AGENDA COVER MEMO

Memorandum Date: November 30, 2022
Meeting Date: December 13, 2022

TO: Board of County Commissioners
DEPARTMENT: Administration
PRESENTED BY: Steve Adams, Lane County Policy Director
Matt McRae,
AGENDA ITEM TITLE: ORDER 22-12-13-08/ IN THE MATTER OF PRESENTING THE DRAFT CLIMATE ACTION PLAN PHASE 3: COMMUNITY CLIMATE RESILIENCE PLAN

I. **MOTION**

Move to approve the Climate Action Plan Phase 3: The Climate Resilience Plan.

II. **AGENDA ITEM SUMMARY**

As part of the County’s Climate Action Plan efforts, Lane County staff worked with key stakeholders and community members to develop a climate action plan (CAP) that focuses on actions that will help Lane County build resilience to the challenges due to the changing climate. The draft resilience plan focuses on strategies that were identified by key stakeholders and community members that will address the future conditions created by the changing climate. The 21 strategies in this plan are organized into the different approaches that Lane County can take to implement them. For some, Lane County can act to implement the strategy. For others, the jurisdiction falls on many organizations, which provides Lane County an opportunity to support or convene partner organizations to accomplish these goals.

The document also provides a synthesis of current climate science regarding the past, present, and future projections of prevailing climate conditions across Lane County. Additionally, there is a summary of the ways these projected changes will impact our local physical, social, and economic systems.
III. BACKGROUND/IMPLICATIONS OF ACTION

A. Board Action and Other History

February 4, 2020 – The Board adopted Order & Resolution 20-02-04-04, establishing a Climate Change Strategy for Lane County. The Resolution included the following direction to staff:

Develop a resiliency plan (Climate Action Plan - Phase 3) to identify adaptation strategies to mitigate the risks and impacts of climate change anticipated for Lane County.

And,

Establish a Climate Advisory Committee to provide recommendations and advise the Board of Commissioners on the County's ongoing climate action work.

October 20th 2020— The Board approved the Climate Action Plan Phase 1: Operations Recommendations report (B.O. 20-10-20-08). The Action Plan established the following goals and targets for reducing emissions from County operations.

April 12th, 2021— The Board adopted, with amendments, the Climate Action Plan Phase 2: Community Greenhouse Gas Mitigation Plan.

B. Policy Issues

Prior to 2020, policy related to environmental impacts and best practices had been internal to Lane County as an organization and had been addressed as administrative functions. Individual divisions pursued projects independent of overarching guidance or a specific climate policy. Previous actions have included best practices such as increasing the recovery of recycling, composting or energy recovery and replacing fossil fuel use for County fleet through the use of renewable fuels and electric vehicles.

Order & Resolution 20-02-04-04 directed staff to develop action plans with strategies to reduce emissions as well as strategies to increase resilience to extreme events. That process began with the development of a Climate Action Plan for Operations. When the Board approved the goals and targets set forth in this document, the county committed to net-zero emissions for County operations by the year 2050—now updated to 2040. The County has taken significant steps to keep themselves on that pathway.

Phase 2, the Community Greenhouse Gas Mitigation Plan, set a goal to reduce community emissions to net-zero by 2040, as recommended by the Lane County Climate Action Committee. It described ten high impact practices that will help guide the community to greenhouse gas reductions. Lane County staff are already
working with community partners by applying for grants to take action.

Phase 3, the *Climate Resilience Plan*, describes 21 actions that Lane County should take in order to harden our infrastructure and ensure the livability of our county.

In addition, now that the planning process for the Climate Action Plan as outlined in the February 2020 Board Order is complete, the enabling language creating the Climate Advisory Committee can be struck from Lane Manual. The Committee has served its purpose as outlined in its bylaws. County staff will now focus on implementing strategies by working in concert with community partners (community-based organizations, municipalities, utilities, non-profits, and other partners) to secure available funding at the state and federal levels.

C. **Board Goals**

Lane County’s newly adopted *2022-2024 Strategic Plan* uses three overarching lenses to view policies issues. All three lenses can be applied to the *Climate Resilience Plan*:

**Stewardship of Resources Lens**—the challenges due to climate change will have an impact on both financial and natural resource systems. Failure to prepare the county properly could be devastating for resources throughout Lane County.

**Equity Lens**—it has long been shown that the impacts of climate change will be disproportionate for those without as many resources. By taking action now, the county can mitigate the damages and trauma experienced by our BIPOC, elderly, those experiencing disabilities, and low-income residents.

**Collective Impact Lens**—the plan calls for Lane County to convene groups to address the conditions outlined in order to work collectively for a solution.

The Climate Resilience Plan as addresses the following Strategic Priorities:

**Priority 1**—Develop an equitable and integrated approach to health, behavioral health, public safety and homelessness so that all residents are safe, healthy, housed, and health outcomes are improved.

**Priority 2**—Invest in Lane County residents by fostering engaged communities with affordable housing options, equitable opportunities, economic vitality and a healthy environment.

**Priority 3**—Maintain and invest in resilient infrastructure that creates the highest return for safety, community connectivity, enjoyment of life, and local economic success.

D. **Financial and/or Resource Considerations**
The financial impacts of the actions outlined in the Climate Resilience Plan have not been evaluated. Many of the actions described will put Lane County in a convening roll to ensure that other stakeholders in the County, such as cities, utilities, and businesses, are aligned to take action. Other actions will require policy or regulatory changes. Additional staff support may be necessary to carry out these actions. Additionally, by completing this plan, the County will be eligible to apply for more federal grants therefore bring more funds into the county.

Health Implications

One of the principle benefits of taking resilience action will be the reduction of health risks for Lane County residents. Further investments in the FireWise program, developing mental health programs, and increasing household air filtration programs will all result in improved health outcomes for Lane County residents.

Broader implications of climate change include predicted impacts on public health such as death and illness from extreme heat and storms, and indirect impacts from ecological change, environmental degradation, exacerbation of chronic respiratory diseases, spread of emergent infectious diseases, food insecurity, and displacement of populations by the effects of climate change and disasters. This plan calls out actions that will help mitigate the worst of these impacts.

Combining climate action initiatives with economic development efforts has the potential to create living-wage jobs and a more robust regional economy. High quality employment opportunities and increased economic resilience are keys to maintaining a high quality of life in Lane County.

E. Analysis

The 21 strategies in this plan are organized into the different approaches that Lane County can take to implement them. For some, Lane County can act to implement the strategy. For others, the jurisdiction falls on many organizations, which provides Lane County an opportunity to support or convene partner organizations to accomplish these goals.

As Phase 3 of the Climate Action Plan moves from planning to implementation, Lane County will look to fund the strategies outlined through Federal, State, and other external resources.

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F. Alternatives/Options

The report is currently in draft form. The Board can give direction to staff to modify the report or include additional information prior to adopting.

IV. RECOMMENDATION

Staff recommends Board approval of the document and amending Lane Manual as submitted.

