ACKNOWLEDGEMENTS

Project Leadership
Dan Hurley, Public Works Director
Mark Nystrom, Climate Strategist

Project Staff
Cody Kleinsmith, Climate Resilience Analyst
Bethany Hays-Alsin, Climate Intern

A special thank you to the Climate Action Team:
Linda Cook, Public Works Grant Analyst
Alexandra Corvello, Economic Development Americorps
RARE (Resource Assitance for Rural Environments) Staff
Alex Cuyler, Intergovernmental Relations Manager
Michael Johns, Fleet Services Division Manager
Peggy Keppler, County Engineer
Colin McCarthy, Capital Improvements Supervisor
Jeff Orlandini, Waste Management Division Manager
Austin Ramirez, Community & Economic Development Manager
Clay Stilwell, Procurement Manager
Sasha Vartanian, Transportation Planning Program Supervisor
Jocelyn Warren, Public Health Manager
Shawn Waite, Facilities and Capital Planning Manager

CONSULTING TEAM
Good Company, a sustainability consulting firm based in Eugene, OR supported Lane County's work on this project.
Aaron Toneyes, Project Manager and Technical Lead
Joshua Proudfoot, Project Manager and Facilitator
Claudia Denton, Technical Analyst
Louisa de Heer, Technical Analyst

ENVIROISSUES
Alexandra Streamer, Public Engagement
Jose “Joey” Posada, Public Engagement

CONTACT INFORMATION
Mark Nystrom
Lane County Climate Strategist
mark.nystrom@lanecountyor.gov
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CALL TO ACTION

Climate change is happening around us now. Here in Lane County, we can already see the changes—increased fire and smoke, recordsetting temperatures, acidifying oceans, loss of snowpack in our mountains, and increasing drought. Current science projects that the earth will warm 1.5o by the end of the decade without immediate actions to drastically reduce carbon emissions. This is a critical moment in history requiring individuals and governments at all levels to take bold and decisive action.

In 2020, I worked with my fellow County Commissioners to pass Lane County’s first Climate Resolution. This resolution charged Lane County to reach carbon-neutrality by 2050. Listening to our community and our Climate Action Committee, we have heard that we need to move faster. This plan reflects that urgency by embarking on a trajectory to reach our goal 10-years sooner through actions utilizing existing technologies that get us nearly three-quarters of the way to the goal. While we would like to have a complete roadmap to a carbon-neutral future, the most important thing is that we begin actions now. Lane County is committed to developing additional strategies in areas such as forestry management, renewable energy and transportation to close the remaining gap as we continue to update the plan.

This Community Climate Action Plan is an opportunity not only to address climate change, but also to develop green jobs, build reliant communities, and support equity. The plan shows us how Lane County residents, organizations, and others can act, support, and collaborate to reduce emissions and still maintain the high quality of life we enjoy in Lane County. We believe that with the ingenuity and creativity of this remarkable community we can reach and even exceed our goals. Together we can face a changing climate and not just survive, but thrive.

Sincerely,

Joe Berney
Lane County Commissioner, District 2, Springfield
EXECUTIVE SUMMARY

ABOUT THE PLAN

Lane County is conducting a multi-stage effort to address a changing climate. Previously in this effort, Lane County has completed an internal plan to reduce organizational carbon emissions as well as a Community Greenhouse Gas Inventory. This document, our Community Greenhouse Gas Mitigation Plan, evaluates sources of, plans actions for, and then provides a roadmap forward for us as a community to reduce our greenhouse gas (GHG) emissions in the county.

This plan generally follows high impact practices (HIPS) that have been globally recognized to provide the biggest reduction in GHG emissions. Other sources of input include a community engagement campaign, recommendations from our Climate Advisory Committee, and meetings with stakeholder groups in associated industries and county-wide local governments. Throughout our process of developing this plan, equity was centered in an attempt to reach a broad cross section of our community. Lane County acknowledges that institutionally underserved community members such as Black, Indigenous and People of Color (BIPOC), low income, and elderly community members face disproportionate impacts as a result of climate change. Despite targeted efforts in our outreach, we received less feedback from these communities than we aimed for. Many factors contributed to this, including the disproportionate impacts of the ongoing COVID-19 Pandemic in these communities, and in future stages of this project Lane County will adapt strategies to gain a better insight into these communities.

The resulting strategies of our outreach were also compared to the results of our Community Greenhouse Gas Inventory, to analyze their overall result on our emissions specific to Lane County and how these strategies contribute to our net-zero emissions by 2040 goal.

Summary of Strategies

Our strategies in this plan are organized into four categories, those related to transportation, those related to energy consumption, and those related to food, goods, and services. These 11 strategies can mitigate nearly 75% of the county’s emissions by 2040 with existing technology levels, with the additional 25% requiring new technological advancements. The strategies and their emission mitigation potential are:

<table>
<thead>
<tr>
<th>Strategy (Strategy Identifier Code)</th>
<th>Total emissions reduction potential, cumulative through 2040 (MMT – million metric tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Vehicles (EV)</td>
<td>15.4 MMT</td>
</tr>
<tr>
<td>Renewable R99 Diesel (RD)</td>
<td>12.5 MMT</td>
</tr>
<tr>
<td>Electric Grid Decarbonization (GD)</td>
<td>3.6 MMT</td>
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<td>Natural Gas Infrastructure (NG)</td>
<td>0.4 MMT</td>
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</tbody>
</table>
These broad categories are also broken up into specific actions the County can take. In some of these areas, jurisdiction falls on many organizations, which provides Lane County an opportunity to support and convene organizations to accomplish these goals. Examples of ways Lane County can support are plenty, such as supporting utilities as they shift to smart meter electric pricing. Opportunities to convene are just as numerous, such as convening fleet owners to promote shifts to renewable diesel in their trucks. In other cases, Lane County has the authority to act and can take bold action to reduce the emissions generated by these activities. An example is Lane County committing to no new natural gas use in County-owned buildings. In addition, there are actions for nearly every category that community members can utilize and implement in their own home, workplace organization, or other facets of life to reduce their carbon emissions.

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INTRODUCTION
Why Must We Act?

In Lane County, we are already experiencing physical changes to Oregon’s climate, including hotter temperatures, drought, wildfires and lingering smoke, and reduced snowpack. Understanding our communities’ greatest threats gives us the opportunity to mitigate, adapt, and to become more resilient to changing conditions.

International goals to mitigate the worst climate impacts are commonly aligned with the Paris Climate Accord, which seeks to limit global average temperature increases to well below 2°C, preferably 1.5°C, striving to limit to 1.5, compared to pre-Industrial Revolution temperatures. As of 2018, average temperatures have increased by more than 1°C likely to increase to 1.5°C or more by 2040 (IPCC (International Panel on Climate Change) AR 6). “Unless there are immediate, rapid and large-scale reductions in greenhouse gas emissions, limiting warming to close to 1.5°C or even 2°C will be beyond reach.” (United Nations International Panel on Climate Change press release 9.20.21)

Climate change is caused by increased pollution (different from toxics) in the air that traps heat in the atmosphere. Carbon dioxide is the primary of six pollutants responsible for climate change and is released due to human activity, such as burning of oil, fuel, and natural gas, fossil-fuel based electricity generation, and production of food and goods. The best available scientific and historic evidence tells us that we must act with speed and scale to limit negative impacts to human liveability across the planet. While there is scientific consensus that we must keep temperature changes below 1.5 to avoid catastrophic impacts to human communities, studies have shown that current global commitments are on course to generate a much higher temperature increase.

It is with this sense of urgency that in February 2020, the Lane County Board of Commissioners passed an order and resolution to develop a climate action strategy. Lane County first looked at its own operations and found actions it could take to directly reduce greenhouse gas emissions. In October 2020, the Board of Commissioners approved the first Internal Operations Climate Action Plan that committed to reducing fossil fuel use by 50% by 2030 and achieving operational carbon-neutrality by 2050. Meeting neutrality by 2050 was intended to meet the county’s obligation to 1.5 degree temperature increase.

Lane County then completed its first Community Greenhouse Gas (GHG) Inventory in 2020. The County used the results to inform the development of this community Climate Action Plan, developed from input by the public, cities and utilities in Lane county as well as the County, State, and Federal governments and private organizations. To develop the plan, County staff, with support from Good Company, identified current and potential greenhouse gas emission (GHG) reduction actions. These actions together have the potential to reduce local emissions by 3.5 million metric tons of CO₂e (CO₂ emissions equivalent) by 2040, which is 73% of total projected county emissions.

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The community Climate Action Plan is focused on high impact actions, where Lane County can Act, Support, or Convene to engage rapid progress toward reducing emissions.
This document is designed to inform readers about the impacts of climate change on Lane County and the sources of greenhouse gas emissions, describe the recognized best- or high-impact practices to reduce emissions, and supply a summary of the public outreach that went into developing this document. The document is designed to:

- Help the community understand the urgency of the climate emergency and supply a call to action.
- Supply an accessible, easy to read description of the types of actions needed to be taken locally to reduce greenhouse gas emissions.
- Describe the scientific analysis of the impact of these actions on the community’s greenhouse gas emissions.
- Guide decision makers, elected officials, and staff on ways they can Act, Support, and Convene to reduce greenhouse gas emissions.

This plan will be amended by a special chapter on Forestry in the near future. The complexities of carbon management and forest adaptation to climate change require further study and reporting. A Foresty Subcommittee of the Lane County Climate Advisory Committee is being utilized to inform recommended actions.

Lane County’s community inventory followed Greenhouse Gas Protocol’s *Global Protocol for Community-Scale Greenhouse Gas Emissions (GPC)*. The GPC accounts for sector-based emissions — those generated within county boundaries. For a more comprehensive look, the Lane County inventory also supplies an estimate of emissions that are embodied in the goods, services, and food produced elsewhere that are imported to our County and consumed locally.

The actions described in this plan align with the sources of emissions that were inventoried and are described by three “buckets:” Transportation, Energy used in buildings, and the Food, Goods and Services that we buy and use (consumption.)

Finally, the document provides a list of other actions that were gathered through working with stakeholders such as utilities, staff from cities within Lane County, public meetings, and the Lane County Climate Advisory Committee. These actions typically require further research, funding, political will, or technological advancement to be implemented.

*Photo by Chris Pietsch*
IMPACTS OF CLIMATE CHANGE ON LANE COUNTY

Working With the People of Lane County - How Did We Build this Plan?

