation and Adaptation Strengthens the Economy

Climate change adaptation works hand-in-glove with greenhouse gas mitigation, and offers additional economic opportunities. Funding a combined mitigation and adaptation program could:

- **Incentivize innovative conservation** technology and practices for high-intensity energy and water users, this reducing costs as well as GHG emissions.
- **Allow development of a state inventory** of potential commercial-scale sites for solar, wind, geothermal, and pumped storage hydropower, providing new revenue streams.
- **Encourage installation of electric vehicle fast chargers and hydrogen refueling stations** throughout Oregon, and particularly in smaller communities.
- **Help to establish an Oregon Green Fund or Bond Bank** for projects that result in more efficient/sustainable resource use and conditions including energy, water, air, soil health, riparian vegetation and wetlands.
- **Allow a Climate Change Disruption and Adaptation Fund** to be established to provide recovery assistance to small businesses impacted by natural disasters.

ADAPTATION STRATEGIES IN SUPPORT OF A CHANGING ECONOMY

As it adapts, Oregon has an opportunity to grow portions of its economy, such as agricultural products, water, energy, and transportation technologies, and production materials. A new economy requires workforce training for entrepreneurs and businesses, and new cultures and norms about what work is and where it takes place. Climate change adaptation presents an opportunity to create a more robust and sustainable economy by taking the following actions:

Prepare the workforce to play a role in emerging sectors

Workforce training and development organizations have identified renewable energy production (e.g., wind, wave, solar, and photovoltaics) and electric, hybrid, and hydrogen-fueled transportation—including transit systems, commercial fleets, and private vehicles—as emerging sectors that require technician training. Positioning apprenticeship and pre-apprenticeship training as central to workforce development ensures that good jobs in emerging sectors are accessible to Oregonians.

Support small business resilience and growth, especially in underrepresented and rural communities

Business continuity planning, access to emergency capital, and resources focused on economic resilience support the survival and growth of Oregon's small businesses while they adapt to changing economic conditions.

Integrate Oregon's industry and the innovation community

Universities, signature research centers, and start-ups can position Oregon to innovate and capitalize on climate change adaptation.

Support public-private sector partnerships, including ties between industry and Oregon universities

There is an opportunity for entrepreneurs to create new products and services that are responsive to climate demands. These run the gamut from clean energy and fuels, building materials, and consumer

products that produce fewer emissions during manufacturing and use to more powerful telework and telehealth options for rural Oregon. State funding can support research and development, incubators and accelerators, and commercialization.

Ensure that underserved and underrepresented communities and businesses have opportunities to compete for new markets and training

Business Oregon's Strategic Plan[27] identify areas that need particular emphasis and technical assistance, including innovation sectors (research and development, high growth start-ups), small and middle market companies, rural communities, and underrepresented businesses and communities. The Oregon Employment Department (OED) is committed to pivoting its programs to address this new reality, as it states in its *2019-25 Strategic Plan* Goal #1: "We anticipate how the world of work is changing and lead an effective transition to the jobs and careers of the future"[28]. OED Goal #2 recognizes that training and resources must be made available to all Oregonians, noting that "Traditionally under-served populations [must] have the support, resources, and services to reach their full potential". Business Oregon[29] and the Workforce and Talent Development Board[30], and their partners have programs, can help employers and employees retool and retrain.

Make telework a core business practice

During the COVID-19 pandemic, both the public and private sectors significantly increased telework and recognized a need for substantial increases in broadband access and capacity. This translated into improvements in traffic and parking congestion, vehicle emission reductions, and improved air quality. Adjustments made during the pandemic suggest that the digital divide will be easier to bridge than the transportation divide.

ADAPTATION STRATEGIES IN SUPPORT OF NATURAL RESOURCE ECONOMY

Conduct ongoing soil health studies

These studies will provide data on Oregon's soils: water retention, compaction, carbon storage, and pH (a measure of how acidic or basic the soil is). Healthy soils provide a variety of benefits that are important to farms, ranches, and forests. Healthy soils keep cropland productive, hold more moisture, provide resistance to natural pests and diseases, keep crops and vegetation resilient in the face of natural disasters, and help protect air and water quality. Healthy soil practices also keeps carbon in the soil and, in some cases, reduces farmers' energy use, fertilizer-related GHG emissions, and harmful exposures. A better understanding of soils' ability to hold water, soil compaction levels, carbon stored in the soil, and soil pH would help land managers identify effective education strategies, public policies, incentives, and management practices to improve soil health.

Continue to support research related to forest and land management

The State of Oregon is working with the states of Washington and California and the U.S. Forest Service's Pacific Northwest Research Station on co-produced research that will describe anticipated social, economic, and climate change impacts related to forest management and other types of land

---

[27]Prosperity for All Oregonians: Business Oregon Strategic Plan 2018-2022. (2018) Oregon Business Development Department. https://www.oregon4biz.com/assets/reports/StrategicPlan2018s.pdf
[28]Oregon Employment Department 2019-2025 Strategic Plan (2019) https://www.oregon.gov/employ/Agency/Documents/Strategic%20Plan_2019%20horizontal%2011x17.pdf
[29]https://www.oregon4biz.com/
[30]https://www.oregon.gov/workforceboard/Pages/index.aspx

management[31]. These studies are needed to evaluate potential management scenarios such as longer rotations, larger stream buffers, and prescribed burning.

Invest in protection, restoration, and enhancement of priority areas for fish and prepare to transition to new fisheries management regimes

Emergency investments may be needed to cope with effects of drought and pollutants. Long-term investments are needed in response to ocean acidification and declining streamflow that result from climate change, and which jeopardize the future of Oregon's fisheries.

---

[31]https://www.fs.usda.gov/detail/r6/climatechange/?cid=fseprd491592, accessed 12/22/2020

2. Natural World

Support robust functioning of Oregon's terrestrial, aquatic, coastal, and marine ecosystems as the climate changes

CLIMATE CHANGE EFFECTS AND VULNERABILITIES

Climate Change Effects

Oregon's lands and waters provide clean air, water, and recreational opportunities as well as habitat for diverse native fish and wildlife, which in turn provide social, cultural, and economic benefits to all Oregonians. Changing climate and its impacts on land, freshwater, and ocean conditions affect many of these vital functions and benefits, some of which are already being felt and are expected to worsen in the coming decades. Impacts include increases in freshwater and marine temperatures, increases in the incidence and intensity of wildfires, changes in the timing and quantity of available freshwater, increases in non-native invasive species and disease, and changes in ocean chemistry, including decreases in pH (acidification) and oxygen (hypoxia). All areas of the state need to prepare for more frequent, intense, and long-lasting droughts, declining snowpack and associated earlier spring runoff, reduced ability to retain water on land before discharge into watercourses, precipitation arriving as rain instead of snow, and extreme precipitation events.

Vulnerabilities

Among the vulnerable uses and functions of Oregon's lands and waters are forestry, farming, ranching, commercial fishing, recreation, habitat for native fish and wildlife, and ecosystem services such as clean air and abundant water. Forestry is vulnerable to warmer, drier conditions, which are conducive to the establishment of new pests and diseases, increasing fire risk, and shifting ranges for natural and managed tree species. Farming is vulnerable to extreme weather events, drought, shifts in the location of climate suitable for high value crops, increased pest and disease pressure, and the availability of water. Ranching is vulnerable to extreme weather events, wildfire, water shortages, and the expansion of non-native, invasive annual grasses. Commercial fishing is vulnerable to ocean acidification, hypoxia, harmful algae blooms, increased water temperature, water shortages, and shifts in the ranges of target species. The ability of Oregon's lands and waters to support food production, robust fish and wildlife populations, recreational opportunities, and vital ecosystems services are affected by all of these vulnerabilities.

ADAPTATION STRATEGIES

Oregon has numerous agencies that are primarily tasked with managing Oregon's natural world. Cross-cutting opportunities for climate change adaptation are summarized below. Most natural resource agencies have a role in collaborating to implement these recommendations, and have the opportunity to incorporate consistent guidance on these topics into their work. Existing multi-agency efforts to

address some of these challenges are highlighted below, but a need remains for state agencies to continuously monitor the degree and extent of change, and to coordinate actions through effective leadership, such as was described in Part II of this document.

Enhance water security for both in-stream and consumptive uses

Water security can be viewed from perspectives of in-stream needs for fish and wildlife, human access and health, or agricultural needs. This section offers strategies that recognize the value of protecting and restoring natural systems to improve water quality, quantity and storage. Public health aspects of water security are addressed later in this document.

- Implement flexible and holistic management of surface and groundwater and associated ecosystems to support use by humans, fish, and wildlife.

- Design and implement an early harmful algal bloom detection and rapid response program to protect human health and the natural resource-based economy.

- Expand and restore riparian buffers and stream channel wetlands where needed to improve riparian function and water quality, increase stream flow, reduce flood damage, and provide habitat for fish and wildlife.

- Restore watershed health, resiliency, and capacity for natural water storage. Focus conservation and restoration on upper watersheds, which are key to protecting water quantity and quality throughout a watershed.

- Maintain and improve wetlands and wetland function, especially those associated with stream channels. Restoring forests and wet meadows, and the streams that run through them, provides multiple benefits for water supplies, such as replenishing groundwater, holding water later into the summer, decreasing flood risks, reducing sediment transport, and maintaining cooler water temperatures.

Key State of Oregon Report:
Oregon's Integrated Water Resources Strategy[32] and 100 Year Water Vision[33]

Support functioning of terrestrial ecosystems

Terrestrial landscapes and ecosystems in Oregon are expected to change over time as a result of climate change. While this change cannot be stopped unless greenhouse gas emissions are dramatically reduced worldwide, local actions can support their transition to new, functioning ecosystems.

- Identify areas of high connectivity of land cover, species habitat, and potential climatic refuges for forestry, agriculture, recreation, and native fish and wildlife. Focus protection and restoration on connected and resilient refuge and direct future development activities to less resilient areas. Create new connectivity corridors, where possible, to link climatic refuges and allow for animal migrations, while being mindful that high connectivity can also facilitate spread of invasive species and other undesirable environmental changes.

- Account for habitat requirements for target species, such as pollinators, threatened & endangered species, and other native species when planning and implementing any planting projects. Ensure post-wildfire replanting uses "weed-free" seed as defined by the Oregon

---

[32] https://www.oregon.gov/owrd/WRDPublications1/2017_IWRS_Final.pdf
[33] https://www.oregon.gov/oweb/Documents/OWV-Full-Report.pdf

Department of Agriculture. Build relationships with Oregon seed producers and nurseries to grow necessary seeds for state planting projects.

- Promote the use of green infrastructure, which incorporates the natural environment into traditionally engineered projects to provide multiple benefits, including support for ecosystem integrity and functions in developed areas. Green infrastructure may include site-specific management and watershed-level techniques such as land preservation and the restoration of wetlands, side channels, riparian vegetation, and floodplains that naturally store water and reduce runoff.

- Update Oregon's Wetland Conservation Strategy (1995) to address new challenges brought about by climate change and related population growth. Identify frontline or indicator species and habitats in order to develop protection strategies.

- Maintain and improve estuaries and estuarine function, including upslope migration zones in response to sea level rise.

- Develop and promote strategies in support of assisted migration, especially when implementing post-logging forest regeneration or restoration projects post-wildfire, flood, landslide, or other events.

Support ocean health and blue carbon ecosystems

- Monitor and record indicators of ocean health, including changing ocean temperatures, acidification, harmful algae blooms, domoic acid concentrations in seafood, pollution (organic, plastics, pathogens) and biodiversity including health of keystone species.

- Incorporate ocean acidification and hypoxia (OAH) adaptation and resilience strategies in existing planning and decision-making frameworks to strengthen Oregon's marine ecosystems and human communities.

- Support implementation of a coast wide OAH monitoring network to improve baseline understanding of the dynamics and impacts of OAH in Oregon.

- Engage in collaborative groups such as the Pacific Northwest Blue Carbon Working Group to better understand, manage, and protect blue carbon ecosystems. Blue carbon ecosystems not only provide for carbon sequestration they also provide a range of social, economic and environmental benefits, such as fish rearing sites and buffers against sea level rise.

Key State of Oregon Reports:
Oregon Coordinating Council on Ocean Acidification and Hypoxia – 2018 Report[34]
Oregon Coordinating Council on Ocean Acidification and Hypoxia – 2020 Report[35]
Oregon Ocean Acidification and Hypoxia Action Plan 2019 – 2025[36]
The Pacific Northwest Blue Carbon Working Group – Project Scoping[37]

---

[34]https://www.oregonocean.info/index.php/ocean-documents/oah-hypox/oah-council-1st-biennial-report/1766-oah-council-1st-biennial-report-sept-15th-2018-1/file
[35]https://www.oregonocean.info/index.php/ocean-documents/oah-hypox/oah-council-second-biennial-report/2071-2020-oah-council-report-2nd-biennial-report/file
[36]https://www.oregonocean.info/index.php/ocean-documents/oah-hypox/oah-action-plan-2019-2025/1958-8-19-19-oah-action-plan-d9/file
[37]https://ceff240a-b12a-47ec-aa5a-52c962fe647b.filesusr.com/ugd/43d666_2c5acc56fba34b189903ea528d7ef3be.pdf

Manage wildfire risk

Climate change is associated with increases in mean annual and seasonal temperatures and evapotranspiration in much of the western United States. As a result, vegetation becomes drier during summer and early autumn, and therefore is more likely to burn in the presence of an ignition source and high winds.

- Expand forest, shrubland, and grassland management to reduce fuel loads and increase resiliency to fire. Work cooperatively across ownerships or jurisdictional boundaries to reduce the frequency of extreme wildfires. Continue to support Rangeland Fire Protection Associations (RFPAs) and their suppression efforts in rural and remote areas.

- Encourage private landowners to reduce fuel loads through voluntary programs such as the Firewise program, NRCS EQUIP, and other grant or cost sharing opportunities.

- Identify potential human ignition sources relative to high risk wildfire areas to improve public education and asset management practices.

> **Key State of Oregon Report:**
> Governor's Council on Wildfire Response - Nov 2019: Report and Recommendations[38]

Control invasive species

Invasive species will be a critical problem affecting range and forest fire prevalence and intensity. Invasive species affect timber production, soil health, productivity and ability of working lands to sequester carbon.

- Design and implement an early detection and rapid response program to detect and control non-native, invasive plants, animals, insects, and pathogens.

- Use multi-agency efforts and integrated responses to counter new invasions.