V. TIMING/IMPLEMENTATION

If the Order is approved, staff will remove “Draft” from document.

VI. FOLLOW-UP

Staff continues to work with community stakeholders to help identify state and federal funding to implement climate strategies. Additionally, staff will bring regular updates regarding implementation projects in Lane County.

VII. ATTACHMENTS

Draft Climate Action Plan Phase 3: Climate Resilience Plan (appendices available online.)

Proposed Order
WHEREAS, Lane County has recognized that climate change presents risks and exposes vulnerabilities that threaten long-term human and environmental health, social well-being, and the economic vitality of the community; and

WHEREAS, the Lane County Board of Commissioners has resolved to take action to address the risks and vulnerabilities presented by climate change by development and implementation of a Climate Action Plan; and

WHEREAS, in February of 2020, the Lane County Board of Commissioners directed staff to develop a Climate Action Plan for Operations, a Community Greenhouse Gas Mitigation Plan, and a Climate Resilience Plan; and

WHEREAS, in the Summer of 2020 the Climate Advisory Committee was formed with the purpose of providing staff and the Board input on the Community Greenhouse Gas Mitigation Plan and the Climate Resilience Plan; and

WHEREAS, in October of 2020, the Lane County Board of Commissioners approved the Climate Action Plan for Operations; and

WHEREAS, in April 2021, the Lane County Board of Commissioners approved the Lane County Community Greenhouse Gas Mitigation Action Plan; and

WHEREAS, County staff have drafted the Climate Resilience Plan:

NOW, THEREFORE, the Board of County Commissioners of Lane County ORDERS as follows:

1. That the Lane County Climate Resilience Plan is adopted, and

2. That County staff proceed to implement recommended actions, and

3. That Lane County staff will provide regular Climate Policy updates to the Board.

ADOPTED this 13th day of December, 2022.

____________________________________
Pat Farr, Chair
Lane County Board of Commissioners
Lane County, Oregon

CLIMATE ACTION PLAN

Phase 3: Community Climate Resilience Plan
ACKNOWLEDGEMENTS

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Eloise Parish-Mueller, Vice Chair
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Guen DiGioia
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Tao Orion
Samantha Roberts
Rob Zako

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Good Company Consulting Team

Good Company, a sustainability consulting firm based in Eugene, OR supported Lane County’s work on this project.

Joshua Proudfoot, Project Manager
Louisa de Heer, Technical Analyst

Images Provided By

Chris Pietsch

*Indicates they are not currently in this role
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CALL TO ACTION

The impacts of climate change have and will be felt throughout Lane County. Increased winter storms and flooding, hotter and drier summers, more wildfires, and acidifying oceans. As time progresses, these conditions are projected to get worse due to continued global greenhouse gas emissions.

Lane County must prepare for these coming changes by taking action to address the needs of the community, especially those who are most vulnerable. Ensuring adequate, stable, and efficient housing, hardening infrastructure to minimize the impacts of extreme events, and building resilience hubs as community gathering stations are all prudent strategies that will help Lane County residents not just survive climate-related disasters and also other natural hazards but thrive despite them.

Climate change and its impacts can feel overwhelming, but this plan outlines twenty-one straightforward strategies for the county to act, support, or convene. Lane County will:

• take direct action to increase the resilience of roads and bridges and to decrease the severity of forest fires;
• support other entities like the state government, utilities, and nonprofits as they work to become more resilient; and
• convene groups of stakeholders when the issues are complicated or controversial to come up with solutions that work for everyone.
• Create an annual review of progress made towards the actions identified within this plan and to share that progress with the Lane County Board and residents.

Lane County leadership and staff are committed to preparing the county to become more climate resilient and to help the community do their part. The actions described in this plan will need the support of the state and federal governments and other stakeholders to become a reality. We believe that with a sense of partnership and common goals we can work together to make the county a more resilient and adaptable community.
HOW TO READ THIS PLAN

PLAN SECTIONS

Section 1: Strategies
Section 1 provides information on the ways Lane County will act, support, and convene to build resilience and adapt to climate impacts.

Section 2: Background
Section 2 establishes background information. This section is organized into the three ecoregions of Lane County.

Section 3: Impacts
Section 3 discusses the ways the present and future changes will impact Lane County physical, social, and economic systems.

VISUAL KEY

Throughout this plan, colors and icons are used to help identify topics. Keep an eye on the headers & footers of each page, tables, and icons.

ACRONYM KEY

DLCD - Department of Land Conservation and Development  
DOC - United States Department of Commerce  
EPA - Environmental Protection Agency  
FEMA - Federal Emergency Management Agency  
HUD - United States Department of Housing and Urban Development  
NOAA - National Oceanic and Atmospheric Administration  
ODOE - Oregon Department of Energy  
ODFW - Oregon Department of Fish and Wildlife  
OHA - Oregon Health Authority  
ODOT - Oregon Department of Transportation  
OSHA - Occupational Safety and Health Administration  
USDA - United States Department of Agriculture  
USDOE - United States Department of Energy  
USDOT - United States Department of Transportation
EXECUTIVE SUMMARY

Lane County is conducting a three-phase effort to address a changing climate. Lane County has previously completed both an internal and a community plan to reduce carbon emissions in the County. This Community Climate Resilience Plan is the third phase and lays out scientific background for potential local impacts of a changing climate and provides actions for the community to build a more resilient county.

The plan is organized into three sections. First is a set of strategies that have been identified as ways to build resilience. These strategies were developed from a variety of sources, ranging from community workshops and surveys, Climate Advisory Committee recommendations, and best practices from other communities around the country. The second section of this plan provides scientific analysis of the past, present, and future projections of seven different climate categories that are projected to change in Lane County. The third section provides a summary of the ways the projections will impact our local physical, social, and economic systems.

SUMMARY OF STRATEGIES

The 21 strategies in this plan are organized into the different approaches that Lane County will take to implement them. For some, Lane County can act to implement the strategy. For others, the jurisdiction falls on many organizations, which provides Lane County an opportunity to support or convene partner organizations to accomplish these goals. The strategies are:

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As Phase 3 of the Climate Action Plan moves from planning to implementation, Lane County will look to fund the strategies outlined through Federal, State, and other external resources.
INTRODUCTION

Climate resilience is a relatively new subject that brings together a wide array of different fields. At its core, climate resilience is about recognizing that despite efforts to curb emissions to halt climate change, some level of change is now inevitable. At the local scale, the global shifts in temperature, wind, ocean, precipitation, vegetation, and wildlife patterns will all have measurable impacts in Lane County.

All of these changes will have impacts on the physical, social, and economic systems we all rely on to live, work, and play. This Community Climate Resilience Plan is a framework which maps out a path forward to prepare systems to anticipate, plan for, adapt to, and recover from the growing impacts of climate change.