Working through the COVID pandemic, Lane County staff and their contractors were able to conduct a robust public engagement on virtual platforms. This information was synthesized and included in this Climate Action Plan. Information was gathered from the following meetings:

- **Stakeholder meetings**— electrical and natural gas utilities, city staff, Lane Transit District, state and federal officials, business owners, and other stakeholders were gathered to discuss the following topics: transportation systems, electrification of transportation, energy efficiency and weatherization, electrical energy capacity and renewable energy development, and refrigerants. (Spring 2021)

- **Interviews**— one-on-one interviews with key stakeholders within the forestry, agriculture, and business communities were conducted. (Spring 2021). Lane County staff set up a series of focus groups with underserved communities to explore equity concerns on proposed actions (discussed more in next section).

- **Online Open House**— an online open house was hosted for five weeks. The open house included a description of Lane County’s climate action, videos describing emissions and the high impact practices that can reduce them, and a survey about what actions people are willing to take and the barriers that exist to taking them. The online survey was augmented by paper surveys at outreach events to collect a total of 901 responses. (June/July 2021) (for a summary of survey results, please see Appendix)

- **Virtual Public Meetings**— five virtual public meetings were held. Three were focused on specific sources of emissions; transportation, energy used in buildings, and the things we buy and use. Two of the meetings were focused on location; the Lane County coast and the Cascade Foothills. These meetings were intended to gather more input from rural voices. (June/July 2021) (for a summary of public meeting feedback, please see Appendix)

- **Climate Advisory Committee**— The Lane County Climate Advisory Committee discussed county-wide greenhouse gas reduction goals and transportation action recommendations. These recommendations were integrated into the document. (Spring-Summer 2021)

The information gathered from these sources were added to staff and contractor research into the high impact practices and other actions recognized by leaders and scientists working to slow climate change. Those topics that were identified as potential actions—but lacking resources or technology—were included in Appendix — Further Climate Action.

*Photo by Chris Pietsch*
EQUITY
Including Equity in All Aspects of the Plan

For years it has been understood that institutionally underserved residents, including our low income, BIPOC, and older community members, are facing disproportional impacts from climate change. These groups may not have the financial means or access to power to safeguard their existing living conditions amidst impacts of climate change such as; extreme heat, flooding, sea level rise, and dangerous air quality. In September 2021, The United States Environmental Protection Agency released a report titled “Climate Change and Social Vulnerability in the United States.” The report describes that low income, minority, those lacking a high school diploma, and those 65 and older, will experience disproportionate impacts from the changing climate. In particular, the reports highlights that in the Northwest:

- Low income families are more likely to live in areas where employment opportunities are affected by extreme temperatures.
- Minority populations will suffer disproportionately from air quality and later health impacts.
- Those lacking high school diplomas will be more likely to be affected by tidal river flooding
- Older populations will be more likely to suffer from property flooding from sea level rise.

Lane County staff set up a series of focus groups to get input on the identified high impact practices and to develop a better understanding of the lived experience of a changing climate. The results of these conversations have been embedded into each section. Further, many members of institutionally underserved communities participated in the virtual public meetings. Their input was collected and included in the plan.

The attempts to meet with Community Based Organizations (CBOs) that represent these different populations were unsuccessful and highlighted several issues that need to be overcome in the future:

- Many CBOs have been overwhelmed by the COVID pandemic and associated issues with the economy and housing.
- In some populations there is an ongoing mistrust of government.
- Many CBOs get requests from different representatives from state and local governments and they do not have the staff capacity to respond to all the inquiries.
- Some community members said that they simply do not know enough about climate change to want to take part in an in-depth conversation.
- These findings will guide Lane County staff as they develop future plans. Lane County will investigate the following ideas to better build relationships:
  - Start developing relationships before staff simply need input on a topic.
  - Work internally to coordinate outreach to CBOs to ensure that they are not being overwhelmed with requests from different departments.
  - Investigate contracting for services that collect information for CBOs so that they are compensated for the expertise they are providing.
  - Develop a Climate Change educational program that will be accessible to CBOs so that they can invite a speaker and will be supplied a basic overview of Climate Change facts.

Internally, Lane County recently developed a draft Equity Lens. The purpose of an equity lens is to be deliberately inclusive as Lane County makes policy decisions. This lens is intended to be used moving forward for all Lane County policy decisions. The Climate Action Team of Lane County employees met to discuss the high impact practices proposed in the Climate Action Plan using the Equity Lens and flagged potential unintended consequences for some residents. These are highlighted throughout the plan.
**IMPACTS**

Current and Future Physical Impacts of Climate Change on Lane County

While climate change risks are global, a resident of Lane County must ask – what does it look like here?

In Lane County and Oregon, we are already seeing changes to Oregon’s climate, including hotter temperatures, increased drought, and wildfire smoke, ocean acidification, and decreased mountain snowpack. These conditions, as well as population increases from climate migration, will change the character of life in Oregon. A warming climate in Lane County may also increase population growth from climate migration. A warming climate in Lane County may provide a tremendous growth in agriculture. The sooner we understand our unique risks and opportunities, the greater the opportunity for a healthy and economically prosperous future.

**Northwest Will be Less Vulnerable than Much of the U.S. With a Stronger Agricultural Economy**

While the Pacific Northwest can expect serious impacts from the changing climate, impacts are expected to be milder compared to most of the country. For example, some models show that region may see agricultural yields increase and experience fewer large-scale weather events that cause storm damages compared to the extreme weather of the American South-East. These milder impacts are one reason Lane County can expect an increase in climate-related migration.

However, the negative effects Lane County can expect are significant, such as:

- **County-wide**
  - Average summer temperature increase of +10-12°F, winter +3-5°F by 2100
  - Wildfire surface area increasing by 400-500% by 2040
  - Reduced stream flow by 40-60% in dry season by 2040 due to reduced snowmelt
  - More intense precipitation and higher stream flows in wet season (annual precipitation unchanged)
  - Changes in disease and pest patterns and potential for new disease (mosquitos, algae)
  - Population pressures through climate-induced migration

- **Coast**
  - Sea level rise and flooding along the coast and tidal rivers
  - Ocean acidification affecting wildlife, seafood, and aquatic industries

- **Mountains**
  - Summer snowpack in the Cascades nearly gone by 2040
  - Near total conversion of subalpine forest to other vegetation types by 2080
**Happening Now: Water Temperature and Ocean Acidification**

Warm and acidic waters put enormous stress on aquatic ecosystems and the related industries. Carbon dioxide is stored in oceans and create carbonic acid, affecting shellfish's ability to grow. Ocean and river waters will be warmer, affecting fish and wildlife’s ability to breathe, eat, and reproduce. Shellfish hatcheries in Oregon are already experiencing impacts from these changes.

**Dry Season Water Flows**

A reduction in snowfall means that in the summer months, our rivers and streams will not have the same quantities of flowing water from the melting snow – rivers and stream flows are expected to reduce by 40-60% below current conditions during summer months by 2040. This lower volume of water will put pressure on our water supply, agricultural irrigation, habitat for fish species like salmon and trout, hydro-based electricity supply, and water recreation such as boating, fishing and rafting that offer cooling activities during heat waves.

**Summer Temperatures**

Lane County can expect that our summer average temperatures will increase 10-12°F by 2100. Hotter temperatures will disproportionately affect the health of vulnerable populations, including the young, old, and families in poverty. Heat and drought will also affect the health of forests, rivers, and agricultural land.

**Regional Wildfire Risk**

By 2040, we can expect a 400% to 500% increase in the number of acres burned. Beyond the threat of increased fires within Lane County, we will also be exposed to more frequent periods of dangerous air quality levels as surrounding regions burn.

**Wet Season Precipitation – Rainstorms Become More Intense, Snow Becomes Rain**

Winter temperatures are expected to increase 3-5°F (1.6-2.8°C) by 2100. There will be a shift from mixed rain-snow winters all over Oregon to rain. Lane County is primarily rain dominant, but the winter snow in the Cascades serves as a natural reservoir for our rivers, streams, and groundwater. While annual precipitation totals are unlikely to change, rain and storms will be more intense in the winter season and the slow release of melting snowpack into the summer months will fade away.

**Sea Level Rise & Future Flood Risk**

*Coastal sea levels will rise, impacting thousands of community members.* Flood risk for Lane County is concentrated along coastal rivers, streams and deltas due to sea level and precipitation increases, as well as in low-lying areas, inland rivers, and wetlands. Winter precipitation will shift from snow-rain mix to rain, with no opportunity to store precipitation causing more flooding surges.
EMISSIONS INVENTORY

County-Wide Emissions Inventory - Where Must We Act to Reduce Emissions that Change the Climate Physical Conditions?

The Community Greenhouse Gas Inventory detailed all local and imported emissions by sector for the Lane County community. Over 4.2 million MT CO2e were emitted from the community in 2019.

**County Greenhouse Gas Reduction Goal**

The Climate Advisory Committee (CAC) discussed setting a greenhouse gas reduction goal. This target is informed by current science and sets the path for Lane County to do our share to mitigate climate change and avoid the worst local and global impacts. The CAC evaluated recent scientific articles and best practices from other communities to decide their recommended goal. Many communities set goals of carbon neutrality by 2050 or 2065 based on earlier findings. However, more recently, communities have come to understand that these dates are far too late to minimize climate impacts. With that in mind, the CAC recommends the following goal for Lane County:

- The stated target is based on average local emissions reduction of 199,000 MT CO2e (CO2 emissions equivalent) per year with a base year of 2019.

Using this goal, Lane County first evaluated how emissions will increase under business as usual if the community decides to do nothing. The business as usual emissions are depicted in Figure 2. The dotted yellow line shows the goal of zero emissions by 2040.
Each of the emissions categories above can be addressed by evaluating the high impact practices (HIPs) that are recognized by the scientific community as the most effective actions to reduce greenhouse gas emissions. Once HIPs were identified, Good Company evaluated the impact of these actions through 2040 based on current or evolving technology and public policies. The good news is that with current technology, nearly 75% of the county’s emissions can be mitigated by 2040. Additional technologies and actions will need to be explored in future updates to this plan to meet the net-zero target.
Good Company staff also investigated existing literature for emerging technologies and identified likely areas for further innovation needed. The result of this analysis is found in Figure 3. The solid colored areas stand for greenhouse gas reductions based on available technology, and the hatched areas stand for potential reductions for each sector. For a full technical briefing of this analysis, please see Appendix XX.
**ACTIONS**

Taking Action and Potential Actions

The following Figure 4. shows the potential greenhouse gas reduction in the year 2040 in order of impact from left to right if these practices were fully implemented.

Annual mitigation estimates of all actions in the year 2040 by sector.