> **Key State of Oregon Report:**
> Oregon Statewide Strategic Plan for Invasive Species 2017 - 2027[39]

---

[38]https://www.oregon.gov/gov/policy/Documents/FullWFCReport_2019.pdf
[39]https://static1.squarespace.com/static/58740d57579fb3b4fa5ce66f/t/58921d8037c581503e799427/1485970827058/Oregon_Statewide_Strategic_Plan.pdf

3. Built Environment and Infrastructure
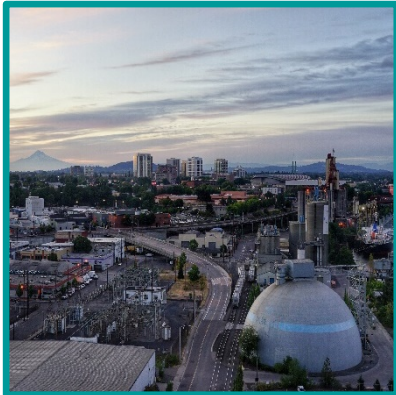
Ensure buildings, utilities, and infrastructure are resilient to extreme weather and climate change.

CLIMATE CHANGE EFFECTS AND VULNERABILITIES

Climate Change Effects

Extreme weather and climate change pose serious and increasing threats to the state's buildings and critical infrastructure. According to the Oregon Climate Assessment Report[40], the state will continue to experience climate variability and extremes in the form of higher annual air temperatures, rising sea levels, wildfires, and changing precipitation patterns.

Climate change makes urgent investment in modernizing Oregon's buildings, infrastructure, and utility systems. Tens of billions of dollars will be needed in the coming decades across all jurisdictions, geographies, and asset types to ensure resiliency and ongoing reliability of Oregon's existing systems. Limited resourcing, capacity, and competing priorities require that the state invest strategically, on the basis of the best science available, in coordination with those who operate and maintain our systems. Successful adaptation also may require new policies, organizational approaches, tools, and capacity building.

Vulnerabilities

Buildings, utilities, and infrastructure are most vulnerable in the mountains along steep gradients, in heavily forested areas prone to wildfires, along rivers and low-lying areas subject to flooding, and in coastal areas subject to flooding, storm surge, and sea level rise. Sedimentation and landslides hinder Oregon's transportation and navigation capacity. Storms and wildfires damage water, wastewater, energy, and communication facilities. Excess heat strains operation of energy, transportation, and communications networks. Structures used to control flood flows may be at risk. These systems need to be adapted to ensure they remain safe and effective in response to climate change.

The lack of substantial investment in Oregon's infrastructure has resulted in aging and outdated ports, dams, bridges, schools, and utilities. Left unaddressed, these systems become even more vulnerable to climate stressors. In 2019, Oregon received a C- for its infrastructure from the American Society for Civil Engineers (ASCE)[41].The report notes that while Oregon's population increases, much of its infrastructure

---

[40]https://www.pnwbluecarbon.org/, accessed 12/30/2020

[41]Oregon 2019 Report. (2019) American Society of Civil Engineers. https://www.infrastructurereportcard.org/wp-content/uploads/2016/10/FullReport-OR_2019.pdf

is beyond capacity and at the end of its service life. Although more sector-specific research is needed, climate assessments suggest that the primary climate risks to Oregon's built environment include:

- Increased frequency and magnitude of extreme precipitation, which can result in damaging runoff, erosion, and flooding of buildings, roadways, and water and energy infrastructure. Extreme storms also trigger landslides and rock-fall that can directly impact infrastructure and threaten energy reliability.

- Higher sea levels, storm surge, and coastal erosion can degrade or destroy roadways, utility lines, ports, and wastewater treatment plants.

- Extreme temperatures and drought lead to damaging heat, wildfires, debris, and downed trees that interfere with energy transmission lines, roadways, water storage, conveyance and treatment systems, and other urban and rural infrastructure. After wildfires, the lack of vegetation on destabilized slopes can lead to slides and debris flows, with damage to roads and water reservoirs. More frequent heatwaves also increase the demand for air conditioning and peak energy demand.

- Increased risk to already vulnerable communities. Increased risk of flood will affect communities that have buildings and infrastructure located in floodplains or estuaries. Those most often affected are low-income and underrepresented communities. In the southern and eastern parts of the state, increases in extreme heat and wildfires have the potential to destroy or damage homes and businesses, roads, transmission lines, and other utilities located in already isolated communities that lack system redundancy.

ADAPTATION STRATEGIES

Update engineering heuristics and design standards

- Update design standards for culverts, dams and levees, bridges, and utilities to accommodate new peak storm flows and energy demand.

- Partner with state and federal agencies to update NOAA Atlas 14 precipitation frequency estimates so that engineering agencies can design for climate-resilient infrastructure[42]. The Pacific Northwest is the only region of the United States that does not have an updated NOAA Atlas 14, which contains precipitation frequency estimates and is accompanied by additional information such as temporal distributions and seasonality. The Atlas is divided into volumes based on geographic areas of the United States. There is no volume for the Pacific Northwest. Engineers and natural resource managers use this essential tool in their designs, ultimately ensuring public safety against flooding hazards and other risks.

- Encourage timely adoption of the latest IBC flood protection standards into the Oregon Specialty codes.

- Develop additional enhanced building code standards available for local adoption, similar in concept to Oregon's optional wildland urban interface fire mitigation codes, R327.

---

[42]Chester, M., Underwood, B.S. & Samaras, C. (2020) Keeping infrastructure reliable under climate uncertainty. National Climate Change. 10, 488–490. https://doi.org/10.1038/s41558-020-0741-

Plan for future conditions

- Conduct vulnerability and risk assessments for critical buildings, transportation, utilities, water systems, energy systems, and other infrastructure. Include an analysis of community disparity to identify and serve underrepresented and underserved populations.

- Bolster emergency funds to aid in rapid repair to damaged infrastructure.

- Invest in improvements where assets are at greatest risk of damage and disruption, and where serve underrepresented and underserved populations live.

- Provide technical support to communities to incorporate climate change impacts into their planning decisions and to ensure that communities of color and low-income communities have access to safe assets such as resilient housing, active transportation options, and green infrastructure

- Continue to host the Infrastructure Summit where policy-makers, public works managers, and investors convene to plan a statewide network of resilient infrastructure.

- Incorporate wildfire prevention into electricity transmission permitting and projects.

> **Key State of Oregon Report:**
> 2014 ODOT Climate Change Vulnerability Assessment[43]

Support climate-resilient building and site management practices

- Discourage practices that increase runoff as compared to natural surfaces. Promote practices that retain stormwater. Encourage local government to adopt water retention strategies in their comprehensive plans and development regulations.

- Promote adoption of green infrastructure, particularly in disadvantaged communities, including projects that expand urban tree canopies and improve access to parks, trails, gardens, and natural areas.

- Provide education and model zoning ordinances to help jurisdictions avoid future development in high-risk areas. Encourage and support communities' adoption of higher regulatory siting standards in areas prone to natural hazards.

- Build resilience of low-income residents living in Special Flood Hazard Areas by subsidizing their purchase of flood insurance.

- Explore options for requiring flood insurance within high risk flood hazard areas, even if property does not have a federally backed mortgage, to reduce post-disaster costs to the state.

- Encourage and support local adoption of Oregon's optional wildland urban interface fire mitigation codes, R327[44] with improved mapping.

- Create a fund or program to assist low-income landowners with maintenance of defensible space in wildfire hazard areas.

- Increase access to the Federal Emergency Management Agency Hazard Mitigation Assistance program by funding state staff to reach out to owners of particularly at-risk buildings with

---

[43]https://www.oregon.gov/odot/Programs/TDD%20Documents/Climate-Change-Vulnerability-Assessment-Adaptation-Options-Study.pdf
[44]https://www.oregon.gov/bcd/codes-stand/Documents/17orsc-wildfire-mitigation-insert-pages.pdf

information about the program and provide assistance with grant applications. Create a fund to provide the non-Federal matching funds required to move Hazard Mitigation Assistance grants forward.

- Promote historic property rehabilitation practices and adaptive reuse to limit climate impact from new materials production[45].

Design and build resilient water projects

Develop projects that conserve and store water. Increasingly, Oregon's winter storms lead to flash floods and higher runoff, with summers bringing less snowmelt and drier, hotter conditions. Without adequate snowpack to provide natural storage, the state is less able to meet its community and natural system water needs during the summer and autumn months, when demands are often greatest. Current water conservation programs, water reuse programs, existing reservoir storage, and water sharing agreements are inadequate to address this need.

> **Key State of Oregon Report**:
>   2017 Integrated Water Resources Strategy[46]

Design and build resilient energy projects

- Maximize energy efficiency and smart-grid technologies to lower energy use and costs while reducing emissions. Oregon is ranked number three in the United States for net generation of renewable energy (primarily from hydropower), and has a competitive advantage in this sector[47].

- Maximize electric energy resilience by supporting diversification of supply to the Western grid, upgrading transmission infrastructure, and adding more distributed energy generation, renewables, microgrids, batteries and other ways to store renewable energy, to strengthen the system's resilience to climate hazards.

- Identify communities with the potential to lose electric power for extended periods during natural hazard events, and therefore lose access to the energy required to meet the basic human needs of clean water supply, medical care, communication, transportation, and food preservation. Develop adaptation strategies to ensure rapid return of electricity, or response to effects of extended outages.

> **Key State of Oregon Reports:**
>   2018 Biennial Energy Report[48]
>   2020 Biennial Energy Report[49]

---

[45]The Natural Trust for Historic Preservation Research and Policy Lab: https://savingplaces.org/research-lab#.X9uXzM1KhPY
[46]https://www.oregon.gov/owrd/WRDPublications1/2017_IWRS_Final.pdf
[47]Bloomberg New Energy Finance, Sustainable Energy in America Factbook, 2016. Business Council for Sustainable Energy. https://bcse.org/factbook/#
[48]https://www.oregonlegislature.gov/citizen_engagement/Reports/ODE-2018-Biennial-Energy-Report.pdf
[49]https://www.oregon.gov/energy/Data-and-Reports/Documents/2020-Biennial-Energy-Report.pdf

Design and build resilient transportation projects

Strengthen and protect transportation systems through engineering design and strategic repairs and retrofits. Increase maintenance levels for vulnerable roadways, bridges, and culverts. Develop options to realign, relocate, or abandon roadways in highly vulnerable areas, and enhance system redundancy wherever possible. Consider climate change through asset management and when setting transportation investment priorities.

Support access to ports

Provide access to commercial dredging for ports, at a depth that will clear harbors and navigation channels. This requires partnership, permitting, and financing from local, state, and federal agencies. These arrangements are complicated and have hampered decision-makers for years. Oregon has 23 public ports along the Columbia River and Pacific Ocean, and their effectiveness as key economic partners is directly tied to the functionality of their infrastructure.

> **Key State of Oregon Report:**
> 2020 Dredge Operations: Inter-governmental Project Planning[50]

Expand availability of broadband

Provide accessible broadband telecommunications to improve the efficiency of other types of infrastructure and to reduce the energy consumption and emissions of all systems. Broadband enables the supervisory control and enhanced management of power grids, transportation systems, irrigation systems, and municipal water and wastewater systems to improve system operations and increase efficiency. Climate change will increase the already growing importance of broadband connectivity to maintaining economic viability and resilience of communities in all areas of the state, both urban and rural.

> **Key State of Oregon Report:**
> 2020 Oregon Broadband Office Strategic Plan[51]

Leverage Federal Emergency Management Agency (FEMA) Funds

Create a climate change adaptation program for critical infrastructure that can leverage federal funds such as FEMA's Pre-Disaster Mitigation Grant Program[52]. Oregon's Special Public Works Fund could be used to leverage federal monies with a statute change and additional funding.

Seek and implement co-benefit opportunities

Seek and implement infrastructure projects that meet multiple objectives. Coordinated projects among agencies enhances climate resilience, modernizes service delivery and infrastructure, restores natural ecosystems, and improves public health outcomes. For example, floodplain restoration improves floodwater storage, reduces flood risks to roads and buildings, and improves wetland and riparian ecosystems. Many actions to increase climate resilience also will increase the state's resilience to effects of a Cascadia-magnitude earthquake.

---

[50] https://dredgingcontractors.org/u-s-army-corps-delivers-2020-work-plan-dredging-projects-at-the-forefront/
[51] https://www.oregon4biz.com/Broadband-Office/OBAC/Reports/BroadbandStratPlan2020.pdf
[52] https://www.fema.gov/pre-disaster-mitigation-grant-program

4. Public Health

Reduce climate-related health risks and promote community resilience, especially among people and communities who are disproportionately affected

CLIMATE CHANGE EFFECTS AND VULNERABILITIES

Climate Change Effects

Climate change affects air quality, water security, and food systems. Some health effects are direct and readily quantified, such as heat waves leading to increases in heat-related hospitalizations (**Figure 4**). Other health effects are indirect, such as the mental health toll to workers and families resulting from income loss in industries negatively affected by climate change[53].

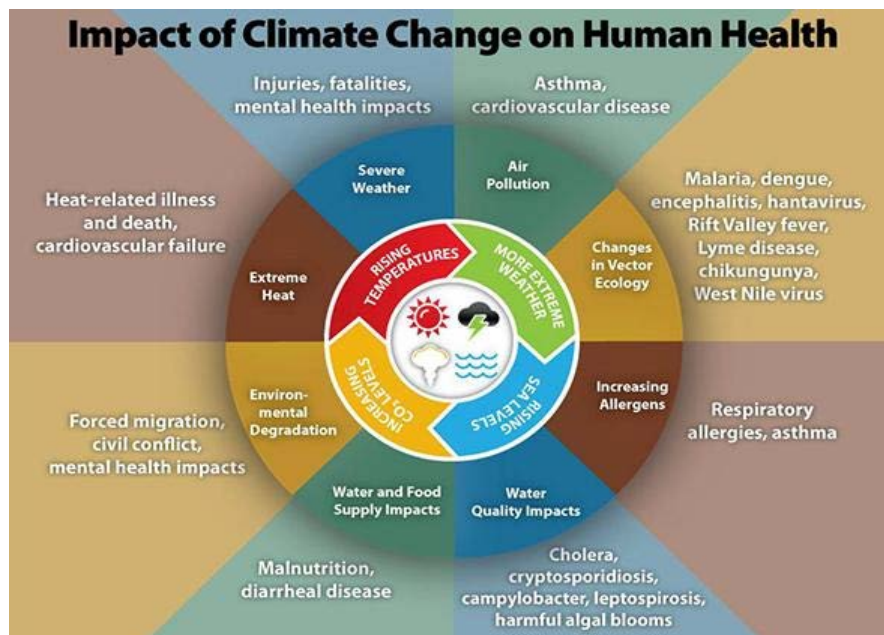**Figure 4:** Impact of Climate Change on Human Health[54]

---

[53]Shimamoto, M., & McCormick, S. (2017). The Role of Health in Urban Climate Adaptation: An Analysis of Six U.S. Cities. Weather, Climate, and Society, 9(4), 777-785. doi:10.2307/26389004
[54]Graphic courtesy of Centers for Disease Control and Prevention (CDC)
https://www.cdc.gov/climateandhealth/effects/default.htm, accessed 7/17/2020

The Oregon Health Authority's Climate and Health Program[55] recently has published numerous reports, including the 2014 Oregon Climate and Health Profile Report[56], which identifies health risks from climate change and the populations most vulnerable to these risks. OHA also adopted a 2017 Climate and Health Resilience Plan[57] and other tools to help communities and the public health system build climate resilience. In response to Governor Brown's Executive Order 20-04, the Oregon Health Authority (OHA) published the Climate and Health in Oregon 2020 Report[58], which updates information on risks and vulnerable populations and identifies priorities, challenges, and successes in building community resilience to the health effects of climate change in Oregon (**Table 1** – see pages 38-39).