Climate Change requires that our community rethink how we can thrive within a forested landscape. We are committed to continuing to learn and evolve with our communities and partners how best to steward our natural bounty to protect ecosystem functions and provide for our economic health. Forestry literacy means greater public awareness of the nuanced interrelationship humans have with our landscapes, and Lane County will continue to partner with forest landowners and rural residents on projects that mitigate harm from fire and that provide for future generations.

PARTNERSHIPS

This plan was developed over a process that involved several stages of community engagement. Integral to this process has been our partnership with the community organizations Beyond Toxics and the Eugene-Springfield NAACP. Lane County staff wants to acknowledge and appreciate these partnerships as we move from the planning to implementation phase. Building resilience is not an isolated effort, and organizations of all kinds will be needed to move this work forward. In addition, resilience through time and changing conditions is central to indigenously stewarded landscapes. Lane County commits to engaging with and learning from our indigenous communities and to improve intergovernmental relationships with tribes.

CENTERING EQUITY

Climate change disproportionately impacts already marginalized communities. Community members such as those who identify as black, Native American, or a person of color, are low income, elderly, pregnant, live in rural communities, or are non-English speakers are less likely to have the financial, social, or physical resources to resist the impacts of climate change. Building equitable climate resilience requires centering equity in program prioritization, design and implementation. Lane County will move forward using the county’s equity lens framework for resilience initiatives, and while identifying and securing resources from partners. www.lanecounty.org/government/county_departments/county_administration/equity_access_and_inclusion/equity_lens
SECTION 1: STRATEGIES

This section discusses the ways Lane County will go about building resilience towards the changing patterns of climate change. Strategies in this section will inform Lane County Staff actions moving forward during implementation of this plan.

HOW THESE STRATEGIES WERE DEVELOPED

Strategies that are presented in this section were developed from a variety of sources. An initial list of strategies was developed from the following sources:

- **Community Workshops**: Several community strategy workshops were held in partnership with Beyond Toxics and Geos Institute.

- **Community Strategy Survey**: A survey was run on the Lane County website and widely distributed through Lane County, community member, and partner networks. An analysis of the results can be found in an Appendix.

- **Climate Advisory Committee**: Climate Advisory Committee members provided guidance and recommendations to this portion of the plan through several different processes including individual meetings and a workbook which allowed them to submit recommendations.

- **Stakeholder Interviews**: Lane County Staff performed outreach and conducted interviews with a wide range of subject matter experts and sector stakeholders in a one-on-one environment.

- **Identified Best Practices**: Lane County is not the only community planning for climate resilience. Lane County staff identified plans and strategies from across the country that show promise in building resilience in Lane County’s local context.

The strategies presented in this section are those that scored highest in an evaluation process conducted by Lane County staff. This process took into account the level of interest displayed by the community, equity considerations, feasibility of the strategy for Lane County operations, impact on climate vulnerabilities, and how they align with Lane County’s strategic goals. The strategies that did not score as highly in this evaluation process are available in an Appendix.
TYPES OF STRATEGIES

Building resilience will require many hands working together towards common goals. Lane County, cities, State and Federal agencies, community organizations, and other groups all have different strengths, jurisdictions, and resources to bring to the table in this effort. Because of this, the strategies in this section are separated into three different categories.

ACT

Lane County has the jurisdiction, capacity, and direction to act. Action can have many different shapes, ranging from providing resources or services to community members to applying for grants to provide energy backups at emergency operation centers.

SUPPORT

Lane County will support other jurisdictions in carrying out actions. Support can take a variety of shapes, assisting with securing funding from grants, providing technical expertise, or performing outreach to community members.

CONVENE

Lane County will act as a convener and bring together many different stakeholders and partners. Many of the strategies that fall into this category are complex projects that require input from a variety of sources. Lane County is positioned with connections with a multitude of partners which makes us excellent conveners.
STRATEGIES
The following pages outline priority strategies that have been identified to build resilience.

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<tr>
<th>Source of Strategy</th>
<th>Resilience Plan Topic Areas</th>
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<tr>
<td>Community Meetings</td>
<td>Precipitation &amp; Snowpack</td>
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<td>Stakeholder Meetings</td>
<td>Heat</td>
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<td>Identified Best Practices</td>
<td>Oceanic Impacts</td>
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<td>Community Survey</td>
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<td>Translational Effects</td>
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At risk transportation corridors study and mapping

Lane County, especially in rural areas, is often only connected by a handful of roadways. Due to the projected impacts of the changing climate, it will be more likely in the future that these isolated roadways will be inaccessible, heavily congested, or dangerous during storm events.

This strategy will provide additional information to Lane County and partner organizations on the location of these vulnerable roadways. By conducting this study and creating a list and map, Lane County, other jurisdictions, and community members will all be better informed on the communities with the greatest risk of isolation, and can use that information to create funding priorities and community programs. The outcomes of resource sharing will be incorporated into the County’s Community Wildfire Action Plan and the Natural Hazards Mitigation Plan.

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Partners:

Cities, ODOT, USDOT, community organizations, FEMA

Resilience Plan Topic Areas:
Increased FireWise program reach and capacity

Lane County operates a FireWise grant program to help community members identify and mitigate the risk of wildfire on their properties, and will continue to partner with our communities to expand Firewise programs throughout our region.

Lane County will seek out funding opportunities that increase the reach and capacity of the FireWise program throughout Lane County. Securing grants to provide increased financial assistance and increase staff capacity, and promoting the program more widely are all avenues that could be taken dependent on different funding opportunities.

Wildfire risk and smoke impacts will continue to shift throughout Lane County, and implementation of this strategy should be especially flexible as conditions shift to prioritize the most vulnerable community members.

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Resilience Plan Topic Areas:

Capital projects and construction resilience lens

Capital projects include the construction, improvement, or maintenance of physical infrastructure owned by Lane County.

Lane County will act by adopting a climate resilience lens for the Capital Improvement Plan. Lane County will support other organizations and utilities to develop and adopt similar climate lens framework and assessments for their capital projects.

During implementation of this strategy, providing this lens to critical infrastructure which vulnerable community members rely on frequently should be prioritized.

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Resilience Plan Topic Areas:
Green infrastructure adoption and development

When deployed at a large scale, green infrastructure can help mitigate the impacts of some of the extreme conditions Lane County is projected to experience.

Lane County will install green infrastructure, such as bioswales and planting trees for parking lots, at properties the County owns. Lane County will also support other entities such as businesses, community organizations, and other governments to adopt similar infrastructure or codes and seek out funding sources for implementation.

Green infrastructure will be especially impactful in urbanized areas without sufficient existing green space. Many of these areas are also areas where vulnerable populations live, and should be priorities when developing green infrastructure code and projects.

Source(s):
Strategy Type: Act & Support
Partners: Cities and towns, community organizations, developers

Resilience Plan Topic Areas: 

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Mental health resilience programs

Lane County as the mental health authority will support community partners to provide community members address the trauma associated with climate related impacts.

Lane County will support mental health providers by creating resources that address climate change and mental health trauma. Lane County will support mental health resources at community events, emergency shelters, and resilience hubs. Lane County will also support primary and secondary education providers in developing climate related mental health programs and curriculum.