**Figure 4**
**HIGHEST IMPACT PRACTICES**

This table summarizes the greenhouse gas reduction potential for the top 11 identified actions for the Lane County community. Full descriptions of the actions are below. Solutions were assembled through recommendations from the community, stakeholders, the Climate Advisory Committee, and highly researched solutions that have the greatest potential impact to reduce greenhouse gas emissions. Emissions reduction estimates take current emissions in this area and model full implementation of the strategy until 2040. The difference between today’s emissions and 2040 is the estimate.

### Equity

All climate-related actions will have impacts on social equity. Some actions will clearly advance social equity by improving the lives of frontline communities. For example, increasing mass transit options and increasing the safety of active transportation will clearly improve equity. However, other actions can negatively impact the same communities; decarbonizing the grid will likely result in higher energy costs and many communities are already energy burdened. It is very important for policy makers to evaluate these all angles of impact to mitigate harmful consequences, by providing subsidies to low income customers for increased energy bills, for example. Additionally, complex impact and benefit overlaps exist; decarbonization may increase energy costs, but will also drastically reduce air pollution, which also disproportionally impacts marginalized communities.

The impact on equity will largely be determined by how the actions are ultimately implemented and while many unintended consequences cannot be predicted, the following scores are estimates for how the actions will likely impact vulnerable communities.

1. **probable negative or adverse impact on social equity**
2. **neutral or indeterminate impact on social equity**
3. **probable positive or beneficial impact on social equity**

<table>
<thead>
<tr>
<th>Source</th>
<th>Sector</th>
<th>Existing actions range from</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Meetings</td>
<td>Energy</td>
<td>low level of action</td>
</tr>
<tr>
<td>Stakeholders (Cities, Utilities)</td>
<td>Transportation</td>
<td>moderate level of action</td>
</tr>
<tr>
<td>HIP (High Impact Practice)</td>
<td>Waste</td>
<td>high level of action</td>
</tr>
<tr>
<td>Climate Advisory Committee</td>
<td>Refrigerant Management</td>
<td>This focuses on how much policy and resource attention is being given to this opportunity at various levels of government.</td>
</tr>
<tr>
<td>Source</td>
<td>Equity Score</td>
<td>Total emissions reduction potential - 2040* (MMT – Million Metric Tons)</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>--------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
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<td>0.4 MMT CO₂e</td>
</tr>
</tbody>
</table>

*Total consumption-based emissions are local and imported cumulative emissions mitigated through 2040.
INTRODUCTION TO ACTIONS

The next section describes the top 11 most significant actions Lane County can take as a community to reach the goal of net zero emissions by 2040. The biggest reductions will have to happen in transportation, since it is the most significant source of emissions. The two top actions, rapid adoption of electric vehicles and replacement of fossil diesel fuel with renewable sourced fuel, have immense potential, but will require rapid scaling up of availability and adoption. The next actions are significantly smaller—mainly because our electricity system is already very clean and because there are large challenges associated with addressing the sources of greenhouse gas emissions that must be reduced.

In this section, the actions are sorted by the cumulative total emission reduction from 2019 through to 2040. The top of the list has the largest emission reduction potential and then each one gets progressively smaller. The largest potential, electrifying transportation and reducing the need for internal combustion engines, would result in over 15 million metric tons of greenhouse gases reduced, while the smallest actions will only reduce emissions by less than a half a million tons. Despite the vast range, acting in each sector is important to reach the County’s greenhouse gas reduction goals.

Each of the 11 actions include:

• The existing conditions in Lane County
• A brief description of why action is needed and how what action can be taken
• Discussion of Interests To Understand
• Partners needed for action
• How Lane County can do its part
• Equity Concerns
• Community Identified Barriers to Action
• What Can I Do as a Household or Organization

Lane County has little direct regulatory control over most of the community wide emissions but has committed to doing their part with the Lane County Climate Action Plan for Operations. In addition, Lane County, through this Climate Action plan, Lane County commits to to take actions described in one of three categories; act, support, or convene. The ‘act’ category describes actions that Lane County has direct authority to carry out. The ‘support’ category identifies actions that Lane County can work with partner agencies to carry out. The ‘convene’ category focuses on actions where Lane County will promote collaboration with other partner organizations.

During the virtual community meetings we asked participants to name equity concerns. These are included along with the analysis conducted by Lane County staff. The online open house survey also asked community members to name potential barriers to acting and these suggestions are included with each action.

‘Net zero emissions’ refers to achieving an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere.

Finally, the federal government and the State of Oregon, along with local utilities and other local governments, are already taking providing incentives and support for many of these actions. Appendix summarizes these efforts for each of the 11 identified actions.
Electric Vehicles

![Image of electric vehicle charging stations]

<table>
<thead>
<tr>
<th>Equity Score</th>
<th>Total emissions reduction potential - 2040* (MMT – Million Metric Tons)</th>
<th>Federal</th>
<th>State</th>
<th>Local</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>15.4 MMT CO2e</td>
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</tbody>
</table>

**Description**

Currently, Lane County has over 335,000 passenger vehicle registrations; over 99% are internal combustion engines. Most of these vehicles use gasoline fuel. In 2019, nearly 2,500 electric vehicles were registered – less than 1%.

To reach the reduction potential, we would need to increase community use of electric vehicles to 100% by 2040. Assumes a linear rate of adoption up to and beyond 2025. Available at once – relies on resident participation with local and/or state government support.

**Overview**

Electric technology is replacing fossil fuel engines for clean, efficient transportation. Electric vehicles (EVs) cut out harmful air pollution, greenhouse gas emissions, and noise. Plug in electric vehicles use little fossil fuel when they are charged using electricity provided by our local public utilities, which are already 90% fossil free. There are challenges to expanding the use of EVs that need to be addressed. It is important that we continue to explore ways to build batteries that are easily recyclable, and to minimize harm caused by mining for the materials. However, these new challenges are worth it to update our outdated and heavily polluting transportation system.

To support further adoption of EVs, we need to build accessible and convenient charging stations, be able to charge at home, and have new options that meet everyone’s needs. For shorter trips, electric bikes and scooters can help people get around town as we also ramp up other transit and ride sharing options. Electric buses are already in use in Lane County and electric semi-trailers are starting to arrive on the market as well. Major carmakers have committed to only sell electric vehicles in the US by 2035, and there are already 100,000 public charging stations around the country. We also need to make this transition affordable and accessible, which is where incentives, rebates, and other strategies will help. Some of our local utility companies have developed incentives to spur EV adoption, including cash incentives, rebates, and infrastructure grants.

*Photo by Chris Pietsch*
Each action is provided an action code. These codes provide an easy point of reference to discuss the individual actions.

Lane County Actions

<table>
<thead>
<tr>
<th>Action Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EV-A1</td>
<td>Replace all county owned sedans with EVs when vehicles reach the end of their useful life.</td>
</tr>
<tr>
<td>EV-A2</td>
<td>Install charging stations for fleet and public use at Lane County facilities and parks throughout the county.</td>
</tr>
<tr>
<td>EV-S1</td>
<td>Support state and federal legislation that encourages the electrification of transportation.</td>
</tr>
<tr>
<td>EV-S2</td>
<td>Promote local EV manufacturing through Economic and Community Development Programs.</td>
</tr>
<tr>
<td>EV-C1</td>
<td>Convene cities and utilities to ensure that best practices and charging location plans are shared and coordinated.</td>
</tr>
<tr>
<td>EV-C2</td>
<td>Encourage utilities and cities to continue to support electrification of transportation using incentives and waiving fees for charging infrastructure.</td>
</tr>
<tr>
<td>EV-C3</td>
<td>Work with Travel Lane County, cities, utilities, and other organizations to ensure that destination charging is available throughout Lane County.</td>
</tr>
</tbody>
</table>

Partners

- Local governments in Lane County
- Electrical Utilities
- State Agencies
- Federal Government
- Private Sector and NGOs (examples include Forth, Clean Cities Coalition, and Oregon Green Fleet Cooperative)

Equity Concerns

The electrification of transportation has left out many groups in Lane County. Low income populations, rural communities, and those living in multifamily rentals all currently struggle to adopt using EVs. New EVs cost more upfront compared to similarly featured gas vehicles, (although usually save more than $1,000 per year in fuel costs) and installing charging infrastructure requires even more money. Additionally, many rural residents regularly need to travel long distances and suffer from “range anxiety”—the idea that they may run out of charge before getting to their destination. Finally, the vast majority of vehicles currently available do not meet the needs of those requiring pickup trucks and large family SUVs and minivans.

Financing is another concern as the unbanked currently have no way of applying for car loans necessary to finance purchases and credit cards are needed for many charging stations.

The state and local governments are trying to address these issues using increased incentives for used EVs (see above) and are exploring waiving fees associated with installing charging stations. Additionally, as the supply expands more types of vehicles will be available and used cars will come on the market, making them more accessible to those who currently cannot afford them.

Community Identified Barriers to Action

Community members stated that up front cost and a lack of public charging, particularly in rural areas of Lane County, were the biggest barriers to EV adoption.
WHAT CAN I DO?

At home
• Find out more about rebates, low-income incentives, and offers from utilities for electric vehicles and infrastructure, and consider moving to an electric vehicle when it is time to replace a car. (Link to appendix)

At work
• Find out more about rebates and incentives for electric vehicle charging at work, and advocate for adding electric charging to your workplace. If your utility doesn’t offer incentives, ask them why not?
• If your work owns or leases vehicles, consider total cost of ownership as the primary metric for investment after how the vehicle is used for its purpose.

What’s on the horizon
• Every major auto manufacturer in the world has committed to phase in electric vehicles by 2036. We can expect there will continue to be more buyer options for electric vehicles, more used vehicles on the market, and continuously expanding infrastructure and range.

Photo by Chris Pietsch
Renewable R99 Diesel

Currently, the standard diesel fuel product sold in Lane County is B5 (5% bio-based with 95% fossil diesel). Over 143 million gallons of diesel fuel products were sold in Lane County in 2019.

Emissions reduction model assumes a linear adoption rate from 2023, where R99 replaces 100% of fossil diesel sales in 2040.

Overview

Vehicles traveling around and through Lane County are responsible for most greenhouse gas emissions produced locally. Lane County is home to Interstate Highway 5, Highways 101, 58 and 126 corridors, a train corridor, and a robust industrial sector, which all results in the use of a lot of gasoline and diesel. People can replace their fossil fuel passenger vehicles with electric vehicles to reduce those emissions (see Action 1.) However, for trucks and many larger vehicles that use diesel fuel there are not yet affordable technological substitutions. It will take many years to remove the millions of diesel engines currently in use and renewable diesel is a substitute that can be used to reduce the impact of fossil fuels without changing engines.