Vulnerabilities

The conditions where people live, work, learn, and play influence a wide range of health risks and protective factors. These are unevenly distributed in Oregon and have created inequities in quality of life and population health outcomes. Climate vulnerability is closely connected to these existing health inequities. Oregon-specific vulnerability assessments point to social determinants as the primary driver of climate vulnerability. This is discussed in detail in the 2018 Climate Change and Public Health in Oregon[59], a policy paper that summarizes climate and health risks, vulnerable populations, and public health co-benefits of greenhouse gas emission reduction strategies.

ADAPTATION STRATEGIES

Climate change creates greater uncertainties. Increasing variability and the emergence of new threats require Oregon's public health system to modernize in ways that build environmental health capacity and increase organizational readiness to adapt to new challenges and conditions in innovative ways**.** Supporting communities in adapting to climate hazards and stressors requires tailored approaches that consider the historical, racial, and economic injustices that created existing health disparities in Oregon. Effective adaptation includes partnering with communities to co-create and implement culturally appropriate, trauma-informed interventions. Many climate strategies – such as investments in active transportation and sustainable community design - can result in considerable public health benefits, especially when those improvements occur in collaboration with historically underserved communities.

Oregon's public health system includes state, local, and tribal health departments and many community partners. The 2017 Oregon Climate and Health Resilience Plan[55] prioritized climate strategies for Oregon's public health system. OHA will issue an updated plan and implementation report by 2022. OHA is in the process of developing a new Environmental Public Health Modernization Plan and an updated State Health Improvement Plan, both of which prioritize integration of climate change, equity, and social justice into public health programming and policy. Drawing from this past and current public health planning, and from community partner input received through an online survey in 2020, OHA and partners have identified the following public health actions as climate change adaptation priorities:

Actively engage with priority communities in a coordinated and well-resourced way so that underrepresented voices are centered in the development of climate policies, programs and public investments.

---

[55] https://www.oregon.gov/oha/ph/HealthyEnvironments/climatechange/Pages/index.aspx
[56] https://www.oregon.gov/oha/ph/HealthyEnvironments/climatechange/Documents/oregon-climate-and-health-profile-report.pdf
[57] https://sharedsystems.dhsoha.state.or.us/DHSForms/Served/le8267a.pdf
[58] https://www.oregon.gov/gov/Documents/Climate-Health-Oregon-2020%20-Full-Report.pdf
[59] https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/CLIMATECHANGE/Documents/2018/2018-OHA-Climate-and-Health-Policy-Paper.pdf

Work with partner agencies on policies to improve and protect air quality and water security on the basis of health and environmental data, implement health-based standards, and remain proactive in identifying emerging contaminants, vectors, and diseases of concern related to climate change.

Increase the diversity of the State's workforce engaged in climate work to reflect the State of Oregon's population and to ensure effective climate adaptation.

Resource Oregon's public health system to address new and emerging threats to health caused by climate change.

Analyze and communicate the impacts of proposed climate investments so decision-makers are informed about associated long-term health costs and benefits.

Support community-driven and place-based climate adaptations by providing technical assistance, resources, training, and tools for community partners.

Consider opportunities to implement recommendations outlined in the Climate Equity Blueprint and the forthcoming OHA study on climate change, mental health, and youth.

Table 1: Summary of climate effects, health risks, priority populations, and example actions from the Climate and Health in Oregon 2020 Report.

Climate Effects	Health Risks	Priority Populations	Example Action
Cross-cutting effects			
Economic instability, Impacts to workers, Food insecurity	Mental health effects Poor nutrition Chronic diseases including heart disease and respiratory diseases Heat-related illness	• Tribal and indigenous communities • Farmworker communities • Fishing, timber, and farming communities • Rural communities	In response to Executive Order 20-04, OHA will partner with the Oregon Occupational Safety and Health Administration (OR-OSHA) to develop a proposal for standards to protect workers from exposure to wildfire smoke and excessive heat.
Mental health, Substance use, Violence	Post-traumatic stress (PTSD) Depression, anxiety Suicide Drug overdose Domestic violence	• Youth • Communities of color • Tribal and indigenous communities • Rural communities • Women and children	In response to Executive Order 20-04, OHA will study the impacts of climate change on youth depression and mental health in Oregon.
Housing, Displacement, Migration	Disaster-related injuries Asthma and respiratory disease Heat-related illness Toxic exposures	• Low-income communities • Communities of color • People experiencing homelessness • Coastal communities	OHA's 5-year state health improvement plan (2020-2025), *Healthier Together Oregon*, calls for addressing economic drivers of health which include elements related to housing and climate resilience.
Climate hazards			
Storms, floods, landslides and sea-level rise	Injuries Toxic exposures Displacement Disruptions in medical care Mental health effects	• People dependent on medical equipment that requires electricity • Socially isolated • Older adults • Coastal communities • Children and pregnant women	OHA partnered with the Oregon Department of Transportation (ODOT) to conduct a case study: How Tillamook Weathered the Storm: A Case Study on Creating Climate Resilience on Oregon's North Coast. The project involved interviewing state and local transportation and health leaders to document lessons learned.
Wildfire	Respiratory diseases Cardiovascular diseases Cancer Injuries Displacement Toxic exposures Mental health effects	• People with pre-existing conditions • Outdoor workers • Children, pregnant women • Older adults • Rural communities • Tribal communities	In 2019, OHA published More Days with Haze: How Oregon is Adapting to the Public Health Risks of Increasing Wildfires. The report, based on 2018 interviews with Oregon public health officials, identifies ways in which the public health system is adapting to the increasing severity of wildfires and opportunities for future climate adaptation.

Infectious disease	Lyme disease West Nile disease Fungal diseases Shigellosis	• Outdoor workers • Outdoor recreationalists • People experiencing homelessness • Tribal communities • Rural communities	In 2016, OHA developed a guidance document for public health officials to use weather and environmental data with syndromic surveillance data to quickly assess the correlation between weather factors or air quality measures and health outcomes including infectious disease.
Drought, water security, and water quality hazards	Mental health effects Dehydration Toxic exposures Diminished living conditions	• Low-income communities • Tribal communities • Rural communities • Farming and farmworker communities • Coastal communities	In 2017, OHA partnered with members of the Confederated Tribes of Warm Springs on a digital storytelling project that documented climate-driven changes in water quality in rivers and water shortages on the reservation. OHA has also assessed the issue of water insecurity in Oregon.
Extreme heat	Heat-related illness and death Violence	• People with pre-existing conditions • Outdoor workers • Outdoor athletes • People without air conditioning or housing • People living in urban heat islands • Children, pregnant women • Low-income communities • Communities of color	OHA contributed to the State of Oregon's 2020 Natural Hazard Mitigation Plan. For the first time, the plan will include a chapter on extreme heat. Inclusion makes the state eligible for Federal Emergency Management Agency funding for mitigation actions that reduce identified risks.
Air quality and allergens	Ozone / "smog" Airborne pollens Airborne molds	• Low-income communities • Communities of color • Communities near highway and industrial facilities • Outdoor workers • People with pre-existing conditions • Farmworker communities	In 2018, OHA prepared a Climate Change and Public Health in Oregon Policy Paper at the request of the Oregon Governor's Carbon Policy Office. The paper identifies communities most affected by health risks of climate hazards and co-pollutants of greenhouse gas emissions.

5. Cultural Heritage

Research, plan for, and adapt to the impacts of climate change on Oregon's cultural landscapes.

CLIMATE CHANGE EFFECTS AND VULNERABILITIES

Climate Change Effects

Climate change threatens cultural heritage in numerous ways. Along the Oregon coast, for example, increased erosion due to rising sea levels, flooding, and king tides remove sediment that is rich with cultural material, including archaeological sites, locations of great significance to Tribes, and historic properties such as the Yaquina Head Lighthouse. These effects impact not only Oregon's cultural resources, but recreational opportunities to experience this cultural heritage and the special places they represent.

Vulnerabilities

Vulnerability to climate change is based on three factors: exposure, sensitivity, and adaptive capacity. Climate change poses an especially challenging threat to cultural landscapes and resource areas because many of them are both sensitive and irreplaceable, limiting their adaptive capacity. The loss of these distinctive archaeological and historic artifacts, cultural traditions, practices, knowledge, and natural resources and features includes and extends beyond the direct impacts to the tourism economy and biological communities.

Additionally, cultural landscapes can be primary sources of data regarding past human interactions with environmental change (e.g., the archaeological record indicates habitation patterns based on previous changes in environment). These landscapes play a critical role in the communication of climate change. The impacts of climate change are observable in the loss of historic structures to coastal erosion or the loss of a campground to wildfires or flooding.

Oregon Tribes are uniquely vulnerable and disproportionately affected by climate change and may be impacted by the types of adaptation actions the State of Oregon pursues. The Tribal Climate Change Project[60] is a rich source of guidance and information regarding consequences of climate change to Tribes in Oregon. This project was a collaborative project at the University of Oregon with support from the USDA Forest Service Pacific Northwest Research Station, the Affiliated Tribes of Northwest Indians, the Bureau of Indian Affairs and the North Pacific Landscape Conservation Cooperative.

---

[60]https://tribalclimate.uoregon.edu/

The opening statement on the website offers a glimpse into the scope of the issue for Tribes:

> "American Indian and Alaska Native tribes have contributed little to the causes of climate change, and yet face disproportionate risks. Tribes have unique rights, cultures, and economies that are, or could be, vulnerable to climate change impacts. For indigenous peoples, the environmental impacts of climate change and some of the proposed solutions threaten ways of life, subsistence, lands rights, future growth, cultural survivability, and financial resources."

ADAPTATION STRATEGIES

Cultural landscapes and resource area designations dictate how Oregon manages and preserves these resources. Archaeological sites are protected and managed through state and federal laws; recreation sites are managed by Oregon Parks and Recreation Department (OPRD) and other state agencies with recreation areas such as Oregon Department of Forestry (ODF). Strategies to manage cultural landscapes and resource areas in an era of climate change include:

Recognize, collaborate, and consult with Tribal governments

- Support implementation of Tribal climate change adaptation plans.
- Initiate Tribal collaboration and consultation early.
- Use the document: Guidelines for Considering Traditional Knowledge in Climate Change Initiatives[61].
- Visit the Tribal Climate Change Project website when planning or before initiating projects[62].
- Use the Tribal Climate Adaptation Guidebook[63].

Broadly identify cultural resources are at risk

- Compile known cultural heritage resources in a geodatabase. Include cultural landscapes, National Register listed sites, archaeological resources, historic properties, museums, archives, libraries, historic cemeteries, etc.
- Actively research and document underrepresented history in Oregon including African American, Latino/Hispanic, Asian Pacific Islander, LGBTQAI+, and others. Determine risks for these resources.
- Enhance efforts to preserve and interpret cultural artefacts and historic sites important to minority and underserved communities' cultural heritage.
- Encourage community-based organizations and communities to develop hazard mitigation plans to limit risk to and impact from climate change to cultural resources. A model for and guidebook to developing a community plan has been developed by OPRD, Heritage Division.
- Include climate change risk to heritage sites in the Natural Hazard Mitigation Plans
- Promote historic property rehabilitation practices and adaptive reuse to limit climate impact from new materials production.

Ensure that historic preservation programs considers climate change and equity.

- Support the goals and objectives of the Oregon Historic Preservation Plan, 2018 – 2023[64].

---

[61] https://climatetkw.wordpress.com/
[62] https://tribalclimate.uoregon.edu/
[63] http://www.occri.net/media/1096/tribal-climate-adaptation-guidebook_updatedacknowledgements.pdf
[64] https://www.oregon.gov/oprd/OH/Documents/2018preservationplan.pdf

- At its next update, enhance the Historic Preservation Plan to include a fuller discussion of the effects of and responses to climate change on historic resources.

- Provide a fuller discussion of equity, diversity, and inclusion in the next update to the Historic Preservation Plan.

- Consider joining organizations such as the Climate Heritage Network to learn from other states about their approaches to climate change adaptation and equity.

Reduce exposure of vulnerable of historic, cultural, and archaeological resources while also protecting the environment

- Collect data from multiple aspects and scales to better understand and track impacts on cultural resources due to changes to the environment.

- Maintain hazard protection and management plans.

- Research and apply management and science to mitigate risk to structures, resources, and staff while enhancing visitor safety.

6. Social Relationships and Systems

Ensure equitable, livable and engaged communities in response to the impacts of climate change.

CLIMATE CHANGE EFFECTS AND VULNERABILITIES

Climate Change Effects

Climate change has the potential to disrupt social systems and infrastructures to an extent that communities lose aspects of their identity and their ability to provide social services. Social systems include myriad networks, institutions, and venues that bring people together, such as governmental and non-governmental organizations, schools, places of worship, social and recreational centers, and clubs, plazas, virtual spaces and community events that support social interaction.

Vulnerabilities

Local communities are vulnerable to climate change-related stresses and cascading effects such as:

- Widening social and economic inequities.
- Lack of resources to repair, relocate, or replace damage to social infrastructure, such as parks, recreational facilities, and civic buildings.
- The need to direct resources away from activities and services that foster social cohesion and towards emergency response.
- Damage to a community's sense of place when cultural icons, places, vistas, or traditions are damaged, changed, or destroyed.
- Unexpected population or demographic changes that stress existing services.