As Lane County acts and supports, providing resources to vulnerable populations that have restricted access to existing mental health resources can amplify the reach of this strategy.

Source(s):
Strategy Type: Act & Support
Partners: Community organizations, OHA, private healthcare providers

Resilience Plan Topic Areas:
Model standards and creation of community resilience hubs

Resilience hubs are public or centrally located places where community members can gather and be safe during emergency events or extreme conditions. In addition, hubs represent centers of information related to changing risk and conditions, critical utilities, and roads.

Lane County will develop model standards and guidelines for Community Resilience Hubs and will support other jurisdictions and community organizations to distribute hubs throughout the county. These guidelines will allow organizations with limited funds and capacity to jump-start their process and move quickly from planning to construction or development of the resilience hub locations.

Resilience hubs will be especially critical in areas with high densities of vulnerable populations or in locations identified as especially vulnerable.

<table>
<thead>
<tr>
<th>Source(s):</th>
<th>Strategy Type:</th>
<th>Partners:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Act &amp; Support</td>
<td>Community organizations, cities and towns, local utilities, ODOE, FEMA, LTD</td>
</tr>
</tbody>
</table>

Resilience Plan Topic Areas:

Renewable energy plus storage

As climate related hazards increase, there will continue to be times where the reliability or availability of electricity will be threatened at critical facilities.

Lane County will work to develop renewable energy plus energy storage systems at County facilities that offer critical services, ensuring their function during a power outage. Lane County will develop priority lists, secure funding, and construct renewable + backup storage capabilities. Lane County will support other critical facilities, such as hospitals, fire stations, and others by partnering on grant applications or connecting organization leaders with utilities and other stakeholders. The county will further support utilities in their work to maintain the safety of existing infrastructure, and to underground transmission lines where feasible.

While supporting this strategy, prioritizing critical facilities that serve communities most at risk from power outages will be key.

<table>
<thead>
<tr>
<th>Source(s):</th>
<th>Strategy Type:</th>
<th>Partners:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Act &amp; Support</td>
<td>Local utilities, ODOE, EPA, cities and towns, community organizations, essential service providers</td>
</tr>
</tbody>
</table>

Resilience Plan Topic Areas:
Urban heat island mapping and mitigation

The urban heat island effect occurs on hot days and causes urbanized areas to be significantly hotter than surrounding natural or rural areas despite similar air temperatures.

Lane County will support cities and other entities in mapping urban heat islands and work collaboratively to mitigate the impacts. Lane County will support cities to bring in resources and experts to evaluate and map the urban heat island effect across the County to better understand where the risks present are.

Many areas in which urban heat islands are most impactful are disproportionately home to more vulnerable community members. These areas will be key to both mapping urban heat islands and developing plans to address them.

<table>
<thead>
<tr>
<th>Source(s):</th>
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<th>Partners:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Act &amp; Support</td>
<td>Cities and towns, community organizations, universities</td>
</tr>
</tbody>
</table>

Workplace safety during extreme events

Extreme temperatures and wildfire smoke present significant health risks to employees and operational risks to employers to maintain functioning businesses. The Occupational Safety and Health Association (OSHA) adopted rules in June of 2022 to protect employees who interact with these extreme conditions during their workdays.

Lane County will fully comply with OSHA rules for our workforce as well as educate and encourage other employers to do the same. County government will provide supportive communications during extreme events to a wide range of audiences about precautions that can be prudently taken to protect human health. Lane County will support employees, employee associations, schools, and employers in understanding their rights, responsibilities and to navigate the necessary precautions to take during extreme events.

Support of these rules will be especially crucial in outdoor workplaces and with employees who are less likely to know their protections.

<table>
<thead>
<tr>
<th>Source(s):</th>
<th>Strategy Type:</th>
<th>Partners:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Act &amp; Support</td>
<td>OSHA, businesses, community organizations, employee associations, Chambers of Commerce</td>
</tr>
</tbody>
</table>

Resilience Plan Topic Areas:

- Urban heat island mapping and mitigation
- Workplace safety during extreme events
Personal emergency and evacuation preparedness programs

Personal emergency preparedness and evacuation preparedness plans and supplies will continue to be critical during extreme events.

Lane County will update existing emergency management materials to include climate-related risks. Lane County will also convene community organizations and associations to promote personal preparedness and provide guides on how to prepare households and neighborhoods.

Key to this strategy will be implementing it in accessible ways to vulnerable populations, especially those without necessary capital resources to develop personal emergency preparedness supplies or community connections that support their mobility during extreme events.

Source(s):

Strategy Type: Act & Convene

Partners: Community organizations, FEMA, cities and towns, ODOT

Resilience Plan Topic Areas:

Climate resilience legislation

Lane County will support legislative action at the federal and state level that promotes climate resilience.

Lane County will support legislation that provides additional funding for local or state capacity, or rules that expand opportunities to accomplish resilience planning and implementation programs.

While supporting legislation, Lane County will also support measures that promote distribution of resources and implementation of rules that enhance climate resilience for vulnerable communities, such as those that protect outdoor and undocumented workers.

Source(s):

Strategy Type: Support

Partners: Community organizations, state and federal agencies, state and federal legislative bodies

Resilience Plan Topic Areas:
Coastal watershed education and network programs

Coastal watersheds are projected to see impacts that have not been present in these environments in significant ways before.

Lane County will work to enhance the understanding of climate related weather events on coastal watersheds. Lane County will support community organizations and associations to provide information and to build resilience network programs amongst community members, organizations, businesses, and jurisdictions in coastal watersheds.

Especially critical to this strategy is the participation in resilience networks in the coastal watershed region among vulnerable populations and in high risk areas.

<table>
<thead>
<tr>
<th>Source(s):</th>
<th>Strategy Type:</th>
<th>Partners:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Support</td>
<td>Community organizations, NOAA, cities and towns, universities</td>
</tr>
</tbody>
</table>

Resilience Plan Topic Areas:

Household air filtration programs

Wildfire smoke can have significant impacts on the health of community members, especially over long periods of exposure. Air purification through HVAC retrofits or portable air purifiers can drastically improve indoor air quality, reducing health impacts from hazardous outdoor air.

Lane County will support air filtration system upgrade incentive programs by connecting community members to resources that can offset costs. Lane County will also support community organizations that seek to promote air filtration system upgrades and distribute portable air filtration devices that require less capital than infrastructure upgrades.

Community members without sufficient resources or property rights to secure these upgrades or with preexisting health conditions are especially vulnerable to the hazards of wildfire smoke and will be most significant in the deployment of this strategy.

<table>
<thead>
<tr>
<th>Source(s):</th>
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<th>Partners:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Support</td>
<td>Community organizations, schools, universities, EPA, cities and towns, ODOE</td>
</tr>
</tbody>
</table>

Resilience Plan Topic Areas:
Household energy resilience programs

There are many incentive programs available from federal, state, and local sources to increase the resilience of household infrastructure.