Renewable diesel is a drop-in replacement for fossil diesel derived from plants rather than fossil fuels. R99 refers to the mixture of 99% bio-based diesel to 1% fossil diesel. Of all the diesel used in the US, currently only about 4% comes from renewable sources, and the majority of that is imported from outside the US. Traditionally, plant-sourced fuels have been mixed with fossil fuels using ethanol derived from corn or soy. These fuel sources require lots of land, water and fertilizer, and have been criticized for displacing food production. To make most of the fuel from renewable sources, the United States need to rapidly increase domestic feedstocks and production, and distribution networks. Renewable diesel is analyzed for greenhouse gas reduction potential instead of biodiesel from waste oil products, as that production is the only one capable of scaling up significantly to meet the drop-in need for existing engines.

Lane County Actions

| RD-A1 | Use R99 in Lane County fleet vehicles. |
| RD-A2 | Educate fleet-owners about biodiesel and renewable diesel. |
| RD-A3 | Investigate using fees for fossil diesel once renewable sources are readily available. |
| RD-S1 | Support legislation that encourages the development of Oregon based renewable diesel manufacturing facilities. |
| RD-C1 | Convene fleet owners to educate and encourage use of renewable diesel. |
Partners
• Local governments in Lane County
• Fuel Distributors
• Oregon State Government
  • Oregon Department of Administrative Services – Price Agreement
  • Oregon Department of Environmental Quality
• Clean Fuels Program
• VW Settlement Program
• Oregon Department of Energy and Clean Cities Coalition
• Oregon Department of Transportation – Price Agreement
• Federal Government
  • US Department of Energy
  • US EPA Diesel Emission Reduction Act
• Private Sector and NGOs, like the Oregon Green Fleet Cooperative

Equity Concerns
Outreach materials must be in a variety of languages to ensure that everyone has access to information about the availability of renewable diesel. There are concerns that large fleets will push out smaller entities interested in upgrading from fossil diesel. Creating a buying cooperative that the private sector can take part in is needed for these small fleets as well as the large ones.

Community Identified Barriers to Action
Many community members identified a lack of knowledge about renewable diesel as the main barrier to adoption. Additionally, lack of supply is a major barrier, although supply volumes are predicted to grow substantially in Oregon and California from expanded production.

WHAT CAN I DO?

At home
• R99 is not readily available to the public, but you can learn more about fuel, who’s using it, and who’s not.

At work
• If your work has fleet diesel vehicles, consider advocating sourcing R99 as a quick way to slash your carbon footprint.

What’s on the horizon
• Significantly more availability of low carbon intensity R99 along the west coast by 2025.
Grid Decarbonization

<table>
<thead>
<tr>
<th>Equity Score</th>
<th>Total emissions reduction potential - 2040* (MMT - Million Metric Tons)</th>
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<tr>
<td></td>
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<td>3.6 MMT CO2e</td>
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</table>

Currently, publicly owned utilities deliver 90% fossil free electricity. Emissions reductions are modeled using utilities’ current emission reductions commitments, and continued customer purchasing of green power.

Overview

Lane County is served by seven electrical utilities. The community is fortunate that most of our electricity is provided by sources that do not produce greenhouse gas emissions. While 90% of the electricity mix in Lane County is already carbon-free, our reliance on older hydropower does mean that we still need to increase the use of other renewable energy sources to achieve the state’s renewable energy goals.

The reason Lane County utilities currently cannot simply rely on renewable sources for electricity is because of the way people use it. During certain times of the day demand for electricity is larger than the supply. At that point, local utilities need to go outside their normal energy sources and buy electricity from fossil gas-powered “peaker plants.” These power plants are turned on and off during the day to meet peak demand. We can all reduce the use of these power plants by shifting our behaviors so that we use less electricity during the highest demand time of day and through efficiency measures. Emerging technologies like smart devices will signal electrical customers when it is the best time to use these devices.

Large scale renewable infrastructure feeds clean power into the grid and provides the opportunity to shut down coal power plants. While hydropower has been the most significant renewable energy in the US historically, climate change can make river flows less stable; ongoing droughts like the one in the Pacific Northwest and California are making it more likely that there will not be enough water to keep some of these generators running at earlier performance levels. There are other cultural and ecological concerns that may challenge the long-term viability of hydropower.

Photo by Alex Rich
**Lane County Actions**

<table>
<thead>
<tr>
<th><strong>GD-A1</strong></th>
<th>Support electric utilities as they build out utility scale renewable energy projects through expedited planning reviews and supplying suitable property for development.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GD-A2</strong></td>
<td>Install solar photovoltaic panels on county buildings as appropriate.</td>
</tr>
<tr>
<td><strong>GD-S1</strong></td>
<td>Support utilities as they shift to smart meters and time of use pricing.</td>
</tr>
<tr>
<td><strong>GD-C1</strong></td>
<td>Convene cities and utilities to promote utility scale renewables in their community.</td>
</tr>
</tbody>
</table>

**Partners**

- Local governments in Lane County
- Electrical Utilities
- Oregon State Government (Oregon Department of Energy and Housing and Community Services)
- Federal Government (US Department of Energy)
- Private Sector and NGOs
- Oregon Solar Industry Association
- PNGC Power

Local utilities have joined together to offer green-power to their customers. By paying a premium on one’s electric bill, utilities will use the extra income to build renewable energy on their grid (*See Appendix for information on greenpower programs*).

**Equity Concerns**

Renewable energy comes at a cost and many low- and fixed-income residents cannot afford to pay more for their electricity. When coupled with energy efficiency, these changes can be cost neutral, but again these investments require money. As utilities look to increase renewable energy generation and programs that support its use, such as charging more for electricity use during peak times—time of use pricing, it is important for the community to ensure that the most vulnerable populations are not adversely impacted.

**Community Identified Barriers to Action**

Community members stated that cost was the biggest barrier to more solar and renewable energy use.

**WHAT CAN I DO?**

**At home**

- If you have the capacity to pay a small premium on your electricity or natural gas use, consider signing up for Green power programs especially if you are served by an investor-owned utility due to the carbon intensity of the power they deliver. (*See Appendix*).

**At work**

- Enroll in Greenpower programs and promote commitment to staff and customers.

**What’s on the horizon**

- State and Federal legislation continues to push forward on making the electrical grid 100% fossil free.
Overview

The transition from natural gas to electric heating and cooling will have the greatest benefit for the climate, specifically because our electrical grid is very clean. Residents should consider switching to electric when the time comes to replace their non-electrical heating and cooling systems or other appliances like stoves, clothes dryers, and hot water heaters. Renewable energy ties into the electricity grid, and the grid itself can expand with demand with investments being made by the collective in grid capacity and power generation. For homes that have invested in high efficiency natural gas and can’t make the transition soon, there are opportunities to offset the emissions through Northwest Natural’s Smart-Energy program.

Moving to electric heating and cooling within the near term will have significant emissions benefits. Electric heat pumps also provide the ability to cool homes during the hot (and hotter) summer months. Climate models show that summer temperatures will continue to rise; Lane County can expect to have to deal with more uncomfortably hot days. Cooling off homes will be needed and electric heat pumps are the most efficient systems for carrying out this task. Most of our local utilities provide some incentive to install efficient electric heating, cooling, and water heating appliances. (See Appendix)
Lane County Actions

<table>
<thead>
<tr>
<th>Action Code</th>
<th>Action Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC-A1</td>
<td>Commit to no natural gas in new county-owned buildings.</td>
</tr>
<tr>
<td>AC-A2</td>
<td>Work with utilities to help educate the public about the benefits of electric heat pumps.</td>
</tr>
<tr>
<td>AC-S1</td>
<td>Support efforts to encourage the use of heat pump water heaters as a replacement for older, less efficient water heating systems.</td>
</tr>
<tr>
<td>AC-C1</td>
<td>Convene utilities and cities to encourage the electrification of heating and cooling and the heating of water using heat pumps.</td>
</tr>
</tbody>
</table>

**Partners**

- Local governments in Lane County
- Electrical Utilities
- State Agencies (Oregon Department of Energy and Housing and Community Services)
- Federal Government (US Department of Energy)

**Equity Concerns**

Electrication of air space heating/cooling and water heating is becoming more accessible for home owners. However, low income families often do not have money available to invest in these upgrades—especially if they are renting. For rentals - there is often a split in incentives for renters and property owners: renters often pay the electrical bills but have no control over the appliances. Property owners own the heating and cooling systems but do not see an incentive for investing more money in their units, especially when rentals are in such high demand and the renters pay the bills. Electric heat generating appliances can be more costly than natural gas to operate when there is no cost of carbon attached to it. In any major transition of technology, support for low income households to avoid overburdening them with added costs is necessary. Fortunately, the Legislature passed a rule to allow for two rate tiers to protect those from the rate changes.

**Community Identified Barriers to Action**

Many residents in Lane County stated a lack of understanding of the benefits of these systems and do not know about the incentive programs offered by the utilities. It is important that broad outreach in a variety of languages is available. Renters noted that they want incentives for property owners to make energy saving upgrades.

**WHAT CAN I DO?**

**At home**

- Find the age and energy source for your major appliances. Consider an Energy Star rated electric replacement when it is time.
- Find local and state rebates (see Appendix XX).

**At work**

- Electrify your appliances and HVAC when it is time. Identify the rebates offered.

**What’s on the horizon**

- ( Likely) there will be increased funding from the federal government in rebates and tax breaks for appliance electrification.
Mass Transit

<table>
<thead>
<tr>
<th>Equity Score</th>
<th>Total emissions reduction potential - 2040* (MMT – Million Metric Tons)</th>
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<tr>
<td>3</td>
<td>1.3 MMT CO2e</td>
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</table>

Description

Increases transit ridership by 2.5 times pre-COVID LTD ridership, The difference in impact between an increase in ridership from 1.5x-2.5x is nearly 1 million MT CO2; that jump can be considered the difference between a full bus and a partially full bus.

Overview

Personal vehicles are important to many Americans, and the infrastructure designed around cars has allowed for huge growth and expansion of our road systems, creating sprawling towns and neighborhoods. We cannot become a transit oriented community overnight. However, Lane Transit District and other organizations like Lane Council of Governments are focused on improving mass transit options that make it easier and easier to get around without a personal car.