Low-income and disadvantaged communities are particularly challenged by climate change as a result of pre-existing conditions, including historical traumas and systemic racism. It will not be enough to address the individual elements that contribute to these compound effects, but instead to think about how they work together as systems[65,66.] For example, managed retreat from a natural hazard area involves more than just moving buildings or people to safer ground. This single focus destroys neighborhood civic and business connections, knowledge and support networks, a sense of place, and family bonds, making people even more vulnerable (**Figure 5**).

---

[65]Silva, J., Kernaghan, S., & Luque, A. (2012) A systems approach to meeting the challenges of urban climate change, International Journal of Sustainable Development, 4:2, 125 - 145

[66]Granderson, A. (2014) Making sense of climate change risks and responses at the community level: A cultural-political lens, Climate Risk Management, 3, 55- 64 https://doi.org/10.1016/j.crm.2014.05.003
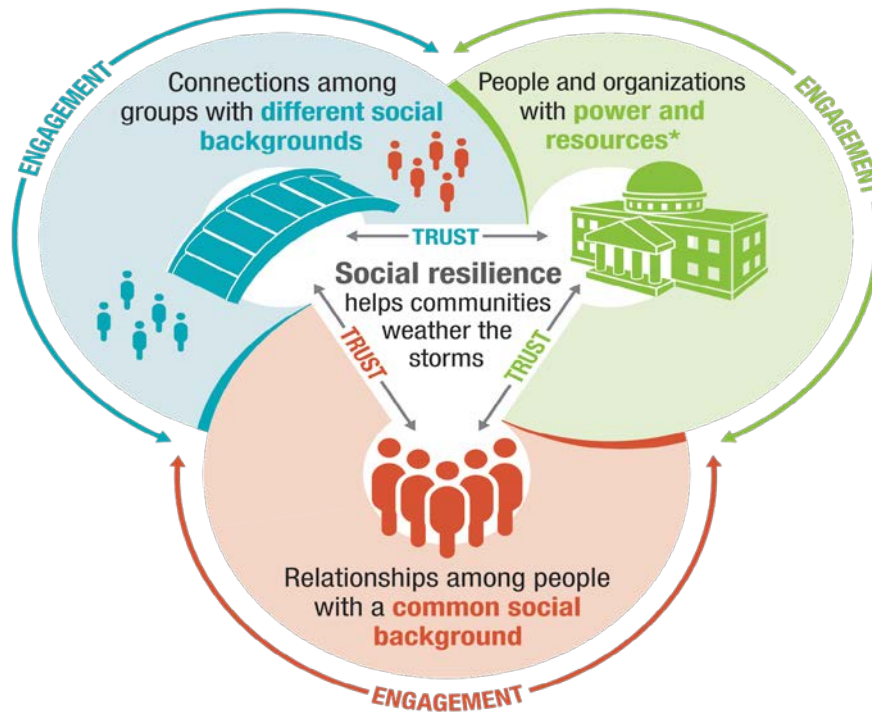
Figure 5: Due to inequities, people and organizations with power and resources have the greatest responsibility to engage and build trust with communities[67].

In 2019, the Oregon Climate and Health Program and the Oregon Community Health Workers Association held a series of listening sessions in Hood River, Medford, and Portland. In these sessions, community leaders shared their perspectives on social resilience and how climate change is affecting their communities. A 2020 report synthesizes the themes from these conversations and identifies actions and investments that governmental agencies can take to strengthen social relationships to increase climate resilience[68].

ADAPTATION STRATEGIES

Identify "Impacted Communities"

There is growing consensus that climate resilience largely is driven by social relationships and conditions in the places where people live, learn, work, and play. Communities that are already stressed will bear a disproportionate share of climate-related burdens and be less able to adapt. These same groups often have fewer resources and opportunities to plan for, and recover from, climate impacts.

Sensitivity to climate threats and a community's adaptive capacity are not evenly distributed across Oregon's geographic regions or within its cities. For this reason, identifying impacted populations by

---

[67]Infographic from OHA's Social Resilience Project
https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/CLIMATECHANGE/Documents/2020/Social-Resilience-Infographics-2020.pdf
[68]Sifuentes JE, York E, Fultineer C. (2020) Climate change and social resilience: Findings from community listening sessions. December 2020: Portland, OR. https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/CLIMATECHANGE/Pages/social-resilience.aspx

geography alone has serious limitations. Therefore, in addition to using mapping to identify impacted communities, state agencies should:

- Use community-based participatory research (CBPR) to engage meaningfully with a wide variety of populations.
- Ground-truth findings with qualitative data to ensure that any limitations and assumptions are modified on the basis of local lived experiences.

Build capacity of community based organizations and create more opportunities to participate in decision making

- Build capacity of communities and local government by providing climate savvy training, curated information, technical assistance, and grants tailored to community needs by:
- Providing targeted and coordinated assistance and engagement with communities identified as "most impacted" through the building and maintaining of trusting relationships with community leaders by, for example:
  - o Inviting representatives from community-based organizations (CBOs) representing "most impacted" communities to decision making processes (such as rulemaking) and providing the technical assistance needed to participate.
  - o Contracting with and funding work of CBOs that have specific place-based and cultural expertise, which can lead to more effective climate adaptation.
  - o Developing and maintaining strong ongoing partnerships with CBOs by sharing power and co-leading climate adaptation planning and action.
- Using participatory scenario planning, place-based planning, and other locally focused tools to advance local, culturally appropriate adaptation and resilience building activities.
- Incorporating strategies that build social capital into community engagement planning and implementation.
- Creating accessible, culturally relevant communications and user-friendly tools, informed by community needs.
- Continuing to support collaborative problem-solving venues, such as Oregon Solutions and Regional Health Equity Coalitions.
- Proactively building and facilitating public-private partnerships with local non-profits, community-based organizations, and civic groups.
- Developing and supporting citizen science projects and local monitoring.
- Continuing to engage in regional partnerships such as the Pacific Coast Collaborative, and Ocean Alliance.
- Continuing to support state-university partnerships such as OCCRI, INR, and PSU population center to enable them to provide downscaled climate and demographic data, projections, vulnerability assessments.
- Sponsoring conferences aimed at state employees, city and county land use planners, non-governmental organizations, and others covering the status of climate change in the region, resource availability, planning tools, and technology transfer.

Use DEI best practices in state decision-making

- Adopt the Climate Equity Blueprint for use in climate change adaptation planning and action within and among State agencies.

- Implement recommendations made during production of the Climate Equity Blueprint.

- Invest in the State workforce's community engagement and bridging skills. A workforce with the experience and skills to meet communities where they are and convene people from different social groups will increase an organization's ability to strengthen community resilience.

- Increase State capacity to meaningfully partner with communities on climate-related decision-making by appropriately hiring, compensating, and training a diverse workforce skilled in strategic community partnership building.

- Require a portion of any state grant funding to be used for community engagement, including contracting and compensating CBOs and providing services that allow community members to actively participate in decision making (such as child care, food, and transportation).

- Increase transparency and accountability on how community priorities are reflected in state policies and plans, how the state's decision-support tools are responsive to community-expressed needs, and how impacted communities are involved in the designing and delivering of the State's climate change programs.

Leverage the statewide land use planning program

- Develop land use planning guidance based on Oregon's Statewide Land Use Planning Goals to help cities and counties mainstream climate science and engagement of diverse communities into their planning, permitting, and operations.

- Support cities and counties through technical support, training, and grants as they develop and adopt measures that increase resiliency, mitigate greenhouse gas emissions, and provide for carbon sequestration.

- Address the causes of and support solutions to urban heat islands, with a focus on investments that result in multiple co-benefits.

- Produce guidance on and support community partners in managing urban trees and neighborhood green spaces to produce multiple benefits, such as cooling, open space, and rainwater interception.

- Require provision of neighborhood green and civic gathering spaces to provide nearby nature and help build social connections. Nearby nature is associated with quantifiable health benefits, with potential for lowering the human and financial costs of ill health.

- Work with cities and counties as they develop post acknowledgement plan amendments with an eye on climate change mitigation, sequestration, and adaptation opportunities.

- Provide cities and counties with decision support tools that help them prioritize and select adaptation actions that achieve long-term, equitable outcomes.

Review Oregon land use planning goals

Oregon's 19 land use planning goals did not anticipate the environmental and social challenges related to climate change.

- Evaluate the ability of Oregon's land use planning goals to address climate change and make recommendations to modify existing goals or add new ones.

- Evaluate the ability of Oregon's land use planning goals to address issues of climate equity and make recommendations for their modification, if necessary.

Focus natural disaster mitigation activities on climate change and equity

- Prioritize disaster mitigation and climate change adaptation funding where projects were developed with robust community engagement.

- Prioritize disaster mitigation projects that result in the co-benefits of greenhouse gas reduction, climate change adaptation, or carbon sequestration.

- Invest in climate-aware local hazard mitigation planning that is aligned with other local planning efforts, advancing cross-sector collaboration and investment in strategies that achieve multiple community goals within their respective jurisdictions.

- Prioritize state administered grants to cities and counties that have included a climate impact statement with their grant request and provide them with the necessary tools, training, and guidance to complete these statements

- Build resilience by enabling cities and counties to make full use of FEMA hazard mitigation grant funds to reduce exposure to current and future natural hazards by providing training and access to non-federal matching funds.

PART FOUR: CONCLUSION

State government has a duty to our communities, businesses, and future generations to take action now to address the impacts of change across all sectors. The Framework recommendations are designed to strengthen interagency coordination and consideration of equity, diversity, and inclusion in program planning and delivery, allowing Oregon to take advantage of emerging opportunities and harness existing state resources to protect people and the environment. Without coordinated action and continued state investment in implementing this Framework, Oregon will not be able protect our people, economy, and ecosystems from the effects of climate and ocean change.

Through the Framework, the multi-agency Workgroup has identified both administrative actions and strategic adaptation actions to respond to and plan for current and future climate and ocean change impacts. These key actions will allow Oregon to move forward in a transformative, coordinated, and efficient manner, amplifying our impact and minimizing redundant effort. Among the needed implementation actions, the Workgroup identified two that are a priority to implement.

Establish a multi-agency leadership structure, to ensure wide-ranging benefits, reduce conflicts, and achieve balance across Oregon's natural resources, economies, and communities. The Workgroup recommends the implement of a short-term and a long-term plan for leading, directing, and resourcing a coordinated statewide strategy to advance meaningful climate change adaptation. In the near term, the state should quickly mobilize existing interagency structures to satisfy the need for initial coordination in recognition of the urgency of climate change threats. For the longer term, the state needs to evaluate options for, and implement, a transformative approach to climate and ocean change adaptation leadership.

Complete a comprehensive climate change vulnerability and social resiliency assessment, integrated across sectors and agencies, to identify key vulnerabilities, sources of resiliency, and opportunities for action. The Workgroup recommends that the state invest in this assessment, beginning sooner rather than later. A climate change vulnerability and social resilience assessment would extend the natural hazards risk assessment prepared for the Oregon Natural Hazard Mitigation Plan (ONHMP), and should become integrated into the 5-year review cycle required of the ONHMP and avoids future duplication of effort.

Taking these key actions as soon as possible will help Oregon avoid making only marginal and token steps towards climate and ocean change adaptation. Moving forward, the Workgroup plans to continue to meet to develop an implementation plan for strategic adaptation actions in this document. Ongoing coordinated, collaborative implementation of these actions will help protect Oregon's people and ecosystems and move the State into adaptation.

Later in 2021, the Framework will be appended to the Oregon Natural Hazard Mitigation Plan. This will ensure that that progress towards achieving climate change adaptation is reviewed regularly and that the Framework is updated every five years, along with the Oregon Natural Hazard Mitigation Plan.

For additional information about Oregon climate and ocean change efforts, visit these key references:

- **Georgetown Climate Center**
  https://www.georgetownclimate.org/
- **Adaptation Clearinghouse**
  https://www.adaptationclearinghouse.org/
- **Tribal Climate Change Project**
  https://tribalclimate.uoregon.edu/

- **Tribal Climate Adaptation Guidebook**
  http://www.occri.net/media/1096/tribal-climate-adaptation-
  guidebook_updatedacknowledgements.pdf

PART FIVE: OREGON CLIMATE EQUITY BLUEPRINT

PART FIVE: OREGON CLIMATE EQUITY BLUEPRINT

State of Oregon
Climate Equity Blueprint

Table of Contents

Introduction

Scientists have accurately predicted and warned with growing urgency of the severe impacts to people and the environment from human-induced climate change. Certain communities are bearing the brunt of these impacts due to years of historic inequities created and maintained by governments, including the State of Oregon.(1) Historic redlining policies correlate to current-day heat islands in low-income neighborhoods of color.(2) Increasingly extreme weather punishes farmworkers as they harvest our food.(3) Native communities face the risk of further loss of cultural traditions and ways of life as climate change disrupts their deep relationships with the land and water.(3) Most recently, long-standing racial and income inequalities are being exacerbated by the COVID-19 pandemic.(4) At the same time, Oregon has also experienced the worst air pollution and loss of forests in its recorded history due to recent wildfire events.(5) Overall, low-income communities across the state have more vulnerabilities and fewer resources to recover from these climate impacts.(6)

With Governor Kate Brown's climate Executive Order 20-04 issued in March 2020, Oregon is taking bold action to respond to the threats of climate change. In tandem with other policy efforts, working groups, and initiatives focused on climate and environmental justice, there is clear momentum building to address the state's climate future. But even as Oregon has been a leader in climate-friendly policies over the past 30 years, frontline communities have been denied full benefits from these policies. Many explicitly exclusionary governmental policies have left behind deep legacies of disinvestment and marginalization. (7) While we all face the looming threats of climate change, communities of color, tribal communities, and rural communities still bear the heaviest burden when it comes to climate impacts. (1)

Public agencies can act as changemakers by prioritizing these frontline communities as they move Oregon toward a more equitable, climate-adapted future. Staff representatives from over 20 agencies came together to engage in the State of Oregon's [2020 Climate Change Adaptation Framework (CCAF)](#) planning process, focused on identifying climate risks facing the state and recommending strategies to prepare for those risks. The interagency team prioritized equity and inclusion as guiding principles for the project, and identified the need to engage in a facilitated training process to 1) develop a shared understanding of equity, diversity, inclusion, and racial justice, and 2) learn how to center equity through best practices in climate adaptation planning and implementation.

The Oregon Health Authority engaged Better World Group and Estolano Advisors, in partnership with the Oregon Department of Forestry and the Department of Land Conservation and Development, to lead interagency staff through a series of trainings and workshops to develop a Climate Equity Blueprint. The engagement consisted of two [level-setting workshops focused on equity basics](#), and four equity-lens workshops where participants worked collaboratively to identify State equity needs and priorities and to craft an outline of the Blueprint content. Members of the Oregon Environmental Justice Task Force, external environmental justice stakeholders, as well as the Interagency Workgroup on Climate Impacts to Impacted Communities (established by Executive Order 20-04 and convened by the Governor's office) all provided feedback on drafts of the Blueprint as part of the development process. This Climate Equity Blueprint is a high-level critical thinking tool to help state agencies center equity at the forefront of their climate adaptation work, not as an afterthought.