Lane County will work with state and federal partners, along with utilities, to encourage homeowners and landlords to make residences more climate resilient. Lane County will support utilities in their efforts to reach homeowners and landlords, especially those who are most vulnerable to the coming changes. Lane County will also support cities as they develop policies that further protect community members from climate impacts. Lane County can also emphasize rollout of these programs in new ways to expand their use by vulnerable populations that may not have the property rights or capital necessary to utilize their current structure.

Source(s):

Strategy Type: Support

Partners: USDOE, ODOE, local utilities, community organizations, community associations, Universities

Resilience Plan Topic Areas:

Household scale vegetation management

Vegetation and other landscape features can both present risks and provide benefits on individual properties. Education and best practice management can increase native habitat, passive cooling, water quality, and other benefits and minimize the risks posed by unmanaged vegetation.

Lane County will support property owners to participate in riparian protection programs and to manage vegetation near critical infrastructure such as powerlines. There are programs available at the state level, such as the Riparian Lands Tax Incentive Program, that Lane County can promote and help community members navigate. Lane County can also provide educational materials that promote landscaping that mitigates heat and drought impacts.

Vegetation management at the household scale can be focused on rural areas to have the biggest impact or in vulnerable urban areas to mitigate flooding, storm surges, and power outages.

Source(s):

Strategy Type: Support

Partners: Community organizations, local utilities, ODFW, ODOT

Resilience Plan Topic Areas:
Household water source diversification or storage

There are several State or Federal programs that provide incentives or technical assistance to water reuse, storage, and water source diversification.

Lane County will support regional water resilience by raising the awareness of programs among community members, connecting community members with program managers, and helping them navigate the paperwork or incentive process.

Key to the implementation of this strategy will be centering vulnerable community members and those that are on decentralized water supply systems and in rural areas.

<table>
<thead>
<tr>
<th>Source(s):</th>
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<th>Partners:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community organizations, DOE, EPA, NOAA, local utilities, OHA</td>
<td>Support</td>
<td></td>
</tr>
</tbody>
</table>

Resilience Plan Topic Areas: 

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Resilient housing program support

Oregon is in the midst of a housing shortage that impacts the availability of resilient housing stock. Lane County will work to both expand housing stock and ensure existing stock is resilient to climate related impacts.

Lane County will support programs to build housing units that are resilient or to upgrade existing housing to become more resilient by partnering with housing providers to verify the resiliency of the development. Lane County will support cities and towns to implement policies that expand housing stocks.

For many climate hazards, housing is a necessary step towards resiliency. While implementing these supports programs that emphasize affordable housing and housing access will be key.

<table>
<thead>
<tr>
<th>Source(s):</th>
<th>Strategy Type:</th>
<th>Partners:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cities and towns, community organizations, HUD, DLCD</td>
<td>Support</td>
<td></td>
</tr>
</tbody>
</table>

Resilience Plan Topic Areas: 

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Food security and network capacity programs

Food security is an increasing concern as the ability to grow, store, and distribute food locally and transportation systems between population centers become increasingly stressed.

Lane County will support local agencies such as Food for Lane County as they address climate-related food security issues. Lane County will also convene regional partners to develop both short term and long term strategies and networks that address climate related food security.

Supporting and convening these groups will be especially critical in areas where vulnerable populations live or where transportation connections with the rest of Lane County are especially at risk.

Water quality testing assistance in wells

Several State and Federal agencies administer programs that focus on providing technical or financial assistance to community members reliant on well water. Wells have been a traditional water source in rural areas where they remain prevalent.

Lane County will support partner agencies to expand water quality testing programs for wells. Lane County will support community members by providing information about the relevant programs through County channels and providing information about resources for next steps once results are gathered.

During implementation of this strategy, support to the most vulnerable community members and assistance with creating regional solutions to water quality issues can help mitigate the worst impacts of the water quality issues.
### Economic development in resilience sectors and practices

Implementation of resilience efforts will require additional and sector-specific workforce participation, knowledge, and skills.

Lane County will seek out new opportunities for economic development that enhances climate resilience. Lane County will support the development of new technologies, workforce participation, and knowledge by assisting trade & educational institutions in promoting their programs or securing grant funding to operate their programs. Lane County will also convene groups of businesses adjacent to resilience demand markets to promote expansion of their portfolios into these emerging consumer demand fields.

In order to effectively implement this strategy, Lane County will work with partners to increase community awareness of and engagement with economic development opportunities.

<table>
<thead>
<tr>
<th>Source(s):</th>
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<th>Partners:</th>
</tr>
</thead>
<tbody>
<tr>
<td>People, data, technology</td>
<td>Support &amp; Convene</td>
<td>Businesses, Chambers of Commerce, community organizations, universities, trade schools, DOC</td>
</tr>
</tbody>
</table>

#### Resilience Plan Topic Areas:

- **Streamside and estuary ecology and health programs**

The integrity and health of waterways and adjacent areas that run throughout Lane County can have significant impacts on ecosystem health and on the mitigation of extreme events.

Lane County will support partner agencies as they work to protect the river, streamside, and estuary environments that provide resilience benefits. Lane County will support grant applications and partner on relevant projects.

These programs will have a range of effects depending on their location and scale. Programs with high correlations to mitigating extreme climate hazards in areas with significant vulnerable populations provide numerous benefits beyond those that do not impact vulnerable populations and will be key during implementation of this strategy.

<table>
<thead>
<tr>
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<th>Partners:</th>
</tr>
</thead>
<tbody>
<tr>
<td>People, data, technology</td>
<td>Support &amp; Convene</td>
<td>Community organizations, NOAA, cities and towns, EPA</td>
</tr>
</tbody>
</table>

#### Resilience Plan Topic Areas:
CURRENT RESILIENCE ACTIVITIES

Within Lane County, there are many people and organizations that are already thinking about resilience to climate change. It is important to acknowledge and connect with these efforts. Creating resilient systems demands a regional approach that builds upon efforts without repeating them. This list is a sample of some of the resilience efforts going on in the county and is not necessarily a comprehensive list.

- Lane County Emergency Management Natural Hazard Mitigation Plan
- Lane County Land Management Community Wildfire Protection Plan
- Local Jurisdiction and Municipality Hazard Mitigation Plans
- Lane County Climate Equity and Resilience Taskforce
- Lane County Community Organizations Active in Disaster
- Institute for Policy Research
- Engagement Lane Regional Resilience Collaborative

CLIMATE RESILIENCE & LANE COUNTY’S STRATEGIC GOALS

The goals of the Lane County Strategic Plan are at the heart of the Community Climate Resilience Plan. Strategic Priority 2: Vibrant Communities provides directive to the County to “Invest in a resilient, diverse, and sustainable regional economy” and “Protect and enhance our natural and built environments.” These two goals are deeply set within the purpose and scope of the Community Climate Resilience Plan.
SECTION 2: BACKGROUND

The purpose of this section is to explore about seven different climate change patterns that are expected within Lane County ecoregions. The following pages are a summary of a full analysis which can be found in an Appendix. To read about how these patterns will impact Lane County see Section 3: Impact.