Mass transit refers to large scale, public transportation, including buses, trams and light rail, and trains. Mass transit allows for highly efficient mobility, and is especially effective in denser populations areas. In Lane County, our primary form of mass transit is Lane Transit District (LTD), which provides bus and rapid bus transit to residents. While many people think electrification of buses as the primary concern, the reality is that LTD buses contribute a small amount of the County’s greenhouse gas emissions and the higher priority is to get more riders on the bus. However, the COVID pandemic has put many of these planning projects on hold as more urgent needs are being met.

Photo by Chris Pietsch
Lane County Actions

<table>
<thead>
<tr>
<th>MT-A1</th>
<th>Investigate a bus pass program for employees.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT-S1</td>
<td>Support LTD and LCOG (Lane Council of Governments) when they pursue further federal funding and grants.</td>
</tr>
<tr>
<td>MT-C1</td>
<td>Convene cities and transit providers to ensure that county-wide needs are being met. Example: North/South Shuttles on the Coast during peak times to reduce local traffic of visitors and enhance the vacation experience.</td>
</tr>
</tbody>
</table>

**Partners**

- Local Governments in Lane County
- Transit Authorities (Lane Transit District, Central Lane Metropolitan Planning Organization / Lane Council of Governments)
- Oregon State Government (Oregon Department of Transportation)
- Federal Government (Federal Transit Authority)
- Transit Advocacy Groups (Better Eugene-Springfield Transportation)

**Equity Concerns**

Rural residents do not have access to the same mass transit options as those living in the Eugene-Springfield region. While there are connector transit routes between cities, these often only run once a day. These types of lines are expensive to run and need to be subsidized to improve access and reduce future demand for additional highway capacity between communities.

Increased transit in the form of more route options and more frequent service would help institutionally underserved communities. Having more transit options would be particularly helpful for those low-income residents who need to make multiple stops a day.

**Community Identified Barriers to Action**

Community members stated that the more frequent and convenient transit options, especially for cross-town and rural connections outside of commuting hours and residents with limited mobility would make them more likely to use the transit system.

Some community members expressed being intimidated by riding the bus and stated that they did not feel safe. Education about how the bus system works and how safe the bus system is could help.

**WHAT CAN I DO?**

**At home**

- Actively support our local mass transit system, LTD. Ride the bus! when you can.
- If there is no route near you, reach out and the alternatives.

**At work**

- Incentivize options for using the train or bus for work trips, and reduce focus on car rental.

**What’s on the horizon**

- New EmX routes, and likely more federal funding for mass transit upgrades, accessibility and safety, and modernize fleets, including commuter rail lines.
Edible Food Waste Reduction

<table>
<thead>
<tr>
<th>Equity Score</th>
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<th>Local</th>
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<td>1.3 MMT CO2e</td>
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Emissions reductions are modeled using Lane County goals of reducing food waste by 15% by 2025 and 40% by 2050 (from 2016 levels). This action specifically looks at reducing landfilled food waste that was edible (in contrast to inedible waste, such as produce pits and peels). Minimizing landfilled edible wasted food will eliminate emissions from the loss.

Overview

Our food system is large and complex, which creates many opportunities for food to be wasted. Each year Lane County throws away over 90 million pounds of food waste and wasted food.

Nationally, 35% of the food that is grown is never eaten at all, and is either food waste (parts of an ingredient like cores and tops) or wasted food (moldy bread and over-ripe fruit). We waste food for a variety of reasons: poor timing, crop damage, product spoilage, taste differences, and others. Whenever food is grown but not eaten, there are significant negative consequences for the climate. It wastes energy, fuel, lots of water, and time. Food and food waste in a landfill also creates methane, adding even more adverse climate effects.

Communities can come together to look for solutions to share edible food - from the farm, the grocery store, and at home - with food pantries and other organizations before it becomes wasted. There are also crucial opportunities to reduce the impacts from food waste through composting, which returns nutrients to the soil.

Lane County Actions

<table>
<thead>
<tr>
<th>FW-A1</th>
<th>Investigate the creation of an anaerobic digester at the Short Mountain landfill to handle all organic waste, including food waste.</th>
</tr>
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<tbody>
<tr>
<td>FW-S1</td>
<td>Support Food for Lane County and food producers to ensure that there is a distribution system for the edible, excess food.</td>
</tr>
<tr>
<td>FW-S2</td>
<td>Support cities and waste haulers in expanding curb-side composting like the City of Eugene currently uses.</td>
</tr>
<tr>
<td>FW-C1</td>
<td>Convene a near-term working group to ensure coordination between cities, food producers and manufactures in Lane County.</td>
</tr>
</tbody>
</table>
Partners

• Local Governments in Lane County
• State Agencies (Oregon Department of Environmental Quality)
• School Districts and Colleges
• Private Sector and NGOs (Super Markets, Food Processors, Restaurants, Waste Haulers, Hunger advocacy and gleaner organizations, Material resellers and biomass processors)

Equity Concerns

Wasted food means food not going onto people’s plates. If the community can figure out how to make sure that edible food can be distributed through food banks, they can help many of the families struggling to get enough to eat every day.

Increased creation of compost can help local nonprofits like Huerto de la Familia through donations to their community gardens.

Educational materials on food waste reduction and wasted food tips need to be in at least Spanish and English.

Barriers to Action

Wishful purchasing, where consumers buy healthy, perishable food they believe they should eat, but then goes uneaten is often recognized as one of the biggest contributors to wasted food. Education and shopping tips are necessary for reducing food waste.

Businesses and the agricultural community have identified several barriers including consumer demand for perfect or near perfect produce, inefficient distribution networks to get excess food to food banks and other people with needs, and a lack of capacity to handle excess edible food.

Compost companies have voiced complaints about contaminated food waste. Home or businesses include non-compostable items into the food-waste stream which results in unusable waste. Confusion around the compostability of single use items adds to significant plastic contamination in the compost system.
WHAT CAN I DO?

At home

• Check out Eat Smart, Waste Less. Plan for how to use everything in your fridge. If you bought too much of an ingredient, that’s an opportunity for a new meal idea.

• Avoid wishful buying, which is the idea that “if I buy this healthy thing, I’ll eat it”. It often doesn’t work as inspiration and leads to wasted food.

• Compost your food waste if possible. If your community doesn’t offer curbside compost, ask when it will be available.

• Learn more about your food choices and the carbon impact from meat intensive diets and long-distance transport. Support our local foodshed by checking out organizations like Eugene’s Table (hyperlink).

At work

• Consider a lunchroom compost program, or enroll in Love Food, Not Waste. If commercial composting isn’t an option in your community, ask when it will be available.

• Does your work generate excess food? Ensure that any useable food is donated and not sent to the landfill by working with local connections like Food For Lane County.

What’s on the horizon

• Oregon DEQ has done extensive research on what gets wasted and why. This work should be the foundation of education programs to come.
Many refrigerants used today are potent greenhouse gases that escape into the atmosphere throughout use, and particularly during end-of-life.

Reductions model the implementation of international agreements to phase out 85% of HFC refrigerants by 2036. Data on fugitive emissions is underreported, and impact is likely much higher.

**Overview**

The most common refrigerants globally, hydrofluorocarbons (HFCs), are a significant, growing, and invisible contributor to climate change. On average, the standard refrigerants used in modern air conditioning, commercial refrigerators, and older cars are potent greenhouse gases and range from being 500-10,000 times more powerful than CO₂. Reducing refrigerant leakage, promoting safe disposal of old refrigerators, and changing the type of refrigerants we use are significant strategies to reducing emissions.

Increasing temperatures caused by climate change creates more demand for cooling and refrigeration, increasing the urgency to act now. There is a clear need to educate and collaborate with partners across Oregon to better understand the current state of refrigerant management, find locations for highest leakage, and to carefully plan to reduce the risks of increased volumes of refrigerants being disposed of in the coming years.

Lane County is home to over 380,000 people; that is a lot of refrigerators, cars, grocery stores, manufacturers, food and beverage companies, air conditioning units, and more that have the potential to disproportionately harm the atmosphere. As HFCs are phased out internationally, we must do our part to address gaps in education and awareness, prevent leakage during use, reclamation and disposal, and move our community towards safer alternatives.

| RM-A1 | Create no cost opportunities for residents to responsibly dispose of old refrigerant-containing appliances. |
| RM-A2 | Advocate to create a regulatory position within DEQ (Department of Environmental Quality) in the 2023 budget to oversee refrigerant reclamation and destruction operations, ensure ongoing education, and to manage registration for HFC refrigerant end users over 50 lbs. |
| RM-S1 | Support the creation of an equipment replacement fund for small businesses serving underrepresented communities. |
| RM-C1 | Convene a near-term working group with Local and State stakeholders to determine the key criteria for state oversight. |
Partners

- Local Governments in Lane County
- State Agencies (Oregon Departments of Energy and Environmental Quality)
- Private Sector and NGOs (Supermarkets, Food Processors, Facilities Professionals, Real Estate Portfolio Holders, HVAC Services and Suppliers, Energy Trust of Oregon, refrigerant reclaimers)

Equity Concerns

For grocery stores and cold storage facilities, new regulations on refrigerants may result in higher operation costs. This can result in higher costs being passed on to customers which can be an equity concern for low-income families. Additionally, folks who own smaller convenience or grocery stores will have to pay for upgrades or increased refrigerant costs. Climate change is going to make summer temperatures much higher and community members stated that they were concerned that more regulation on refrigerants may raise the cost of home and automobile air conditioning, moving it out of reach for low income families.

New refrigerators and air conditioners cost less to operate but require capital to purchase. Lower income families may buy the used, older appliances which require more energy to operate

Barriers to Action

Community members did not specify barriers to increased regulation of refrigerants. However, they did voice a concern over the cost of new refrigerators and air conditioners.

WHAT CAN I DO?

At home

- Maintain your HVAC at home and in your vehicle to catch and prevent leaks.
- Dispose of appliances at County transfer stations where refrigerants will be safely removed prior to disposal.

At work

- Ask about the refrigerant used in the building and what is the transition plan to use better refrigerants before they are mandated.

What’s on the horizon

- Lots of modern technology and strategies to meet HFC reduction mandates are on the horizon.
Active Commute and Telecommuting

<table>
<thead>
<tr>
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<td>0.8 MMT CO₂e</td>
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</table>

In 2019, an estimated 3.3% of Lane County residents biked to work, 4.7% walked to work, and 6.1% telecommuted. 14.1% of all commutes used non-fossil or “active” options.