Defining Key Terms

Below is a list of working definitions for terms used throughout this report and that can inform shared language for any future interagency climate justice efforts. The Blueprint will be updated approximately every two years, including key terms to ensure alignment with other related statewide efforts. See the references section for sources and citations for these definitions.

Climate Adaptation: The process of responding to the impending or inevitable consequences of the climate disruption already set in motion that, due to lag effect, cannot be avoided or reversed. *(CA Office of Planning and Research (OPR), Asian Pacific Environmental Network (APEN))*

Climate Equity: Ensuring that the people and communities who are least culpable in the warming of the planet, and most vulnerable to the impacts of climate change, do not suffer disproportionately as a result of historical injustice and disinvestment. *(Resources Legacy Fund, Climate Justice Working Group)*

Climate Gap: Refers to the data gaps between class and race that show disproportionate negative implications that climate change and climate change mitigation holds for people of color and the poor *(USC Program on Environmental and Regional Equity (PERE))*

Climate Mitigation: A human intervention to reduce the sources or enhance the sinks of greenhouse gases. Used in tandem with adaptation. *(Intergovernmental Panel on Climate Change)*

Climate Vulnerability: The degree to which natural, built, and human systems are at risk of exposure to climate change impacts. *(ICARP)*

Community Resilience*: is the ability of diverse community members to come together in times of adversity to respond and adapt in ways that equitably support the needs of one another and create transformative change.*

Diversity: The appreciation and prioritization of different backgrounds, identities, and experiences collectively and as individuals. It emphasizes the need for representation of communities that are systemically underrepresented and under-resourced. These differences are strengths that maximize the state's competitive advantage through innovation, effectiveness, and adaptability. *(State of Oregon, Office of the Governor)*

Environmental Justice: Equal protection from environmental and health hazards, and meaningful participation in decisions that affect the environment in which people live, work, learn, practice spirituality, and play. EJ communities include minority and low-income communities, tribal communities, and other communities traditionally underrepresented in public process. Underrepresented communities may include those with significant populations of youth, the elderly, or those with physical or mental disabilities. *(Oregon Environmental Justice Task Force)*

Equality: Providing the same level of opportunity and assistance to all segments of society, not take into account differing needs or disparate outcomes. *(Race Forward)*

Equity: Acknowledges that not all people, or all communities, are starting from the same place due to historic and current systems of oppression. Equity is the effort to provide different levels of support based on an individual's or group's needs in order to achieve fairness in outcomes. Equity actionably empowers communities most affected by systemic oppression and requires the redistribution of resources, power, and opportunity to those communities. *(State of Oregon, Office of the Governor)*

Ethnicity: A socially constructed grouping of people based on culture, tribe, language, national heritage, and/or religion. *(Race Forward)*

Frontline Communities: Also known as "Climate Vulnerable Communities." Those that experience "first and worst" the consequences of climate change. These are often communities of color, immigrants, rural communities, low-income communities, Tribal and indigenous people who have long been excluded from the policy and funding decisions and processes used to address climate change. *(EcoTrust, APEN).*

Inclusion: A state of belonging when persons of different backgrounds, experiences, and identities are valued, integrated, and welcomed equitably as decision makers, collaborators, and colleagues. Ultimately, inclusion is the environment that organizations create to allow these differences to thrive. *(State of Oregon, Office of the Governor)*

Intercultural Competency: A set of skills and characteristics that support effective and appropriate engagement with people across cultural difference in order to deepen learning and build mutual understanding.
.
People of Color: Often the preferred collective term for referring to non-White racial groups, rather than "minorities." An additional acronym to utilize is **BIPOC** (Black, Indigenous, & People of Color). This highlights the unique experiences that Indigenous and Black people have, specifically within a U.S. context. *(Race Forward, The BIPOC Project)*

Privilege: A set of advantages systemically conferred on a particular person or group of people. (*Race Forward)*

Race: A non-scientific classification of human beings based on physical and genetic variation. *(Race Forward)*

Racial Equity: When race is no longer used to predict life outcomes and outcomes for all groups are improved. It is not just the absence of inequities, but the presence of deliberate systems and supports to sustain racial equity through proactive and preventative measures. *(Government Alliance on Race and Equity (GARE), Race Forward)*

Rural Communities: Any geographic area that is ten miles or more from the centroid of a population center of 40,000 people or more. An estimated 33 percent of Oregon's population lives in rural areas. (*Oregon Office of Rural Health)*

White Privilege: Refers to the unquestioned and unearned set of advantages, entitlements, benefits, and choices bestowed on people solely because they are white. Generally white people who experience such privilege do so without being conscious of it. *(Peggy McIntosh)*

What is the Oregon Climate Equity Blueprint?

The Blueprint is considered a "living document" and is intended to be improved and updated over time. The Blueprint provides a set of best practices to guide government decisions and tools for programmatic staff to apply an "equity lens" as they design state agency policies, processes, and programs to address climate change. The Blueprint was developed as part of the 2020 Climate Change Adaptation Framework (CCAF) update and can also serve as a stand-alone document to support agency staff in applying climate equity tools in their everyday work.

In the course of developing the Blueprint, the consultants on this project identified barriers that would prevent State agency staff from implementing the tool's best practices or reduce their effectiveness. They recommended a number of enterprise-level strategic investments in equity and environmental justice to overcome these barriers. Their recommendations, provided in a letter attached as *Appendix A* to this blueprint, include:

- Establish new requirements for workforce training in environmental justice, community engagement and equity.
- Develop sector-specific climate equity goals and metrics.
- Dedicate staff resources to actively lead and participate in an ongoing interagency climate justice 'community of practice' where community partnerships, data, resources, and best practices can be shared and leveraged across the enterprise.
- Articulate processes that agencies can use to identify climate-vulnerable communities most affected by State policy, planning, and project-level decisions.
- Designate an entity (agency, office or other body) to create and manage a new climate justice capacity-building fund that enables Community Based Organizations (CBOs) to engage in and co-lead State climate projects.

How to use the Blueprint Tools?

The Blueprint tools are intended to guide programmatic staff across all of Oregon's state agencies as they integrate equity into their policies, processes, and programs related to climate and beyond. The tools include:

1. **Best Practices:** reliable, general guidelines for state agency practitioners
2. **Guiding Questions**: critical thinking tools for practitioners to consider benefits and burdens, influence and engagement, and unintended consequences.
3. **Case Studies**: relevant governmental examples of effective work being done
4. **Resources:** additional reports and toolkits that can assist state agencies in developing and implementing equity-based work

Equity tools work best when a diverse team applies them together. Staff are encouraged to invite individuals with diverse perspectives from different professional backgrounds, racial and ethnic identities, age, abilities, gender, sexual orientation, and sexual identities to respond to the guiding questions presented in these tools. If the team recognizes that more perspectives are needed, they should be invited to participate.

The tools cover the following topic areas:

Build Internal Capacity

Participate in Ongoing Intercultural Competency Training & Workshops

Work in Partnership Across Agencies and State Bodies to Create a Community of Practice

Embed Equity & Accountability into Design

Center Equity, Not Equality

Align Agency Policies and Programs with Oregon's Environmental Justice Statutes and Efforts

Ensure Accountability Measures and Communicate Regularly

Lead Meaningful Community Engagement

Prioritize Funding and Capacity-Building for CBOs

Use Accessible and Inclusive Engagement Strategies

Create Opportunities for Communities to Lead Change

Improve Data Collection & Use

Standardize, Integrate, and Share Data Transparently

Enable Communities to Help Shape Data Questions and Products

Train Staff and Partners on How to Use and Integrate Climate and Equity Data

Ongoing Statewide Climate and Environmental Justice Efforts

Community and advocacy groups, as well as governmental entities, are leading many efforts to address environmental-, climate-, and racial justice in the state of Oregon. The State government's advisory bodies outlined below can provide support for enterprise-wide implementation of this Blueprint.

I. Environmental Justice Task Force

Oregon Revised Statute 182.538 established the Environmental Justice Task Force (EJTF) in 2010. The EJTF helps protect Oregonians from disproportionate environmental impacts on minority and low-income populations. The Task Force encourages state agencies to give all people knowledge and access to improve decisions that affect the environment and the health of all Oregonians. ORS 182.542 charges the Task Force to:

i. Advise the Governor on environmental justice issues;
ii. Advise natural resource agencies on environmental justice issues, including community concerns and public participation processes;
iii. Identify, in cooperation with natural resource agencies, minority and low-income communities that may be affected by environmental decisions made by the agencies;
iv. Meet with environmental justice communities and make recommendations to the Governor regarding concerns raised by these communities; and
v. Define environmental justice issues in the state.

II. Racial Justice Council

On July 31, 2020, Governor Kate Brown created the Racial Justice Council to advise the Governor on the 2021-2023 state budget and to help reform a wide range of programs and policies. The Governor directed the Council to:

i. Direct the collection of data from across sectors of society to support smart, data-driven policy decisions;
ii. Provide principles and recommendations that center racial justice to the Governor to inform the '21-23 Governor's Recommended Budget and Tax Expenditures Report;
iii. Create a Racial Justice Action Plan for six specific areas: Criminal Justice Reform and Police Accountability, Housing and Homelessness, Economic Opportunity, Health Equity, Environmental Equity, Education;

The Racial Justice Council recognizes that existing boards and commissions have been working to address racial inequities in state government. There may be opportunities for state agencies to crosspollinate and engage with the Racial Justice Council. The Environmental Equity Committee, specifically, is tasked with influencing programs, policies, budgets, and strategic plans for environmental and natural resource agencies.

III. Interagency Workgroup on Climate Impacts to Impacted Communities (IWCIIC)

As part of [Executive Order 20-04](#), Governor Kate Brown established an interagency committee of leaders to provide high level strategy and guide the various state climate actions through an equity lens.

    i.   Agencies and commissions that are part of the Interagency Workgroup:
- Department of Environmental Quality
- Department of Land Conservation and Development
- Oregon Department of Agriculture
- Oregon Department of Forestry
- Oregon Department of Fish and Wildlife
- Oregon Department of Energy
- Oregon Department of Transportation
- Oregon Health Authority
- Oregon Water Enhancement Board
- Oregon Water Resources Department
- Public Utilities Commission
- Environmental Justice Task Force
- Oregon Global Warming Commission
- Oregon Parks and Recreation Department, and
- Oregon Sustainability Board

IV. Oregon Global Warming Commission

Through House Bill 3543, the Oregon Legislature created the Oregon Global Warming Commission in 2007. The Commission's responsibilities include recommending statutory and administrative changes, policy measures, and other actions to be carried out by state and local governments, businesses, nonprofit organizations, and residents.

The Commission also tracks and evaluates: assessments of global warming impacts on Oregon and the Northwest; existing greenhouse gas reduction policies and the advancement of regional, national, and international policies; costs, risks and benefits of various strategies; progress toward reduction goals; technological advances; and other related tasks.

The Commission focuses on three priorities, including to "protect the health and well-being of Oregonians and the health and resiliency of Oregon's ecosystems impacted by climate change. This priority includes developing and devising adaptation plans and strategies to prepare for the threats directly posed by global warming."

V.   Oregon Sustainability Board

The Oregon Sustainability Board (OSB) was created in 2001 and encourages activities that best sustain, protect and enhance the environment, economy and community for the present and future benefit of Oregonians. Appointed by the Governor, members represent a variety of stakeholders across the state of Oregon.

The Board, which meets quarterly, is actively involved in the oversight of agency sustainability plans and initiatives, as well as statewide projects working to advance environmental, economic and equitable sustainability.

VI.   Climate-Friendly and Equitable Communities Rulemaking

The Department of Land Conservation and Development (DLCD), in partnership with the Oregon Department of Transportation, is engaged in rulemaking to implement key elements of Governor Brown's Executive Order on Greenhouse Gas Reduction 20-04. DLCD's rulemaking will focus on strengthening Oregon's rules for transportation and housing planning, particularly for Oregon's eight urban areas with populations over 50,000 people (Albany, Bend, Corvallis, Eugene/Springfield, Grants Pass, Medford/Ashland, Portland Metro, Salem/Keizer). This effort will help to move Oregon forward on the path to meet our goals to reduce climate pollution, while working to ensure multiple benefits for historically marginalized populations. For this project, the Land Conservation and Development Commission has identified priority populations to include, but not be limited to, Black, Indigenous, Latinx, other communities of color, low-income, people living with disabilities, and houseless community members.

To help center the perspectives of priority populations in the work of implementing agencies including local governments, the Rules Advisory Committee (RAC) is intentionally geographically and socioculturally diverse. The rulemaking is scheduled to conclude in December 2021.

Climate Equity Blueprint Tools

I.   Build internal capacity
II. Embed equity and accountability into design
III. Lead meaningful community engagement
IV. Improve data collection and use

I.   Build internal capacity

State agencies should consider how all staff roles influence equitable outcomes. By developing internal staff capacity, state agencies can better incorporate climate equity and racial equity into their mission and policy, design processes, plans, and programs. This includes building intercultural competency amongst all staff, and updating internal policies and practices – such as contracts, procurement processes, job descriptions, etc.

Best Practices

Participate in Ongoing Intercultural Competency Training and Workshops: To understand and address the root cause of inequities, state agencies need to meaningfully invest in regular (at least yearly) intercultural competency and racial justice workshops and trainings for all staff. Oregon state laws have produced some inherently harmful policies, processes, and programs affecting communities of color, tribes, and rural communities. While not all staff are expected to be experts in racial justice and equity, foundational knowledge will support staff who design internal and external policies and practices. Skills and competencies include a rooted understanding of historic inequities, valuing and practicing principles of community based participatory action, and a cross-disciplinary orientation, along with specific technical skills on measuring effective climate equity outcomes. The State coordinates an annual Diversity, Equity, and Inclusion conference and offers training opportunities through iLearn. Participation in this conference and access to the iLearn trainings should be encouraged across all agencies and can be used as a means to facilitate self-reflection and growth as well as intra- and interagency learning. Agencies would benefit from establishing a clear process by which any learning that occurs through trainings or workshops can be brought back into the institution to facilitate continued learning and lead to action. Agency personnel who participate in trainings and workshops should be provided with formal and informal opportunities within their agencies to share what they learned, continue that learning, and develop recommendations for how the agency can advance its work on diversity, equity, and inclusion based on what was learned.