INTRODUCTION TO ECOREGIONS

Lane County covers a range of climates and landscapes stretching from the Pacific Ocean to the Cascade Mountains. The impacts of climate change are already and will continue to be felt differently across this diverse area. To reflect that fact, the county has been divided into three regions, the Coastal, Valley, and Foothill Ecoregions. These regions are defined based on their physical and ecological characteristics.
COASTAL ECOREGION

Precipitation & Snowpack

Average annual precipitation falling as rain, snow, sleet, etc.¹

**Past:** Very high & consistent rainfall from November through March.  
**Current:** Consistent rainfall from November through March.  
**Projections:** Rainfall comes less consistently but in larger storm events.

Water levels in key rivers and other waterways.²

**Past:** High water levels from November to May. Large floods.  
**Current:** High water levels from November to May. Large floods.  
**Projections:** Higher winter flood risks, but overall flow regime change is small to moderate.

Snowpack storage levels.

**Past:** No long-term snowpack storage.  
**Current:** No long-term snowpack storage.  
**Projections:** No long-term snowpack storage.
## Winter Storms

<table>
<thead>
<tr>
<th></th>
<th><strong>Past</strong></th>
<th><strong>Current</strong></th>
<th><strong>Projections</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average days with</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>temperatures below 32° F</strong></td>
<td>0.14° F colder low temperatures on average during winter months than current conditions.</td>
<td>49.5 days per year with temperatures below 32° F.</td>
<td>Low temperatures increasing up to 3.3° F by 2050.</td>
</tr>
<tr>
<td><strong>Average snowfall</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>per year</strong></td>
<td>Similar rates of snowfall to current levels.</td>
<td>4.9 inches of snowfall per year.</td>
<td>Less frequent and predictable snowfall. Chances for larger individual storm events</td>
</tr>
<tr>
<td><strong>Snowfall proportion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>of total winter</strong></td>
<td>1.3% less precipitation falling as snow than current levels.</td>
<td>13.8% of precipitation falling as snow.</td>
<td>Smaller proportion of precipitation as snow.</td>
</tr>
<tr>
<td><strong>precipitation</strong></td>
<td>1.3% less precipitation falling as snow than current levels.</td>
<td>13.8% of precipitation falling as snow.</td>
<td>Smaller proportion of precipitation as snow.</td>
</tr>
</tbody>
</table>

## Drought

<table>
<thead>
<tr>
<th></th>
<th><strong>Past</strong></th>
<th><strong>Current</strong></th>
<th><strong>Projections</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average weeks per year with drought conditions present</strong></td>
<td>26 weeks per year.</td>
<td>21 weeks per year.</td>
<td>Increase in drought weeks per year as short-term and long-term droughts increase in frequency.</td>
</tr>
<tr>
<td><strong>Average drought strength</strong></td>
<td>Drought strength of 137.</td>
<td>Drought strength of 154.</td>
<td>Increase in drought strength as multiple drought types occur at the same time more often.</td>
</tr>
</tbody>
</table>

*See Appendix for an explanation of drought strength and DCSI.*
### Wildfire

| Average frequency of wildfires >1 acre in area.\(^5\) | Past: 3.5 wildfires >1 acre in area per year.  
Current: 2.3 wildfires >1 acre in area per year.  
Projections: Moderate to high increase in wildfire frequency as “very high” risk days increase up to 12 additional days per year. |
| --- | --- |
| Average area of wildfires >1 acre in area.\(^5\) | Past: 24.5 acres burnt per wildfire.  
Current: 23.7 acres burnt per wildfire.  
Projections: Wildfires more likely develop into larger fires. Small to moderate increase in average area. |
| Large wildfire frequency.\(^5\) | Past: 0.5 large wildfires per year.  
Current: 0.4 large wildfires per year.  
Projections: Small increase in large wildfire frequency and size. Wildfires more likely to develop into large wildfire complexes. |

### Heat

| Average days per year with temperatures above 90° F.\(^6\) | Past: 0.6 days above 90° F per year.  
Current: 1.5 days above 90° F per year.  
Projections: Up to 19.7 days above 90° F per year by the 2050s. |
### Oceanic Impacts

<table>
<thead>
<tr>
<th>Impact</th>
<th>Past</th>
<th>Current</th>
<th>Projections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea level rise from melting ice caps and ocean temperature increases.</td>
<td>Cooler ocean temperatures, little concern of sea level rise.</td>
<td>4.5° F warmer over the last 50 years. Sea level rise not a concern as geologic uplift is occurring faster than water levels are rising.</td>
<td>Local sea level rise expected to be between 0.8-1.8 feet by 2050 and 1.7-5.7 feet by 2100. Chance of floods &gt;4 feet higher than average high tide occurring at least once per year is 93-100% by 2050.</td>
</tr>
<tr>
<td>Hypoxia &amp; anoxia event frequency.</td>
<td>No hypoxia events recorded before 2000.</td>
<td>80% of the coastline affected by hypoxia or anoxia since 2000.</td>
<td>More frequent and longer lasting hypoxia &amp; anoxia episodes as overall oxygen levels decline by up to 17% by 2100.</td>
</tr>
<tr>
<td>Ocean acidification levels.</td>
<td>Little concern over carbonic acid levels in aquatic environments.</td>
<td>Higher carbonic acid levels due to greenhouse gas emissions and ocean upwelling events.</td>
<td>Ocean acid levels increase 1-1.5x compared to current levels by 2100.</td>
</tr>
</tbody>
</table>

### Transitional Effects

<table>
<thead>
<tr>
<th>Impact</th>
<th>Past</th>
<th>Current</th>
<th>Projections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population growth and climate migration.</td>
<td>Population growth generally aligns with economic conditions.</td>
<td>Growing by 1% annually from 2010-2020.</td>
<td>Unknown levels of growth, but limited by housing availability.</td>
</tr>
<tr>
<td>Changes in infectious disease &amp; pest patterns.</td>
<td>Most diseases and pests die off in cold winter months.</td>
<td>Most diseases and pests die off in cold winter months.</td>
<td>More diseases and pests persist and grow as temperature increases and drought persists.</td>
</tr>
<tr>
<td>Changes in vegetation &amp; agriculture patterns.</td>
<td>Heavily forested in the Coast Range, farming is dependent on soil types.</td>
<td>Heavily forested in the Coast Range, farming is dependent on soil types.</td>
<td>Coast Range forests become less healthy. Agriculture shift to warmer and drier tolerant crops.</td>
</tr>
</tbody>
</table>
Precipitation & Snowpack

Average annual precipitation falling as rain, snow, sleet, etc.\(^\text{12}\)

**Past:** 23\% less rainfall than present day.
**Current:** Consistent rainfall from November through March.
**Projections:** Rainfall comes less consistently but in larger storm events.