**Modeling Emissions Reduction Potential**

This action models a 2.5-time increase in zero-emission biking, walking, and telecommuting work commute trips, which would be 35.3% of commuters choosing an active commute. If 21.2% of commuters chose an active commute, it would eliminate 477,590 metric tons between 2022 and 2040.

Note: Commute data is used due to the availability of quality data from the US Census.

**Overview**

Active transportation means getting people out of cars and onto sidewalks and bike lanes. These kinds of trips not only reduce the amount of greenhouse gas emissions, but can also reduce congestion on the streets and create healthy habits. However, getting people out of their cars is challenging. Lane County has ample, inexpensive parking, gas prices are relatively low, and there is little congestion to discourage drivers from using their car to get to work or to run errands. Additionally, while cities have invested in sidewalks and bikelanes, many people do not feel safe walking, biking, or rolling for transportation. Over the last decade, the number of people biking to work has decreased even though cities have invested a great deal into making it safer.

One challenge of getting people out of their cars is how cities were designed in the past. Zoning regulations mean that housing is often far away from shopping and work and the roads connecting them are designed for cars. A model of 20-minute neighborhoods could cut some of these problems: new development would be designed so that residents did not need to walk more than 20 minutes to reach their shopping, school, or work destinations.

Telecommuting means staying at home and avoiding a trip to work all together and working through the computer and phone - if that is possible for the job type. The COVID pandemic has done more to advance telecommuting options than any policy could have dreamed. Many more office based employees learned to work from home and investments in new technology made it possible. However, it will take time to figure out if this is a lasting impact and the lack of universal broadband internet access exposed a growing equity gap between rural Lane County and the Cities.
Lane County Actions

<table>
<thead>
<tr>
<th>TT-A1</th>
<th>Finalize Lane County-wide bicycle master plan.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT-A2</td>
<td>Support telecommuting for County employees as a climate action strategy and encourage other local governments and businesses to do the same.</td>
</tr>
<tr>
<td>TT-A3</td>
<td>Continue evaluating how transportation infrastructure projects are prioritized with the goal of reducing emissions and integrating more equity into the process.</td>
</tr>
<tr>
<td>TT-S1</td>
<td>Support cities when they apply for grants and state and federal funding to expand active transportation infrastructure.</td>
</tr>
<tr>
<td>TT-S2</td>
<td>Support broadband expansion into rural areas.</td>
</tr>
<tr>
<td>TT-S3</td>
<td>Support and coordinate with the school districts on their Safe Routes to Schools program.</td>
</tr>
<tr>
<td>TT-S4</td>
<td>Encourage cities to adopt land use policies that reduce the need for single occupancy vehicle trips including developing 20-minute neighborhoods, transit-oriented development, and looking at ways to improve infrastructure for transit services.</td>
</tr>
<tr>
<td>TT-C1</td>
<td>Ensure that cities throughout Lane County work towards expanding active transportation and telecommuting processes.</td>
</tr>
</tbody>
</table>

Partners

- Local Governments in Lane County
- Transit Authorities (Lane Transit District, Central Lane Metropolitan Planning Organization / Lane Council of Governments)
- State Agencies (Oregon Department of Transportation – for ROW access for telecommunications infrastructure)
- Private Sector telecommunications companies
- Advocacy groups (Greater Eugene Area Riders)

Equity Concerns

Rural residents do not have the same access to high speed internet and often are not employed in pure office environments. While broadband and satellite services are expanding, not having internet access has made some jobs inaccessible to rural residents.

Community Identified Barriers to Action

Community members described safety and comfort as the two largest barriers to more active transportation. Respondants stated that they felt unsafe biking or walking where bike lanes or sidewalks were not available. Additionally, they stated that speed limits are often too high to safely bike between urban and rural settings. The lack of shade over sidewalks and bikeways were also mentioned as a heat risk. The lack of lighting also made people feel unsafe. Unlit trails, bike paths, and sidewalks were all deterrents to more use.

Barriers to telecommuting included a lack of access to high-speed internet services and access to jobs that could be done from home.
WHAT CAN I DO?

At home

- Consider routine trips and find where you can make a change out of the car into another form of transportation. Bike to work or walk kids to school during nice weather and then SHARE your activity with your social group. More people join an effort when they see peers doing it too!
- If there are safety or accessibility hazards to walking or biking in your community that prevent you from doing it, bring it up to your transportation planners and ask them about Safe Routes to Schools.

At work

- Propose incentivizing carpooling, walking, and biking to work. Reduce parking allowances to prioritize spaces for those with specific need.
- Connect colleagues to resources for alternative commutes from Lane Council of Governments.

What’s on the horizon

- More focus on funding for safe and equitable bike and pedestrian infrastructure.

Photo by Chris Pietsch
Anaerobic Digestion

<table>
<thead>
<tr>
<th>Equity Score</th>
<th>Total emissions reduction potential - 2040* (MMT - Million Metric Tons)</th>
<th>Federal</th>
<th>State</th>
<th>Local</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0.4 MMT CO₂e</td>
<td>●</td>
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</table>

Action and Scaling Result Description: Construct anaerobic digestion system at Short Mountain Landfill to process organic waste such as food waste, yard debris, and even textiles and paper.

Overview

Our local landfill, Short Mountain, is the permanent repository for all the trash produced in Lane County. Opened in 1976, it still has over 75% capacity remaining. However, fugitive methane emissions are a growing concern, as methane is generated from the decomposition of organic materials within the site. While Short Mountain already has a landfill gas collection system, the fugitive gases could be better managed by both improving the collection system and by placing the materials in an anaerobic digestor and collecting the gas before it goes into the landfill. This gas can be used as a low carbon fuel for transportation or other heat intensive industries. This project is currently moving through engineering studies and is slated to go online in 2025.

The Oregon Department of Energy was tasked with inventorying all potential sources of biogas and renewable natural gas in Oregon, to estimate quantities, current facilities, and opportunities. Oregon is one of a handful of states that already have their own EPA approved state plan for landfill emissions, exempting it from new rules in 2021 requiring all landfills develop methane caps and capture strategies. By capturing those gases before they are released into the atmosphere and turning them into usable energy, anaerobic digestion provides the possibility to double the impact by 1) avoiding/preventing fugitive emissions and 2) reducing the need for fossil energy used elsewhere in the system. “If the volume of RNG (Renewable Natural Gas) that could be potentially captured and used in Oregon displaced fossil fuel natural gas for stationary combustion, approximately 2 million metric tons of fossil fuel-based carbon dioxide would be prevented from entering the atmosphere. (OR DOE (Department of Energy) 2018)“

Lane County Actions

<table>
<thead>
<tr>
<th>AD-A1</th>
<th>Construct an anaerobic digestion facility at Short Mountain Landfill.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD-C1</td>
<td>Convene waste hauling agencies and cities to investigate fee structures to pay for the facility at Short Mountain.</td>
</tr>
</tbody>
</table>
Partners

• Local Governments in Lane County
• State Agencies (Oregon Departments of Environmental Quality and Energy)
• Private Sector and NGOs
  • Emerald Peoples’ Utility District
  • Northwest Natural Gas
  • Cascade Avista
  • Local Dairies
  • Super Markets
  • Food Processors
  • Restaurants
  • University food programs
  • BRING Recycling
  • Rexius
  • Lane Forest Products
  • Waste Haulers

Equity Concerns

Building an anaerobic digester will cost millions of dollars. The financing of this facility will most likely be completed by a slight increase in the per-ton cost of disposing trash at Short Mountain. These costs will be passed on to customers, potentially creating a burden for low income families. That said, if an Anaerobic Digestion plant is feasible, the operation should cover its costs or generate revenues that will offset costs for long term disposal and operations.

Barriers to Action

No barriers to action were identified by community members.

WHAT CAN I DO?

At home

• Reduce food waste by planning meals and keeping leftovers in clear containers.
• Rotate the perishable items in your refrigerator to ensure you see the food that will expire sooner.
• Contribute yard waste and food waste when the system is ready.

At work

• Reduce food waste through planning.
• Contribute landscape waste and food waste when the system is ready.

What’s on the horizon

• As DEQ regulates the use of methane and other fossil fuels, the value of biogas from the landfill or from the anaerobic digester will steadily increase. Already the carbon value of these conversions to fuels is worth more than 50x the carbon value in the electricity market.
Energy Efficiency and Conservation

<table>
<thead>
<tr>
<th>Equity Score</th>
<th>Total emissions reduction potential - 2040* (MMT – Million Metric Tons)</th>
<th>Federal</th>
<th>State</th>
<th>Local</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0.4 MMT CO₂e</td>
<td>○</td>
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**Action and Scaling Result Description:**

This action models taking existing systems and making them more energy efficient. It does not focus on fuel switching, but on improvements in weatherization, heating and cooling, and other strategies to make our energy go farther. Actions will reduce the need for peak power production, which disproportionately comes from fossil fuels.

**Overview**

Buildings use 75% of all electricity in the US, and in commercial buildings alone, 30% of that energy is wasted. Tightening up the infrastructure we already have will go a long way to reducing our footprint. These actions focus on major components like weatherization/insulating, heating, ventilation, and air conditioning (HVAC), lighting, and windows. Maximizing efficiency and conservation in peak energy use times will also reduce our communities “peak” energy needs, thereby reducing the need for electricity generation “peaker plants” that are often powered by natural gas.

Local utilities recognize that energy efficiency and conservation is the lowest cost way for consumers to reduce their energy load, particularly during peak times. For electric utilities, less electrical load means that they have more excess electricity that can be sold on the market, which keeps electrical costs low. For natural gas customers, conservation reduces costs and stretches the finite resource while limiting greenhouse gas emissions. Replacing windows and doors, eliminating air flow between the indoors and outdoors, and increasing insulation are all ways that customers can reduce their energy demand.

*Photo by Drew Coffman*
Lane County Actions

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<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>EE-A1</td>
<td>Finance and implement cost saving energy efficient projects such as lighting upgrades and HVAC systems within County buildings.</td>
</tr>
<tr>
<td>EE-S1</td>
<td>Support utilities in educating the public about energy efficiency programs for residential, commercial, and industrial users.</td>
</tr>
<tr>
<td>EE-S2</td>
<td>Support the implementation of a time-of-sale energy efficiency policy (such as Portland’s Home Energy Score program) for existing buildings throughout Lane County.</td>
</tr>
<tr>
<td>EE-S3</td>
<td>Support the utilities, Energy Trust of Oregon, and cities in their efforts to increase the energy efficiency of rentals and homes, particularly those with low-income residents.</td>
</tr>
<tr>
<td>EE-C1</td>
<td>Convene utilities, cities, and community-based organizations to ensure that institutionally underserved communities are engaged in efficiency and conservation conversations.</td>
</tr>
</tbody>
</table>

Partners

- Local Governments in Lane County
- Electrical and Gas Utilities
- State Agencies (Oregon Departments of Energy and Housing and Community Services)
- Federal Government (US Department of Energy)
- NGOs (Energy Trust of Oregon)

Equity Concerns

Like new heating and cooling systems and new appliances, there are concerns for low income households who do not have the money available to invest in energy efficiency upgrades. Additionally, there is often a split in incentives for renters and property owners: renters often pay the electrical bills but have no control over the windows and insulations. Property owners own the buildings but do not see an incentive for investing more money in their units, especially when rentals are in such high demand.