Work in Partnership Across Agencies and State Bodies to Create a Community of Practice: Every agency is at a different place in their journey has differing capacity to advance diversity, equity, and inclusion. Additional work can be done to encourage and sustain interagency coordination. Empowering an interagency group or department to convene an interagency community of practice could provide opportunities for agencies to share or pool resources to build internal capacity. Work on this blueprint revealed that agencies further along in this work might be able to provide examples, models, encouragement, insights, recommendations, and potentially even mutual aid for agencies that are just beginning this work. The 2016 EJTF Best Practices Handbook recommends that each agency have a full time Environmental Justice (EJ) Coordinator charged with coordinating inter-agency collaborative efforts to implement EJ best practices among other activities. Until more coordination on climate and environmental justice is established, agencies can make progress on their own utilizing existing resources (like the ones listed in this section) and participating in project-specific workgroups, such as the CCAF Climate Equity Workgroup that helped to develop this document. Also, Department of Administrative Services (DAS) has recently established an Office of Cultural Change to work closely with the Governor's Office of Diversity, Equity and Inclusion to coordinate enterprise-wide cultural change and promote Diversity, Equity and Inclusion through workforce, training and communications in the state government.

Guiding Questions

☐ Do our staff have access to intercultural competency workshops and trainings to stay informed to be able to make the best possible decisions on equity? How does our agency provide opportunities for staff to build and share their intercultural competency skills, facilitate continued learning within the agency, and develop recommendations for agency consideration?

☐ How do staff and leadership set goals to improve intercultural competency and how are they held accountable to those goals?

☐ Has the program and/or agency developed a measurement for DEI workforce competency? Are staff trained on the history of inequitable policies and exclusionary decision-making practices that have led to current inequities in Oregon?

☐ Does our agency have a designated EJ Coordinator or "Citizen Advocate" who regularly attends EJTF meetings and has adequate FTE to serve as a liaison with agency programs and other State agencies to advance EJ-related work?

☐ Have we requested or set aside funding for internal capacity-building for staff? Is our program or process adequately funded to engage in ongoing learning and capacity-building? If not, what are other available resources or next steps? What are new or existing opportunities for different agencies/departments to pool resources?

Case Studies

• **The Capitol Collaborative on Race and Equity** (CCORE) helps build capacity for California State employees from all agencies. It includes two cohorts: a Learning Cohort for state entities without Racial Equity Action Plans and an Advanced Implementation Cohort for entities who are seeking technical assistance to implement racial equity strategies. CCORE is convened by the Public Health Institute (PHI) in collaboration with the California Strategic Growth Council (SGC) and California Department of Public Health (CDPH), and is supported by Race Forward and the California Endowment.

• **Oregon Health Authority (OHA) Anti-Racism Trainings** - In addition to a required agency-wide Cultural Competency and Humility training, OHA required staff participating in the agency's strategic planning process and also those preparing to engage in the 2021 legislative session to participate in anti-racism trainings.

Resources

• Oregon CCAF: 2020 DEI Level-Setting Workshop Materials
• Governor Kate Brown's Office of Diversity, Equity and Inclusion's Racial Justice Resource List
• Environmental Justice: Best Practices for Oregon's Natural Resource Agencies - Oregon Environmental Justice Task Force (EJTF)
• The Oregon State Worker Training Trust

- The Intercultural Development Inventory
- Coalition of Communities of Color: Tool for Organizational Assessment Related to Racial Equity
- Washington Race Equity & Justice Initiative (REJI) Organizational Race Equity Toolkit: Tool C: Race Equity Culture Continuum for Organizations
- Building Organizational Capacity for Racial Equity, GARE
- Racial Equity Action Plans: A How-to Manual, Government Alliance on Racial Equity (GARE)

II. Embed equity and accountability into design

State agencies play a pivotal role in designing programs, policies, processes, initiatives, investment opportunities, and budgets. From inception, these efforts should be designed with equity and equitable outcomes at the core, as well as measurable goals towards these outcomes. Often, this does not occur. There is a growing understanding and development of best practices from local-, regional- and state-level agencies to support state agencies in efforts to "design for equity" at the beginning of each process to ensure success. In Oregon, many local and regional jurisdictions incorporate this practice into their climate action planning or when designing climate frameworks. Below we offer some best practices and examples to address common challenges to embedding equity and accountability in public programs, policies, and processes.

Best Practices

Center Equity, Not Equality: Agencies should assess their funding policies and grant programs for equity. This includes allocating funding based on the most need rather than equal distribution. There is no one single approach to identifying "most impacted" communities in Oregon and these communities may differ across programming areas. See *Appendix B*, Critical Thinking Tool for Identifying Most Impacted Communities. This best practice also includes identifying and addressing any barriers to accessing specific funding programs (such as reimbursement programs that require participants to spend their own money up front, exclusive channels by which people learn of funding opportunities, and the technical literacy required to understand funding announcement). Targeted funding, like location set-asides for grant programs, can fund specific communities in need defined not only by geographic area, but also by other factors such as, income, environmental burdens, number of investments, etc. Set asides may also increase community participation if residents can see that the funding is dedicated to their communities before a project is fully developed. Policies and programs can dedicate a certain amount of their funding to community engagement, outreach, workforce development programs, and technical assistance.

Align Agency Policies and Programs with Oregon's Environmental Justice Statutes and Efforts: Agencies should ensure that they have an EJ Coordinator ("citizen advocate") identified within their agency and that this EJ work is given adequate FTE and detail in the position description. An agency's EJ Coordinator can work with agency leadership to help ensure that agency policies and programs are aligned with Oregon's environmental justice statutes (ORS 182.545) and other statutes related to diversity equity and inclusion. EJ Coordinators can also dedicate time to assisting others within their agency to ensure that best practices identified by the Environmental Justice Task Force are embedded in their agency's policies and programs. For a list of related federal and state statues, please see *Appendix C*.

Ensure Accountability Measures and Communicate Regularly: To programmatically prioritize equity, state agencies need to go beyond broad commitments to equity and focus on specific goals, strategies, and metrics to measure progress and effectiveness. Any goals developed should be SMARTIE – Strategic, Measurable, Ambitious, Realistic, Time-Bound, Inclusive, and Equitable. Goals need specific strategies or actions that will be taken, as well as a named agency, department, team, or individual that will implement the actions. Additionally, there should be measures and deadlines in place that determine whether a goal has been met. Progress reports or other regular communications to community partners helps to ensure accountability. If a goal has

not been met, explaining the reasons why, challenges and alternative courses of action, helps to maintain transparency and build trust with community partners.

Guiding Questions

☐ Are diversity, equity, and inclusion explicitly included in our agency's core values or guiding principles?

☐ Is intercultural competency included in position descriptions? Are requirements for intercultural competency included in positions that oversee or manage the work of others?

☐ Is the program or project aligned with the state's strategic goal(s) to address equity and environmental justice? Is equity addressed in the plans or other documents guiding our work? Is climate equity specifically named?

☐ Does the program or policy address racial equity? If so, are there metrics developed to measure effectiveness and outcomes?

☐ Is the program or policy written in plain language or various accessible languages?

☐ Does the program or policy consider unintended consequences (e.g. displacement, gentrification, poor air quality, transportation barriers, lack of affordable housing, etc.) that may affect climate-vulnerable communities?

☐ Have we removed barriers (e.g. by providing technical assistance, made opportunities available in various languages, etc.) for community to either apply or participate in the program?

☐ Does the program or policy have multi-benefit outcomes for climate-vulnerable communities? What mechanisms will be used to ensure benefits to climate-vulnerable communities? For example, does it:
- o Increase investments and resources;
- o Provide capacity-building, training, and workforce development opportunities;
- o Provide job opportunities and career pathways?

☐ Is a reporting framework in place that generates publicly available data on key metrics and benchmarks in a timely manner? Is there a communications plan to communicate progress to stakeholders regularly?

☐ Are benchmarks identified to measure progress on important outcomes to communities, policymakers, and equity stakeholders?

Case Studies

- **ODOT's I-205 and I-5 Toll Projects' Equity Framework:** The Oregon Toll Program has developed this draft Equity Framework to identify the burdens and benefits of tolling and provide a process for determining how to equitably distribute those burdens and benefits from the I-205 and I-5 Toll Projects. The framework will guide the project to ensure tolling on I-205 and I-5 will lead to equitable outcomes. Additionally, the framework will ensure the

Oregon Toll Program implements an intentional and equitable engagement process that makes currently and historically excluded and underserved communities a priority. This I-205 and I-5 Toll Projects' Equity Framework includes:
- o Goals for the proposed toll projects, and an explanation of why the Oregon Toll Program is prioritizing equity
- o A definition of equity within the context of the toll projects, including key concepts and definitions related to equity
- o The overall approach and organizing principles for addressing equity
- o A set of actions for measuring benefits and burdens to historically excluded communities and populations

- **Portland Clean Energy (Community Benefits) Fund** creates a city grant program for clean energy and job training projects. The program is intended to benefit communities on the frontlines of climate change, including low-income people and people of color. The grant program clearly outlines its climate equity values and community commitments to accountability upfront. These four values include:
  - o **Equity.** PCEF prioritizes frontline community and local benefits, promotes equitable outcomes, and institutionalizes equity best practices in the city.
  - o **Economic Opportunity.** PCEF prioritizes sustainable job creation, emphasizes job training that promotes career pathways and job security, and advances the development of under-served contractors through business support and technical assistance.
  - o **Climate Action.** PCEF promotes climate resilience, supports climate mitigation, and reduces carbon emissions.
  - o **Accountability to Community.** PCEF supports inclusive, culturally and linguistically specific participation and engagement throughout the program, maximizes program transparency and accountability, and creates a new model for government-community partnership.

Resources

- Environmental Justice: Best Practices for Oregon's Natural Resource Agencies - Oregon Environmental Justice Task Force (EJTF)
- SMARTIE Goals Worksheet, The Management Center
- Making equity real in climate adaptation and community resilience policies and programs: A Guidebook, The Greenlining Institute
- Equity and Empowerment Lens Logic Model: A work in progress (2014). A look at transformative change towards racial equity at the individual, institutional, and systemic levels, Multnomah County
- Climate Action Through Equity (2016): The integration of equity in the Portland-Multnomah Climate Action Plan
- Racial Equity: Getting to Results, GARE

III. Lead meaningful community engagement

Tribal communities, communities of color, low-income, and many rural communities have faced years of inequitable environmental policies and exclusionary decision-making practices created and maintained by government institutions. These communities are experts based on their lived experiences and this expertise must be centered in climate resilience work. The state of Oregon's Environmental Justice Task Force (EJTF) is a bridge for agencies to create authentic community relationships, design inclusive programs and projects, and communicate honestly with community members in order to create and sustain meaningful community engagement and public participation. Below we offer best practices and resources to address common community engagement challenges such as resource allocation and trust-building with historically marginalized communities to add to the efforts outlined by EJTF.

Best Practices

Prioritize Funding and Capacity-building for Community Based Organizations: Project budgets are often limited. However, without any investment in community engagement, agencies risk losing trust and community buy-in, which can sometimes be much more costly in the long run. Agencies can try to leverage grant funds as well as dedicated project funds to create an adequate budget for Community Based Organizations (CBOs) to build their general capacity to engage in the State's climate projects. Compensating CBOs for their time shows that an agency recognizes the important role they play and allows them to build their capacity to continue to engage in meaningful ways. Agencies can create and maintain trusting partnerships with CBOs that have existing relationships with priority populations. These partnerships should not be based on extraction, but on true two-way connection based on mutual respect. CBO partners are valuable experts in their own communities and can offer important insight into community assets and issues. They can, for example, organize community meetings or facilitate connections to other relevant organizations. They may be able to help identify opportunities to engage in non-traditional public outreach formats such as informal meetups or participating in already-planned community-organized events. Agencies and CBOs can work together to define expectations and determine outcomes. To do this, engaging with CBOs early in the process is critical. Coordination on CBO capacity-building across agencies can indicate to policymakers that community participation is a priority and should be funded as a part of state and local budgets.

Use Accessible and Inclusive Engagement Strategies: Engaging communities early and consistently and ensuring accessible platforms and multiple channels for participation will allow for the most community representation. Technical language can be a barrier, so agencies should review how they craft language to convey technical concepts and consider providing information in multiple languages to ensure all voices are heard. Offering technical assistance and ensuring that diverse CBOs are aware of the opportunity can help communities engage. Large public meetings should be held in spaces that are welcoming and easy to access. Oftentimes government spaces can dissuade participation, so showing up within a community space respectfully as a guest can start to break down that power dynamic. It is a best practice to open public events by acknowledging the traditional indigenous inhabitants of the land where the meeting is taking place. This practice creates awareness of the history of colonization, offers respect to indigenous and tribal partners, and begins to repair relationships. See *Appendix D*, a DRAFT tool for land

acknowledgement, however it's a best practice to seek feedback on appropriate land acknowledgement language. Acknowledgement by itself is a small gesture. Building authentic relationships with tribal partners should be ongoing. While a shift to online meetings during COVID-19 has allowed many more individuals to participate in public meetings, it still excludes those who do not have access to a computer or broadband internet. Online meetings need to be designed in a way that enables leading agencies to do more listening and less one-way presenting. They should also be recorded so that people can access the information at different times, combined with clear opportunities for giving feedback outside of the online meeting. Providing a mix of engagement strategies is crucial to ensuring full participation in any process. Common methods include: focus groups, hosting community events, attending existing stakeholder events, online meetings, online surveys, social media engagement, mailers, photo voice projects, story projects and one-on-one interviews. Lastly, compensating participants for their time and their transportation, as well as providing childcare and food at in-person meetings, are best practices. Some programs may be prohibited from funding some of these items but can work to secure additional funding to cover the cost of these services.

Create Opportunities for Communities to Lead Change: Oftentimes agencies are focused on seeking public input for their own policies or programs, which may be narrow in scope and may not address all the interests and needs of a community. Whenever possible, agencies should consider pursuing and advancing opportunities that allow communities to identify their own needs, interests, and vision for the future. Agencies can take collaborative, community-based approaches that connect communities to financial and technical assistance to inform and influence state level decision-making. Whenever possible, agencies should consider participating as partners and find ways to align agency priorities and investments with the interests and needs identified by communities, even when this community-based approach leads to interrelated, interdisciplinary strategies that result in multiple community benefits that expand beyond the leading agency's historical scope or mission. This involves taking an "adaptive co-management" approach, where the process is designed to be collaborative and iterative. It includes moving forward with uncertainties and building-in monitoring systems that enable ongoing cross-sector learning to inform and improve future investments.