Water levels in key rivers and other waterways.\(^\text{13}\)

**Past:** High levels year round, little drop off during dry months.
**Current:** Highest from December to March. Stay fairly high during summer.
**Projections:** Higher winter flows and flood risk. Steeper flow fall off in spring and summer.

Snowpack storage levels.

**Past:** No long-term snowpack storage.
**Current:** No long-term snowpack storage.
**Projections:** No long-term snowpack storage.
### Drought

<table>
<thead>
<tr>
<th>Average weeks per year with drought conditions present.</th>
<th>Past: 26 weeks per year.</th>
<th>Current: 24 weeks per year.</th>
<th>Projections: Increase in drought weeks per year as short-term and long-term droughts increase in frequency.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average drought strength* from 0 to 500. (DCSI)</td>
<td>Past: Drought strength of 137.</td>
<td>Current: Drought strength of 142.</td>
<td>Projections: Increase in drought strength as multiple drought types occur at the same time more often.</td>
</tr>
</tbody>
</table>

*See [Appendix](#) for an explanation of drought strength and DCSI.

### Winter Storms

<table>
<thead>
<tr>
<th>Average days with temperatures below 32° F.</th>
<th>Past: 0.39° F colder low temperatures on average during winter months than current conditions.</th>
<th>Current: 59.7 days per year with temperatures below 32° F.</th>
<th>Projections: Low temperatures increasing 3.1-3.3° F by 2050.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average snowfall per year.</td>
<td>Past: Slightly lower annual snowfall levels than currently observed.</td>
<td>Current: 6 inches of snowfall per year.</td>
<td>Projections: Less average snowfall. Less predictable storm events and higher chances of large storms.</td>
</tr>
<tr>
<td>Snowfall proportion of total winter precipitation.</td>
<td>Past: 1.3% less precipitation falling as snow than current levels.</td>
<td>Current: 23.7% of precipitation falling as snow.</td>
<td>Projections: Smaller proportion of precipitation as snow.</td>
</tr>
</tbody>
</table>
### Wildfire

<table>
<thead>
<tr>
<th>Category</th>
<th>Past</th>
<th>Current</th>
<th>Projections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average frequency of wildfires &gt;1 acre in area</td>
<td>7.0 wildfires &gt;1 acre in area per year</td>
<td>6.3 wildfires &gt;1 acre in area per year</td>
<td>Moderate to high increase in wildfire frequency as “very high” risk days increase up to 12 additional days per year.</td>
</tr>
<tr>
<td>Average area of wildfires &gt;1 acre in area</td>
<td>7.8 acres burnt. per wildfire</td>
<td>13.1 acres burnt per wildfire</td>
<td>Small to moderate increase in wildfire size.</td>
</tr>
<tr>
<td>Large wildfire frequency</td>
<td>0.7 large wildfires per year</td>
<td>2.2 large wildfires per year</td>
<td>Small to moderate increase in wildfire outlier events.</td>
</tr>
</tbody>
</table>

### Heat

<table>
<thead>
<tr>
<th>Category</th>
<th>Past</th>
<th>Current</th>
<th>Projections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average days per year with temperatures above 90° F</td>
<td>12.6 days above 90° F per year</td>
<td>14.6 days above 90° F per year</td>
<td>Up to 32.8 days above 90° F per year by the 2050s.</td>
</tr>
</tbody>
</table>
## Transitional Effects

Current: Growing by 1% annually from 2010-2020.  
Projections: Unknown levels of growth, but likely to be focused in urban centers. |
| --- | --- |
| Changes in infectious disease & pest patterns.¹⁰ | Past: Most diseases and pests die off in cold winter months.  
Current: Most diseases and pests die off in cold winter months.  
Projections: More diseases and pests persist and grow as winter months warm. |
| Changes in vegetation & agriculture patterns.¹¹ | Past: Efficient and productive agriculture is possible for an extremely wide range of crops.  
Current: Efficient and productive agriculture is possible for an extremely wide range of crops.  
Projections: Agriculture shifts to warmer and drier tolerant crops. New practices needed to cope with shifts in water, soil, and temperatures. |
### Precipitation & Snowpack

<table>
<thead>
<tr>
<th>Category</th>
<th>Past</th>
<th>Current</th>
<th>Projections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average annual precipitation falling as rain, snow, sleet, etc.</td>
<td>Varies depending on specific location within region.</td>
<td>Consistent rainfall from November through March.</td>
<td>Rainfall comes less consistently but in larger storm events.</td>
</tr>
<tr>
<td>Water levels in key rivers and other waterways.</td>
<td>Stays moderately high year round. Less concern of winter flooding.</td>
<td>Stays moderately high year round. Less concern of winter flooding.</td>
<td>Higher winter flows and increased flood risk. Steeper flow fall off in spring and summer.</td>
</tr>
<tr>
<td>Snowpack storage levels.</td>
<td>Snowpack was bigger, lasted longer, and accumulated earlier.</td>
<td>Significant snowpack contributions between December and February.</td>
<td>Less than 25% of precipitation days falling as snow. 50% reduction in annual snowpack from 1950 levels.</td>
</tr>
</tbody>
</table>
### Winter Storms

<table>
<thead>
<tr>
<th>Metric</th>
<th>Past</th>
<th>Current</th>
<th>Projections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average days with temperatures below 32° F</td>
<td>1.24°F colder low temperatures on average during winter months than current conditions.</td>
<td>102.8 days per year with temperatures below 32° F.</td>
<td>Lowest temperatures increasing 3.1-3.7°F by 2050.</td>
</tr>
<tr>
<td>Average snowfall per year.</td>
<td>Moderately higher snowfall levels than currently observed.</td>
<td>21 inches of snowfall per year.</td>
<td>Significantly less average snowfall. Less predictable storm events and higher chances of large storms.</td>
</tr>
<tr>
<td>Snowfall proportion of total winter precipitation.</td>
<td>7% more precipitation as snow than current levels.</td>
<td>43% of precipitation falling as snow.</td>
<td>Significantly smaller proportion of precipitation as snow.</td>
</tr>
</tbody>
</table>

### Drought

<table>
<thead>
<tr>
<th>Metric</th>
<th>Past</th>
<th>Current</th>
<th>Projections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average weeks per year with drought conditions present.</td>
<td>26 weeks per year.</td>
<td>28 weeks per year.</td>
<td>Increase in drought weeks per year as short-term and long-term droughts increase in frequency.</td>
</tr>
<tr>
<td>Average drought strength* from 0 to 500. (DCSI)</td>
<td>Drought strength of 137.</td>
<td>Drought strength of 138.</td>
<td>Increase in drought strength as multiple drought types occur at the same time more often, especially snow drought.</td>
</tr>
</tbody>
</table>