Lower income business owners also face a similar dilemma; energy efficiency upgrades create savings eventually but owners may not have access to the capital necessary for these programs. This inefficiency loop makes operating costs higher, lowering profitability and limiting investment capital opportunities.

Community Identified Barriers to Action

A sizable part of survey respondents shared that home upgrades like window upgrades and installing insulation are expensive and cost-prohibitive for those who are low-income or on fixed incomes. Participants were interested in more personalized education about most cost-effective upgrades, like a free home energy audit, and do-it-yourself tutorials.

Photo by Christopher Jolly
WHAT CAN I DO?

At home

- If you rent, consider purchasing your own LED lightbulbs. Also consider buying Energy Star appliances of any kind.

- Consider the benefits of a home energy audit, which identify places to tighten up the air seal in your home. Then, check out your utilities’ rebate program for energy conservation upgrades for new windows, air sealing, and insulation (link to appendix).

- Whenever you invest in a new appliance, look for Energy Star models that are more energy efficient and will save money on your electricity bills month after month.

- Consider low cost options for winter weatherization like caulking around windows, doors and other gaps, using plastic over old windows, and putting draft barriers at doorways.

At work

- Consider policies for workplace purchases to ensure energy efficiency, review energy costs often to address negative impacts from behavior or faulty infrastructure (propping doors open in winter; unmaintained HVAC costs more to run).

What’s on the horizon

- (Likely) more federal funding will arrive to help businesses, landlords, and homeowners continue to tighten up their building’s envelope to reduce the need for energy.

Photo by Greg Rosenke
Natural Gas Infrastructure

This action models a prohibition on new natural gas accounts in Lane County. This modeling does not scale the removal of existing accounts or services or the addition of renewable natural gas into the system.

**Discussion of Interests**

Natural gas has been claimed as a bridge fossil fuel for many years, and increased production has allowed the US to minimize reliance on imported fuels. It became the largest source of domestic energy production in 2015, with over 1 million active oil and gas wells currently. Concerns around natural gas stem from the high levels of methane leakage during all stages, the impact of extraction (called fracking) on local watersheds and community health, and the high emissions created by burning it for energy (roughly 80% of GHG emissions compared to gasoline or diesel on an equivalent heat basis). These impacts are now seen to be unacceptable and incompatible with a sustainable future.

An additional concern is the health impacts of burning natural gas in homes and businesses. Inefficient gas combustion produces NOx that can result in negative health outcomes.

A major challenge to transitioning away from natural gas is that many industries rely on natural gas for specific tasks, and non-fossil replacements are not yet available. A technology that is on the horizon to address this gap may be hydrogen-based energy, produced with renewable electricity. When available at scale, hydrogen has the potential to meet heavy industry’s unique energy needs. Therefore, fuel switching from natural gas to electricity wherever possible should be encouraged while expansion of gas infrastructure should be limited. Special care should be taken to ensure that important production facilities that employ local families should be supported in their transition to “Green Hydrogen.”

**Lane County Actions**

<table>
<thead>
<tr>
<th>Action Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>NG-S1</td>
<td>Support cities as they push for further regulation of the expansion of the natural gas system.</td>
</tr>
<tr>
<td>NG-S2</td>
<td>Encourage the development of new renewable natural gas sources such as anaerobic digesters for industrial and commercial uses that do not have electrical substitutions. Also encourage the use of renewables-generated hydrogen as a heat source for industrial heat users.</td>
</tr>
<tr>
<td>NG-C1</td>
<td>Convene utilities and cities to decide the best steps forward in reducing the demand for fossil natural gas.</td>
</tr>
</tbody>
</table>
Partners
• Local Governments in Lane County
• Electrical and Gas Utilities
• State Agencies (Oregon Department of Energy, Public Utilities Commission, Oregon State Legislature)
• Federal Government (US Department of Energy)

Equity Concerns
For some customers, natural gas is an inexpensive way of heating and water heating. However, policies to prevent new natural gas accounts would not impact existing homes. For new commercial and residential buildings this would reduce choices for space and water heating. Further, adding a cost of carbon to the sale of natural gas would generate funds to be applied to weatherization, fuel switching and other programs that will reduce emissions while supporting vulnerable populations - such as low income residents.

Barriers to Adoption
Many residents prefer natural gas over electricity, especially for cooking. Some residents believe that natural gas provides increased safety and resilience in times of electrical power outages. Finally, there are some commercial and industrial applications that will require biogas or renewably produced hydrogen to continue to produce their products.

WHAT CAN I DO?

At home
• Look for available rebates to electrify your home appliances as you are able. Heating and water heating are the biggest users, so replace those first if you can afford it. If not, replace it whenever one of your appliances is due for replacement.

At work
• Talk to your workplace about greenpower programs to offset use, electrify as you are able, and support the overall goal of reducing reliance on natural gas.

What’s on the horizon
• Placing a real cost on carbon will change the energy pricing discussion and will also allow for new strategies to protect lower income households.
This is a living document discussing a fast-evolving challenge. The moment in time when this original draft was written is a snapshot based on the information we have available now. We are working from what is known because what is unknown can't be modeled. Our role as community members is to keep our eyes clearly focused on the healthy, livable future we all want and make every decision possible to steer that way.

We recognize that this special place where we live is currently 75% forests. Our forests are owned by many different companies and agencies, which limit the ability to count on them as continuous carbon sinks. We are planning a special forestry review to better understand the role our forests play in our climate impact, and to model those interactions over time.

Photo by Chris Pietsch
APPENDIX

Community Suggested Actions

The following recommendations were provided by the Lane County Climate Advisory Committee. Some of these actions are identified as high impact practices and were evaluated for potential greenhouse gas reduction. However, due to capacity constraints and lack of readily available data for analysis, some actions were not analyzed for cumulative greenhouse gas reduction potential.

Transportation

The Lane County Climate Advisory Committee (CAC) made these general recommendations regarding transportation:

1. Engagement with the Public/Promote Equity in Transportation Planning—Lane County should ensure public involvement and equity in transportation policies.

2. Leverage Existing Transportation Funding and Infrastructure and Facilitate Intergovernmental Relationships—Lane County should leverage its key regional role to work with regional, state, and federal partners to acquire appropriate funding of climate-focused transportation policies and plans throughout the county in collaboration with cities and agencies.

3. Invest in transportation capital projects and programs—Lane County should make investments that reduce carbon emissions to meet its GHG reduction goal of carbon neutral by 2040.

Engagement with the Public/Equity in Transportation Planning.

The CAC recommended that Lane County should adopt practices and benchmarks to ensure:

• Full and fair participation in the transportation decision-making process.
• Support for Lane County cities as they develop equitable development policies to support growth and development near existing and planned high capacity transit to prevent displacement and retain affordable housing near transit.

• County staff and Lane County cities include health, safety, and equity outcomes in transportation and land-use planning.

• County staff utilize the Social Cost of Carbon as a metric to evaluate public investment decisions and to inform regulatory impact analyses.

• County staff will be guided by Environmental Justice principles to ensure inclusion, equity and access in transportation planning.

• Policies that avoid, minimize, and/or mitigate disproportionately high and adverse environmental, social, and economic effects.

Leverage Existing Transportation Funding and Infrastructure and Facilitate Intergovernmental Relationships.

The CAC also recommends that Lane County should facilitate planning and funding opportunities to:

• Partner with Lane County cities to assess the alignment with of Transportation System Plans with the county’s climate goals.

• Include estimates of carbon emissions in evaluations of major planning scenarios, Comprehensive Plan and Transportation System Plan decisions.

• Engage transportation management associations, property managers, employers, homeowner’s associations, and community groups to develop and market transit passes, ride-sharing, and other programs that support travel options.

• Research and incorporate tools such as the Social Cost of Carbon and Lifecycle Carbon Emissions to foster consistent consideration of greenhouse gas emissions impacts and opportunities to reduce them when updating and implementing transportation and land-use plans.

• Consult with emergency management and preparedness, land-use, and transportation representatives to create a county-wide and cross-sector climate resiliency plan.

• Partner with transportation planners and representatives to consider all modes and aspects of the transportation system, including air, marine, rail (freight and passenger), road, transit, bicycle, and pipelines in development.
Invest in transportation capital projects and programs that reduce carbon emissions to reach the County’s GHG reduction goal of 4.8% by 2040. Lane County will work with regional, state, and federal partners to:

- Reduce vehicle miles traveled per capita.
- Prioritize investments in public transit, pedestrian, and cycling improvements and system maintenance and support active transportation, including long-range electric bikes in active transportation planning and infrastructure in urban and rural communities.
- Work with the Oregon Department of Transportation, legislators and other stakeholders to identify appropriate strategies to bring infrastructure improvements to county and state highways to improve safety and efficiency for bike, electric vehicles and bus transit.
- Invest in “Roadways to Pathways” Projects by converting orphan or retired highways into recreation destinations for hiking, biking and environmental education such as Old Highway 36 or the “Blachly Mountain Forest Loop.”
- Secure opportunities to subsidize EV purchase and ownership and expanded EV charging infrastructure.
- Support the Safe Routes to School Program in rural communities.

The following ideas were generated during meetings with city and county employees, utilities, subject matter experts and other government employees or during the virtual engagement meetings. These actions are identified as possible near term solutions for reducing greenhouse gas emissions to be explored more in the future. However, due to capacity constraints these were not analyzed for cumulative greenhouse gas reduction potential.

Limit car-centric road development and prioritize protected space for active transportation.

Several community members voiced concerns over the long-term impact of expanding infrastructure for fossil-fuel driven automobiles and trucks. The concern is by expanding infrastructure more people will continue to rely on greenhouse gas emitting forms of transportation. Studies have shown that increasing the number of lanes in a highway induces demand for the roadway, resulting in more drivers.