Guiding Questions

- [ ] Are communities engaged early in the process to ensure opportunity to incorporate their feedback into the project/program development and community engagement strategies?

- [ ] Have we been clear about what kinds of information we seek from specific communities we are hoping to engage with? Have we clearly defined communities' decision-making role and ensured that community representatives are included in decision-making throughout the process?

- [ ] Does our plan complement and/or is it informed by existing efforts already led by community based organizations (CBOs)? Does our agency have established relationships with groups engaged on this topic?

- [ ] Have we made our engagement activities as accessible and as inclusive as possible for everyone? Have we considered offering technical assistance to new community partners who may not have engaged with us before?

☐ How can we acknowledge and address historical trauma of impacted communities through this process?

☐ Are we focusing on highlighting community assets as well as deficits? Where are there opportunities to support, amplify, or fund community-led efforts related to this project?

☐ Will this process help foster the building of effective, long-term relationships and trust between climate vulnerable communities and state agencies? Does our agency understand who is most climate vulnerable?

☐ How will the community know that their participation is contributing directly to the program or policy? Does our plan involve the community in implementation?

☐ Does the program or policy align with and support existing community priorities, creating an opportunity to leverage resources and build collaboration?

☐ How are we sharing power and creating opportunities for communities to lead? Has our agency shown flexibility and adaptive management through a willingness to pilot and expand beyond its historical ways of doing the work?

Case Studies

- **Integrated water resources planning and management** - Every place in Oregon has complex water challenges that require actions designed with local conditions in mind. Since all water belongs to the public in Oregon, water planning and management should be open and inclusive and seek to consider and balance the diverse interests and values held by Oregonians. The Oregon Water Resources Department and other natural resources agencies have partnered with four places to test a place-based, community-centered approach to integrated water resources planning and management, which was a recommended action of the Statewide Integrated Water Resources Strategy. Following the State's planning framework, leaders in the Harney Basin, Lower John Day Sub-Basin, Upper Grande Ronde Sub-Basin, and Mid-Coast Region are convening collaborative groups to identify and implement local solutions to understand and meet the current and future water needs of the environment, people, communities, and the economy. These groups are building capacity to collaboratively solve water problems by improving our understanding of current and future conditions, identifying and filling information gaps, fostering partnerships among different water interests, facilitating greater cooperation and coordination, and engaging the broader public and decision-makers in conversations about water. Place-based water planning helps Oregon communities identify and develop widely supported actions to prepare for and adapt to extreme water-related events, such as floods and drought, which are projected to intensify as the climate changes.

- **Oregon Housing and Community Services (OHCS)'s Equity Priority:** For their 2019 Statewide Housing Plan, OHCS facilitated focus groups in low-income areas in partnership with multiple community-based service providers who recruited the participants. The focus group participants received a $75 grocery gift card, a meal, and childcare services, as needed, for the meeting duration. OHCS often provides financial assistance to priority populations or vulnerable groups in order to ensure their participation and feedback in meetings related to OHCS policies, plans, or programs. This engagement led to the development of OHCS's current Equity Priority.

- **Department of Land Conservation and Development (DLCD)'s Climate-Friendly and Equitable Communities rulemaking**– To help develop the rulemaking process, DLCD held a workshop facilitated by Verde to discuss equity approaches. In response to this dialogue, DLCD is funding staff time for the participation of seven equity-centered community based organizations (CBO)s in its rulemaking advisory committee and providing one-on-one staff check-ins for those organizations throughout the rulemaking process to elevate their voices and help them engage as desired.

- **Department of Environmental Quality (DEQ)'s Engaging Impacted Communities in Climate Policy effort** – DEQ is planning to provide funding to CBO consultants in 2021 to:
  - Advise DEQ on strategies and techniques to engage environmental justice and other under-resourced communities in the development of new policies and programs;
  - Design and conduct community capacity building activities; and
  - Develop culturally-specific education and engagement materials related to climate change, climate

- **Metro Office of Public Engagement** helps ensure Metro engages the region's full diversity, connects public input to decisions, and effectively evaluates engagement outcomes. The Office supports public engagement activities at the project and program level by offering resources for best practices in public involvement, conducting surveys and reports, and supporting the Diversity Action Plan. The Public Engagement Review Committee reviews public engagement efforts and reports and makes recommendations to the Metro Council about engagement priorities.
  - Metro Parks & Nature **Capacity Building Sponsorship –** This program aims to help organizations build capacity to connect BIPOC communities with nature. Funds can cover staff time, professional and leadership development, materials and supplies, IT services and hardware, participant stipends, transportation, food and other costs related to connecting BIPOC communities with nature.

Resources

- Environmental Justice: Best Practices for Oregon's Natural Resource Agencies - Oregon Environmental Justice Task Force (EJTF)
- Inclusive Outreach and Public Engagement Guide – City of Seattle Race & Social Justice Initiative
- Honor Native Land: A Guide and Call to Acknowledgement – US Dept. of Arts & Culture
- Oregon State University: Land Acknowledgements - OSU
- Resource Guide on Public Engagement – National Coalition for Dialogue & Deliberation
- Community-Driven Climate Resilience Planning: A Framework, Movement Strategy Center
- A Seat at the Table: Integrating the Needs and Challenges of Underrepresented and Socially Vulnerable Population into Coastal Hazards Planning in New Jersey
- Guide to Equitable Community-Driven Climate Preparedness Planning – Urban Sustainability Directors Network

IV. Improve data collection and use

Accurate and thorough data is important for understanding how to identify climate vulnerable communities and their needs, as well as assessing progress towards desired program or project impacts. In some cases, there may be an overall lack of data, while other times there may be data available that is not being utilized effectively. Data to inform project or program needs should include quantitative data on indicators such as race, housing, jobs, income, education, and health that is supplemented by qualitative data from conversations, focus groups, and surveys as much as possible. Additionally, community-driven data collection can provide deeply valuable insight to planners and decision-makers. Below we offer best practices and resources to address common challenges to data collection and use.

Best Practices

Standardize, Integrate, and Share Data Transparently: Better data gathering can enable state agencies and policymakers to measure and evaluate programs and policies, and identify communities that need the most investment. Interagency data integration can enhance services, inform policymaking, decrease costs and data duplication, and reduce fraud. Oregon's Spatial Data Library offers access to geospatial data that can help visualize equity issues. While the State of Oregon has developed an Open Data Portal, there are still some improvements that would assist with user experience to find, understand, and use the data. Having data that is already visualized or interpreted is often more helpful to the average user than having to download a spreadsheet. State agencies should strive to be as transparent as possible and should ensure that data is accessible and useable for all stakeholders.

Enable Communities to Help Shape Data Questions and Products: To build an inclusive and trustworthy data gathering process, partner with community-based organizations (CBOs) to ensure that data reflect the reality on the ground. This could include taking a community-based participatory research (CBPR) approach that enables communities to help shape data questions and products in ways that are responsive to local and culturally-specific priorities. Programs can also build-in 'Citizen Science' methods of engaging with the general public on climate-specific projects to incorporate on-the-ground observations, lived experiences, and local perspectives.

Train Staff and Partners on How to Use and Integrate Climate and Equity Data In many cases, climate and equity data may already be available but staff or partners are unaware of its availability or are unable to access the data in ways that can inform decisions in a timely manner. Agency staff involved in climate programming and policy can train each other on available data. Peer-to-peer learning can occur during interagency projects, such as with DLCD's proposed integrated climate vulnerability assessment. Partners like the Oregon Climate Change Research Institute (OCCRI) and OSU's Natural Resources Digital Library, if requested, may be able to offer state agencies with trainings on how to use tools like The climate toolbox and Oregon Explorer. When appropriate, staff can extend invitations to agency partners when cross-sector data conversations and learning opportunities arise. In addition, as equity becomes a prioritized lens for project and policy development, trainings on integrating equity and social justice in data analysis is recommended. For example, Washington's King County offers a workshop on integrating Critical Race Theory (CRT) for GIS practitioners.

Guiding Questions

☐ What process does our agency use to collect community information? Are community partners involved in determining data needs?

☐ What data have we collected for our policy or program? What do the data tell us about existing inequities or vulnerable communities in the areas affected by our policy or program? What data do we need to collect to measure our impact?

☐ How are we ensuring community members feel comfortable sharing demographic or qualitative information with us?

☐ Are there data gaps? What do community partners say is missing? What agency might host the data we are looking for? Have we explored opportunities to collaborate or learn with other state agencies?

Case Studies

• **Washington Environmental Health Disparities Map** –developed to help guide resource allocation to impacted communities was a multi-year project that included a symposium event (here's their full report), the convening of an ongoing work group, and through a meaningful partnership with Front and Centered (a CBO representing frontline communities), they were able to draw from 11 community listening sessions from across their state. This project built upon the EnviroScreen approach and improved upon it through a more robust community engagement process.

• **California Healthy Places Index** – contains user-friendly mapping and data resources at the census tract level across California. The HPI provides scores based on community conditions to allow for comparisons between areas and it also includes detailed policy guides to support specific policy interventions that can improve community conditions and health.

• **Climate Change and Social Resilience: Findings from Community Listening Sessions** - In 2019, the Climate and Health Program and the Oregon Community Health Workers Association held a series of listening sessions in Hood River, Medford, and Portland. In these sessions, they asked community leaders about their perspectives on social resilience and how climate change is affecting their communities. The report synthesizes the themes from these conversations and identifies actions and investments that governmental agencies can take to strengthen social relationships and increase climate resilience.

Resources

• Population Research Center at Portland State University - provides education and data related to the US Census and American Community Survey including summaries like this Oregon 2019 American Community Survey Highlights
• A Short Guide to Community Based Participatory Action Research
• EJSCREEN Screening and Mapping Tool, Environmental Protection Agency

- [National Environmental Public Health Tracking Data Explorer](#)
- [Environmental Public Health Tracking,](#) Oregon Health Authority
- [Mapping Resilience](#), Asian Pacific Environmental Network (APEN)
- [The climate toolbox](#)
- [Oregon Explorer.](#)
- [Oregon Open Data Portal](#)

Measuring progress and improving the Blueprint

We need to continuously dismantle systemic barriers to achieve climate-, environmental- and racial- justice in the state of Oregon. It demands that the polices, processes and programs we create move us toward the intentional implementation of equitable strategies for meaningful change.

Policies that lack climate-, environmental- and racial- justice outcomes will preserve the status quo and continue to harm the most vulnerable communities that will suffer the worst as climate change progressively threatens our adaptability. This Blueprint is intended to serve as a guide to move away from conventional systems and toward forward-thinking strategies that integrate communities in meaningful and sustainable ways. It is a starting point towards broadening perspectives toward transformative change.

Objectives, strategies, and metrics to achieve specific equity goals will vary across agencies as state staff have a wide range of roles and responsibilities. Additionally, State agencies and their individual staff members are all in different places on their learning and unlearning journey regarding climate and environmental justice.

In April 2020, sixteen State agencies engaged in the Climate Change Adaptation Framework project responded to a survey on Climate Equity. This survey was intended to serve as a baseline measure for how agencies are integrating DEI best practices into their climate-related work. For a summary of findings, please see *Appendix E*.

The Interagency Workgroup on Climate Impacts and Impacted Communities convened by the Governor's office in 2020 is currently working on an inventory of DEI work across State climate programs. Workgroup members have agreed that an annual survey could be helpful to collect this kind of information and could be a way to track progress, including implementation of the Climate Equity Blueprint.

How do we know if we are advancing climate equity?

Success is achieved when:
- People most affected by climate-driven disruptions are centered in the solutions and their voices and leadership are amplified in all discussions.
- Strategies that are developed collectively, and through collaboration with communities, reflect the priorities and address the concerns of the most marginalized communities.
- Quantitative and qualitative data demonstrates meaningful progress and sharing of co-benefits.

Acknowledgements

The Climate Equity Blueprint was developed by Better World Group, Estolano Advisors and the Oregon Climate and Health Program, with funding from the Oregon Health Authority and the Oregon Department of Forestry, and in partnership with:

- The Interagency Climate Equity Workgroup:
    - Business Oregon
    - Department of Administrative Services
    - Department of Environmental Quality
    - Department of Land Conservation and Development
    - Oregon Department of Forestry
    - Oregon Department of Transportation
    - Oregon Employment Department
    - Oregon Health Authority
    - Oregon Housing and Community Services
    - Oregon Water Resources Department

A notable appreciation to the following who contributed to the process:

- Oregon Environmental Justice Task Force
- The Office of Governor Kate Brown; Diversity, Equity, and Inclusion/Affirmative Action Policy Office, Natural Resources Policy Office, and the Carbon Policy Office
- Leadership Counsel for Justice and Accountability

References

(1) York EA, Braun MJF, Goldfarb G, Sifuentes JE. Climate and Health in Oregon: 2020 Report. Oregon Health Authority. December 2020: Portland, OR. Accessed at: https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/CLIMATECHANGE/Pages/profile-report.aspx

(2) Hoffman JS, Shandas V, Pendleton N. The effects of historical housing policies on resident exposure to intra-urban heat: a study of 109 US urban areas. 2020; Climate, 8(12), 145.

(3) May C, Luce C, Casola, Chang M, Cuhaciyan J, Dalton M, Lowe S, Morishima G, Mote P, Petersen A, Roesch-McNally G, York E. Northwest in Impacts, Risks, and Adaptation in the United States: fourth National Climate Assessment 2018 Volume II [Reidmiller DR, Avery CW, Easterling DR, Kunkel KE, Lewis KLM, Maycock TK, Stewart BC (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 1036–1100. doi: 10.7930/NCA4.2018.CH24.

(4) Don Bambino Geno Tai, Aditya Shah, Chyke A Doubeni, Irene G Sia, Mark L Wieland, The Disproportionate Impact of COVID-19 on Racial and Ethnic Minorities in the United States, Clinical Infectious Diseases, , ciaa815, https://doi.org/10.1093/cid/ciaa815

(5) O'Neill E (2018, August 20). Wildfire Smoke Means Smaller Newborns And More ER Visits. OPB News. Retrieved from: https://www.opb.org/news/article/wildfire-smoke-oregon-washington-california-northwest-emergency-room-visits/

(6) York EA, Wegner Sa. 2018. Climate Change and Public Health in Oregon. Oregon Health Authority. December 2018. Portland, OR. Accessed at: https://www.oregon.gov/oha/PH/HEALTHYENVIRONMENTS/CLIMATECHANGE/Documents/2018/2018-OHA-Climate-and-Health-Policy-Paper.pdf

(7) Rudolph L, Harrison C, Buckley L, North S. Climate change, health, and equity: a guide for local health departments. 2018; Oakland, CA and Washington D.C. Public Health Institute and American Public Health Association.