*See Appendix for an explanation of drought strength and DCSI.
### Wildfire

<table>
<thead>
<tr>
<th>Category</th>
<th>Past:</th>
<th>Current:</th>
<th>Projections:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average frequency of wildfires &gt;1 acre in area</td>
<td>3.8 wildfires &gt;1 acre in area per year.</td>
<td>3.4 wildfires &gt;1 acre in area per year.</td>
<td>Moderate to high increase in wildfire frequency as “very high” risk days increase up to 12 additional days per year.</td>
</tr>
<tr>
<td>Average area of wildfires &gt;1 acre in area</td>
<td>161.3 acres burnt per wildfire.</td>
<td>6,747.9 acres burnt per wildfire.</td>
<td>Moderate increase in average size of wildfires. More high susceptibility areas where wildfires can spread easier and faster.</td>
</tr>
<tr>
<td>Large wildfire frequency</td>
<td>0.7 large wildfires per year.</td>
<td>0.6 large wildfires per year.</td>
<td>Largest wildfires (&gt;12,350 acres) occurring 2 to 4 times as frequently by 2070.</td>
</tr>
</tbody>
</table>

### Heat

<table>
<thead>
<tr>
<th>Category</th>
<th>Past:</th>
<th>Current:</th>
<th>Projections:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average days per year with temperatures above 90°F</td>
<td>15.0 days above 90° F per year.</td>
<td>15.8 days above 90° F per year.</td>
<td>Up to 34.0 days above 90° F per year by the 2050s.</td>
</tr>
<tr>
<td>Transitional Effects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Population growth and climate migration.</strong>&lt;sup&gt;9&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Past:** Population growth generally aligns with economic conditions, was heavily stalled by timber restrictions in 1980s.  
**Current:** Growing by 1% annually from 2010-2020.  
**Projections:** Unknown levels of growth, but limited by housing availability. |
| **Changes in infectious disease & pest patterns.**<sup>10</sup> |
| **Past:** Most diseases and pests die off in cold winter months.  
**Current:** Most diseases and pests die off in cold winter months.  
**Projections:** More diseases and pests persist and grow as winter months warm. Forest ecosystems become more vulnerable. |
| **Changes in vegetation & agriculture patterns.**<sup>11</sup> |
| **Past:** Forest ecosystems and forestry dominate the region.  
**Current:** Forest ecosystems and forestry dominate the region.  
**Projections:** Forest ecosystems will see diminished health. Forestry will need to adopt new sustainable practices to effectively harvest over more limited supply areas. |
SECTION 3: IMPACT

In Lane County, climate impacts are already present and are affecting numerous aspects of life. We must understand these impacts to build effective resilience that accomplishes the strategic goals of Lane County.

The projected changes in climates will lead to potential new vulnerabilities. Primary vulnerabilities have been identified through a series of community conversations, stakeholder meetings, and reviews of relevant literature. This section provides an overview of the various impacts for each topic area. A complete list of individual impacts that was used to develop this summary can be found in an Appendix.

IMPACT SUMMARIES

<table>
<thead>
<tr>
<th>Precipitation &amp; Snowpack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher risk to physical infrastructure and critical facilities as flooding becomes more frequent and/or extreme.</td>
</tr>
<tr>
<td>Higher water quality risks from shifts in water quantity, runoff patterns, and algae blooms especially in decentralized water systems such as wells.</td>
</tr>
<tr>
<td>Decreasing water available during summer months for human activities and consumption as well as natural ecosystem needs.</td>
</tr>
<tr>
<td>Poorer hillside stability and soil health leading to higher landslide risk.</td>
</tr>
</tbody>
</table>
### Winter Storms

<table>
<thead>
<tr>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health impacts to vulnerable populations that lack access to sufficiently heated shelters during storm events.</td>
</tr>
<tr>
<td>Higher risk to essential infrastructure, such as electric facilities and water lines, during storm events.</td>
</tr>
<tr>
<td>Higher connectivity risks along transportation corridors cutting off access to communities or essential services during storm events.</td>
</tr>
<tr>
<td>Higher risk to agricultural, urban, and wildland vegetation health due to shifting storm frequency, timing, and strength.</td>
</tr>
</tbody>
</table>

### Drought

<table>
<thead>
<tr>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative impacts to water dependent industries such as farming, forestry, and recreation during drought periods.</td>
</tr>
<tr>
<td>Negative health impacts on ecosystems and reduced ability for ecosystems to recover after natural disasters due to limited water availability.</td>
</tr>
<tr>
<td>Increased stress on household or business water supply sources, especially in areas without centralized water resources.</td>
</tr>
<tr>
<td>Decreased ability to grow food and conduct other self sufficiency activities that require water at household and business scales.</td>
</tr>
</tbody>
</table>

### Wildfire

<table>
<thead>
<tr>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased wildfire risk to homes, businesses, recreational areas, and other places of interest especially within the wildland-urban-interface.</td>
</tr>
<tr>
<td>Increased health risks, business operation restrictions, and school operation restrictions due to smoke and related air quality hazards.</td>
</tr>
<tr>
<td>Increased wildfire risk to critical infrastructure including electric facilities, drinking water supply facilities, and emergency response or operation centers.</td>
</tr>
<tr>
<td>Increased risk to natural ecosystems and wildlife from wildfire and smoke.</td>
</tr>
</tbody>
</table>
### Heat

Increased health risks for employees and operation risks for employers in businesses without access to sufficient cooling infrastructure during extreme heat events.

Negative impacts to agriculture and forestry industries as crops suffer under higher average temperatures and more frequent extreme heat events.

Increased risks to electric infrastructure due to overheating and increased demand for cooling during extreme heat events.

Increased impacts on ecosystem health, wildlife, and pets during extreme heat events.

### Oceanic Impacts

Increased damage to marine ecosystems, biodiversity, and food chains due to decreased aquatic environment health.

Increased risk to homes, businesses, and critical facilities of being inundated from sea level rise.

Decreased coastal watershed soil and ecosystem health due to higher rates of saltwater intrusion into soils and water tables.

Increased risk of flooding in coastal watershed communities due to sea level rise and its impacts on coastal rivers and streams.

### Transitional Effects

Increased strain on existing housing supply and ability to construct new housing stock.

Increased rates of physical, mental, and emotional health conditions as a result of climate change impacts.

Reduced ecosystem health and increased rates of transition to different ecosystem types due to temperature, precipitation, and other climate shifts.

Increased stress on the economic ecosystem including stress on supply chains, operation ability for businesses, safety for employees, and other factors.
CLOSING STATEMENT

This is a living document and the first step in Lane County’s climate resilience process. Recognizing that even with the best mitigation efforts in place, climate change is already here and will continue to change our shorelines, rivers, mountains, and everything in-between.

The recognition, analysis, and strategies documented in this plan show a potential path forward. Significant will be the need to be adaptable and pursue the opportunities that arise in the coming days, months, years, and decades. While Lane County will continue to push this work forward, and will continue to look to the community organizations, State, Federal, and local agencies, and individual community members to build resilience with us. Through all the changes, partnerships, and work to come, Lane County will remain the best county in which all can live, work, and play.
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