Sources used for key term definitions

- Asian Pacific Environmental Network (APEN). 2019. Mapping Resilience: A Blueprint for Thriving in the Face of Climate Disasters. https://apen4ej.org/mapping-resilience/
- The BIPOC Project. 2020. https://www.thebipocproject.org/
- Ecotrust. 2020. "Centering Frontline Communities." https://ecotrust.org/centering-frontline-communities/
- Integrated Climate Adaptation and Resiliency Program (ICARP), California Governor's Office of Planning and Research. 2018. Defining Vulnerable Communities in the Context of Climate Adaptation. https://www.opr.ca.gov/docs/20200720-Vulnerable_Communities.pdf
- Integrated Climate Adaptation and Resiliency Program (ICARP), California Governor's Office of Planning and Research. 2018. Planning and Investing for a Resilient California: A Guidebook for State Agencies. https://www.opr.ca.gov/docs/20180313-Building_a_Resilient_CA.pdf

- Intergovernmental Panel on Climate Change (IPCC). 2014. "Summary for Policy Makers." Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment. https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_summary-for-policymakers.pdf
- Government Alliance on Race and Equity (GARE). 2015. Advancing Racial Equity and Transforming Government: A Resource Guide to Put Ideas into Action. https://www.racialequityalliance.org/wp-content/uploads/2015/02/GARE-Resource_Guide.pdf
- McIntosh, Peggy. 1988. White privilege and male privilege: A personal account of coming to see correspondences through work in women's studies. Wellesley, MA: Wellesley College, Center for Research on Women.
- Oregon Office of Rural Health. 2020. "Geographic Definitions." https://www.ohsu.edu/oregon-office-of-rural-health/about-rural-and-frontier-data
- Race Forward. 2015. Race Reporting Guide. https://www.raceforward.org/reporting-guide
- Resources Legacy Fund. 2017. Advancing Climate Justice in California: Guiding Principles and Recommendations for Policy and Funding Decisions. https://www.healthyworldforall.org/en/express-img/17081516-3570-img1.pdf
- State of Oregon Environmental Justice Task Force. 2016. Environmental Justice Task Force Handbook. https://www.oregon.gov/gov/policy/environment/environmental_justice/Documents/2016%20Oregon%20EJTF%20Handbook%20Final.pdf
- State of Oregon, Office of Governor Kate Brown. 2020. State of Oregon Equity Framework in COVID-19 Response and Recovery. https://www.oregon.gov/gov/policy/Documents/EquityFrameworkCovid19_2020.pdf
- University of Southern California Program on Environmental and Regional Equity (PERE). 2009. The Climate Gap: Inequities in How Climate Change Hurts Americans and How to Close the Gap. https://dornsife.usc.edu/pere/climategap/

Appendices

A. Recommendations from consultants
B. Draft critical thinking tool for identifying "most impacted communities"
C. Federal and state statutes
D. Draft tool for land acknowledgment
E. Summary of 2020 interagency climate equity survey findings

APPENDIX A: Recommendations from consultants

Estolano ADVISORS   **Better World** Group

TO: Julie Sifuentes and Emily York, Oregon Health Authority

CC: Oregon Health Authority Partners

FROM: Better World Group and Estolano Advisors

DATE: October 20, 2020

RE: **Climate Equity Blueprint Recommendations for Next Steps**

Dear Oregon Health Authority and Climate Partners,

We are pleased to submit the draft Oregon Climate Equity Blueprint for public comment. We see this Blueprint as a starting point for centering equity in public agency work. We hope that State agencies involved in climate change work will continue to update and improve the Blueprint, using it as a living document.

The current contents are based on a seven-month engagement process with State agency staff and partners in 2020. The Blueprint reflects findings from surveys of climate staff in 20 different State agencies, and additional needs identified through four working meetings with participants from nine different State agencies. In addition to identifying tools for staff to begin using at the program level, the Blueprint project identified some enterprise-level recommendations that we are sharing in this letter.

Members of the Oregon Environmental Justice Task Force (EJTF), external environmental justice stakeholders, as well as members of the Interagency Workgroup on Climate Impacts and Impacted Communities (IWCIIC) established by Executive Order 20-04 and convened by the Governor's office, all provided feedback on drafts of the Blueprint and recommendations as part of the development process.

Through the project engagement, it became clear that strategic investments in equity and environmental justice need to be prioritized across the state enterprise. Our understanding is that much of this work is already underway through the creation of new initiatives like the Racial Justice Council (RJC) and through the prioritization of equity in the Climate Change Adaptation Framework project.

As the state formulates its governance structure and processes for coordinating and overseeing the state's climate work, the RJC's Environmental Equity group, the EJTF, and the IWCIIC can help to ensure that the State's cross-sector climate change work is driven by the priorities and values of Oregon's most climate-vulnerable communities. In consultation with the RJC, EJTF, and other community leaders, the WCIIC will need to

articulate processes that agencies can use to identify climate-vulnerable communities most affected by State policy, planning, and project-level decisions.

We also clearly heard that meaningful community engagement will not be possible without appropriately resourcing community-based organizations (CBOs) to engage. We recommend that the State designate an entity (agency, office or other body) to create and manage a new Climate Justice Capacity-Building fund that enables CBOs to engage in and co-lead State climate projects.

As part of this investment in climate equity, the State of Oregon will need to strengthen its internal infrastructure to support ongoing community engagement, increasing interagency collaboration and accountability. The State will need to establish new requirements for workforce training in environmental justice, community engagement, and overall policy and program equity, and agencies will need to develop their own sector-specific climate equity goals and metrics. For this to happen, leaders of individual agencies will need to dedicate staff resources, and staff will need to actively participate in an ongoing interagency climate justice "community of practice" where community partnerships, data, resources, and best practices can be shared and leveraged across the enterprise.

Much of this work has already begun. However, for it to be successful these efforts will need to be coordinated across State bodies and agencies and will need to include a sustainable investment in meaningful community engagement.

It has been a pleasure working with you and partner agencies on this effort. We look forward to Oregon's continued progress on climate equity.

Sincerely,

Cecilia V. Estolano
CEO, Better World Group and Estolano Advisors
cecilia@estolanoadvisors.com

Daniela Simunovic	**Asma Mahdi**	**Leah Hubbard**
Senior Policy Director	Policy Director	Senior Associate
daniela@betterworldgroup.com	asma@betterworldgroup.com	leah@estolanoadvisors.com

APPENDIX B: Draft critical thinking tool for identifying "most impacted" communities

Who are the "most impacted communities" in Oregon?

1. IMPACTED BY WHAT?

- What is the scope of the problem we are trying to solve? All climate impacts? Specific impacts? Specific policies or projects intended to address climate impacts?
- Where are there existing disparities in intersecting non-climate stressors (populations already burdened by other impacts related to the problem you are trying to solve)?

Get as specific as you can with how you define "impacted" within the scope of your inquiry.

2. WHO IS ASKING?

- State lawmakers, agencies, or program staff? What will we do with the information once the big question is answered?
- What is the capacity (or scope of work) available to solve the problem? Are we creating a new policy, plan, grant program, etc.?

Be ready to explain how the data will inform and influence decisions (outcomes/investments).

3. WHO IS ANSWERING?

- Who are the evidence-based populations already most burdened by the specific climate problem we are trying to solve? *(There are many scientific and Oregon-specific resources that can help answer this question).*
- Who are the leaders and Community Based Organizations (CBOs) that can offer the perspective of these already identified populations? *(If we don't know, start asking around.)*
- How will we ensure that they (our community partners) have the capacity to engage with us? *(Be ready to provide funding for their time and expertise – a little can go a long way).*
- What quantitative and qualitative data do our community partners say is most important in determining how to solve the specific climate-related problem we are trying to solve? How will we work with them to collect and use that data to inform our decisions?
- How will community partners continue to be informed and involved in the implementation once decisions are made?

It is likely that we already generally know who is most impacted, but we are unclear about how to tailor or target our policies/programs in ways that benefit them. If we invest in building trusting relationships with community partners, they will help us answer that big question. In fact, community partners may already be talking with people on the ground about the problem we are trying to solve. Our partnership efforts will result in richer and more relevant data that will ultimately lead to more effective solutions that benefit the communities we intend to serve.

APPENDIX C: Federal and state statutes

Federal statutes

- **Title VI of the 1964 Civil Rights Act,** 23 USC 140, 23 CFR 200, and 49 CFR 21.

- **Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations**, signed Feb. 11, 1994 by President Bill Clinton.

- **Executive Order 13166 – Improving Access to Services for Persons with Limited English Proficiency**, signed Aug. 11, 2000 by President Bill Clinton.

- **Americans with Disabilities Act (ADA) of 1990**, 42 USC 126 and 49 CFR 27.19.

- **Age Discrimination Act of 1975**, 42 USC. Sections 6101-6107.

State Statutes

- **Oregon Environmental Justice Task Force,** ORS 182.538

- **Oregon Revised Statute Local Government Planning Coordination; Coordination Agreements,** ORS 195.020 to 195.040**.**

- **Oregon Revised Statute Opportunity for Public Comment on New Fee or Fee Increase,** ORS 294.160.

- **Oregon Transportation Plan Public Involvement Policy (2009).**

- **Public Records Act,** ORS 192.410 to 192.505.

- **Public Meetings Law,** ORS 192.610 to 192.690.

- **Oregon Advocacy Commissions Office**, ORS 185.005, 185.010, 185.020, 185.025.

APPENDIX D: Draft tool for land acknowledgement

There is no one formula or template for appropriate land acknowledgement. Land acknowledgments can be written in program materials, posted online, and voiced at the beginning of meetings and public events. Building relationships with tribal partners and getting feedback on appropriate land acknowledgement language is a best practice.

There are nine federally recognized tribes in Oregon, however there are many other tribes that have not been federally recognized and it's important to recognize this. If you plan to verbally acknowledge Oregon's nine federally recognized tribes, make sure you have the correct pronunciation of their names.

Below is some example language that can be used and adapted to acknowledge tribal communities in Oregon. Voicing a commitment to decolonization and reconciliation must reflect concrete efforts to build authentic relationships with tribal partners and an investment in their recommended actions.

We would like to honor and acknowledge Oregon's nine federally recognized tribes, who have stewarded these lands for centuries:

- *the Klamath tribe of the Southern Oregon plateau;*
- *the Burns Paiute of the high-desert east;*
- *the Coquille of Southern Oregon's coastal forests;*
- *the Confederated Tribes of Grand Ronde in the northern Coast Range;*
- *the Cow Creek Band of Umpqua in the Southern Oregon foothills;*
- *the Confederated Tribes of Umatilla in the Blue Mountains;*
- *the Confederated Tribes of Siletz in Oregon's northern rainforests;*
- *the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw on the southern coast; and*
- *the Confederated Tribes of Warm Springs on the eastern slopes of the Oregon Cascades.*
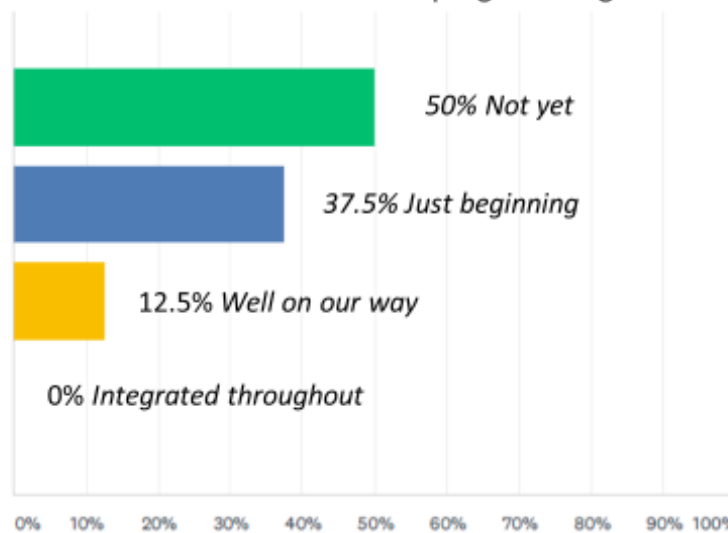
And we also acknowledge that there are many other tribal communities who have not been federally recognized. This land known as the 'state of Oregon' was built on broken treaties and stolen land. The effects of colonization, federal and state policies, both past and present, have put Native Americans at a disadvantage for hundreds of years.

Despite this ongoing oppression, our tribal and indigenous partners continue to offer their leadership, professional expertise and cultural wisdom. We take this moment to honor Native Peoples' resilience and commit to moving beyond words to actions that bring about true decolonization and reconciliation.

APPENDIX E: Summary of 2020 interagency climate equity survey findings

In April 2020, sixteen State agencies engaged in the Climate Change Adaptation Framework project responded to a survey on Climate Equity. This survey was intended to serve as a baseline measure for how agencies are integrating DEI best practices into their climate-related work.

Percent of Oregon State agencies that have integrated Diversity, Equity and Inclusion (DEI) best practices into climate-related programming:

50% Not yet

37.5% Just beginning

12.5% Well on our way

0% Integrated throughout

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

16 State agencies responded to this survey in April 2020

State agency barriers identified include:

- A broad spectrum of understanding "equity", emphasizing the importance of establishing a baseline understanding across (and within) agencies
- A lack of requirements to specifically implement DEI best practices

State agency needs identified:

- Improved clarity on how we communicate climate equity priorities
- Unified leadership across agencies
- Opportunities and mechanisms for sharing best practices across agencies
- Ongoing, and in-depth training for staff

- Incorporate DEI in internal functions (we can then more successfully incorporate into external functions).

- Greater awareness of existing state-level policies and directives

- Increased staffing with a higher level of expertise in strategic community engagement

- Identification of CBOs that work directly with frontline communities

- Joint efforts to build capacity of CBOs to engage

- Tools for coordinating meaningful cross-sector community engagement

- Appropriately resourcing/staffing already established groups, such as the EJTF and Climate Cabinet

- How to utilize existing community data to avoid re-asking the same communities

- Development of climate-specific DEI metrics of success

These results reflect key findings from a 2018 thesis project by OSU student Malia Losordo on The Role of Environmental Justice in Oregon's Climate Change Adaptation Planning - Based on key informant interviews, Losordo identified the following Barriers to integrating EJ into Climate Change Adaptation Planning: (1) limited understanding of and experience with environmental justice principles and best practices; (2) limited community capacity to engage in agency decision-making processes; (3) lack of regional and local information, and (4) lack of resources to implement EJTF recommendations.