In addition, expanding parking requirements and regulations enable more people to drive to locations rather than looking for other alternatives. Community members stated a desire to see parking requirements re-evaluated. Additionally, several pointed out that on-street parking often takes up space that could be used for bike lanes and parked cars make cyclists feel unsafe. Community members stated that it would be better for communities to invest in protected spaces for active transportation and support public transportation options.

Other members encouraged an incentive approach by encouraging businesses to offer some sort of incentive for those who use active transportation to get to work. Active transportation has health benefits in addition to reducing greenhouse gas reductions. Community members also suggested that businesses should offer free bus passes for employees who were willing to take public transportation to work.

Lane County Actions—Lane County officials will continue to actively engage in groups like the Metropolitan Planning Organization and Lane Area Commission on Transportation to ensure that these views are expressed.

Expand the bicycling infrastructure by creating contiguous intra-city biking paths that are optimized for connecting key destinations, such as schools, and intercity biking paths connecting cities across Lane County.

Community members voiced strong opinions about Lane County encouraging more bike paths within the cities of Lane County to ensure that riders and rollers feel comfortable and safe using the infrastructure. While Lane County has no jurisdiction within city limits, they will continue to support efforts made by cities to expand multiuse paths and bike lanes.

Lane County is also currently working on a Bicycle Master Plan that will outline a series of priorities for Lane County infrastructure. Information on this plan can be found here. While inter-city bike paths will be unlikely to reduce commute-related emissions it will provide a range of other co-benefits including economic development.

Participants in the public engagement meetings did acknowledge that active transportation can be a barrier for senior county residents and residents with mobility concerns. Participants suggested electric
bikes might provide increased mobility and access for these residents.

Finally, community members discussed that in addition to bike lanes and multiuse paths, destinations within the county need bike racks and safe last-mile connections.

**Lane County Actions**—Lane County will continue to develop a bicycle master plan, support and encourage cities to continue to expand active transit infrastructure, and convene stakeholders on developing intercity bike routes to reduce vehicle miles traveled and encourage biking-related tourism.

**Support denser development in existing neighborhoods.**

Lane County’s largest source of greenhouse gas emissions comes from transportation, and land use regulations have a great deal to do with that. When communities are spread out residents need to rely on automobiles in order to meet the needs of day-to-day life. When communities can be developed with more density and include housing and commercial space, public transit and active transit become more feasible and cost effective.

Many community members believe that elected officials and the public need more education when it comes to the relationship between land use planning and transportation emissions. Lane County staff will continue to work with other stakeholders to ensure that this message is being delivered to elected officials and members of the public.

**Lane County Actions**—Support communities as they address housing density issues such as accessory dwelling units and encouraging more density in the form of duplexes, triplexes and other higher capacity building such as mixed-use neighborhoods. Lane County will also develop educational materials to help elected officials and the public learn more about the relationship between land use planning/zoning and transportation emissions.

**Increase bus and train ridership through increased capacity to support inter- and intra-city travel.**

Increasing mass transit ridership is included in the high impact practices described in the previous section. However, intercity mass transit options were not evaluated. Community members stated the need for increased capacity for transportation between the cities within Lane County and from Lane County to other communities around the region.

Coastal residents stated that there is a need for more capacity on the routes between the Coast and the Willamette Valley and along the Coast. The **Columbia River Gorge Express** was used as an example and people stated the need for patience as it takes time to establish a system and will have the co-benefit of economic development by encouraging tourism.

Other community members pointed out that for many rural residents public transportation is not a viable option. Several members pointed out that routine car trips that might take a couple hours could result in day-long trips if existing mass transit systems were utilized. In addition, participants pointed out that older generations are not familiar with bus systems and can be intimidated by accessing the services.

**Lane County Actions**—Lane County will continue to support Lane Transit District and the Lane Council on Government in their efforts to increase ridership. In addition, Lane County will convene stakeholders to investigate increased capacity for intercity buses and railways.

**Convene and coordinate efforts by Lane County businesses to develop GHG reduction plans for travel and commuting.**

Some community members suggested that Lane County work with the various Chambers of Commerce and local businesses to help them develop greenhouse gas reduction plans. Some suggested ideas include limiting air travel for longer flights, offer telecommuting options, explore the use of electric bicycles and electric-based currier services for delivery, offer rewards to employees who use active or mass transportation, and other social work place-based incentives and competitions to encourage less commuting and business travel.

**Lane County Actions**—Lane County, in conjunction with local partners, will develop educational materials to help local businesses reduce their transportation related greenhouse gas emissions. Lane County will then work with Bring’s ReThink Business Program to distribute these materials.
Emissions testing with a fee at registration every two years for all internal combustion engine cars and trucks.

Community members supported Lane County mandating emissions testing every two years for all internal combustion engine cars and trucks after a certain date. Once electric vehicles are widely available and cost competitive, Lane County would require that as part of the registration process residents would be required to pass an emissions test and be charged a fee. These fees could then be used to support Lane County transportation investments and would encourage the transition to less impactful electric vehicles.

This action is regressive in that it impacts low income vehicle owners more so than those who have higher incomes and can more readily absorb the cost. Additionally, low income residents are less likely to invest in an EV and will be more likely to be using the lower capital cost fossil fueled vehicles. This inequity would need to be addressed before taking action.

*Lane County Actions*—Lane County will mandate emissions testing at registration every two years no later than 2030.

Increase costs of using fossil fuel vehicles through taxes.

Similar to the suggestion above, another action would be to impose a fossil fuel-based tax on sales of fuel. When renewable and biodiesel are widely available and cost competitive, it was suggested that a sales tax per gallon of diesel sold in the county could be implemented to encourage the use of renewable diesel. Likewise, when EVs are widely available and cost competitive, Lane County could pass a per gallon of gasoline tax.

The funds from this revenue raising action would be reinvested in the Lane County transportation system.

The gasoline tax is regressive in that it impacts low income vehicle owners more so than those who have higher incomes and can more readily absorb the cost. Additionally, low income residents are less likely to invest in an EV and will be more likely to be using the lower capital cost fossil fueled vehicles. This inequity would need to be addressed before taking action. Since there will be a price-competitive non-fossil diesel substitute this action would not be considered regressive.

*Lane County Actions*—Lane County will mandate fossil fuel sale taxes no later than 2030.

Telecommuting as an alternative to commuting.

Community members stated that telecommuting is one of the best options for rural residents to access a variety of work opportunities. However, they were concerned about the barriers to reliable high-speed internet that can handle video conferencing and other high data demands. Through infrastructure investments in broadband and satellite technologies, rural residents could expand their work options while reducing vehicle miles traveled. Additionally, as the COVID pandemic continues, having access to high speed internet provides rural residents not only work options, but access to news and information and opportunities for contact-less shopping.

During one conversation it was pointed out that several employers offered employees the opportunity to telecommute during the pandemic. Many of the rural and small town residents did not have sufficient high speed internet to meet the needs of the job and had to continue going into the office despite the associated risk.

*Lane County Actions*—Lane County will continue to support local efforts to expand high speed internet access across the county.

Energy Used In Buildings

Address small, rural homes energy usage

Both utilities and community members voiced concerns regarding rural homes, particularly manufactured homes that are poorly insulated and inefficiently heated. Most of these home owners do not have the resources to make energy efficiency upgrades and end up spending a disproportionate amount of their income on electrical bills. Some of the utilities serving rural Lane County pointed out that some of their largest residential customers come from inefficient, older manufactured homes.

Providing assistance to upgrade or replace these homes would not only reduce greenhouse gas
emissions associated with electricity use, but would reduce monthly bills and improve resident’s quality of life. Unfortunately, this is a large problem that will be very complex to solve. The Oregon Housing and Community Services Agency has an Energy Services department and utilities offer incentives but there is a need for facilitation between the various agencies and utilities serving Lane County.

*Lane County Action:* Lane County will convene a group of stakeholders to address the needs of manufactured and older homeowners to determine the next steps in addressing these inequities.

**Increased investments in solar photovoltaic (solar power.)**

Community members stated a strong support for incentives for solar energy installation and usage. The first action would be to incentivize or coordinate more community solar programs in the county. Community solar is a program where a utility or third-party installs a larger solar array and community members are able to buy individual portions/panels. This can be done either with a single payment or a series of payments over time, depending on how the program is designed. Recently Central Lincoln Public Utility District offered a community solar program in the Florence area which quickly sold out. Central Lincoln was able to offer lower costs because the prices were partially covered by grants. However, other utilities could offer similar programs.

Another action suggested was encouraging local electrical utilities to strengthen rooftop solar incentives; particularly when coupled with electric vehicle charging. Currently all utilities state that they have enough power generation and that they sell excess electricity on the open market. Rooftop solar is more expensive for them to buy than they are able to sell the excess electricity. That means the utility loses money when more people install home solar and all rate payers end up paying more to cover the costs. However, existing electrical generation levels may be variable in the future, so rooftop solar offers reliable, local generation sources. Additionally, rooftop solar offers resilience for homeowners in times of natural disasters or power outages if coupled with battery storage. This action clearly needs more investigation and the financing model needs to be evaluated.

Community micro-grids were also encouraged. A microgrid is a group of homes and/or businesses that are connected with energy generation such as solar within a defined area. The microgrid can be connected to the overall electrical grid but is treated as a single unit like a home or a business. A microgrid can connect and disconnect from the grid to enable it to operate in both grid-connected or island-mode depending on the needs of the members. The advantages of a microgrid include local resilience and control over the generation. However, this idea does not fit well within the current electrical utility model and important barriers such as regulatory framework, funding of infrastructure, and cost sharing all need to be overcome.

*Lane County Actions:* Lane County is currently assessing land holdings that could host community solar projects. Additionally, Lane County will continue to connect electrical utilities with other entities within the county to encourage investment in solar projects. Lane County will work to educate residents, businesses, and other stakeholders of the value and importance of solar power development.

**Support electrification and disincentivize natural gas usage.**

Community members emphasized their desire for electrification in buildings that are currently using natural gas. They proposed that Lane County should support a moratorium on new gas infrastructure for residential and commercial usage. Additionally, the community members suggested that the state should offer tax credits for home electrification can be an incentive for reducing gas usage. Related, community members stated that Energy Trust of Oregon should offer incentives for fuel switching from natural gas to electricity.

They also voiced a desired that Lane County encourage utilities to offer incentives for installation of heat pump water heaters. Additionally, they felt that Lane County should advocate on a state-wide level for regulation on renewable heat pump refrigerants to ensure that high global warming potential refrigerants are not being used.

Finally, some participants pointed out that the Oregon State Legislature passed HB2021 which
requires electric utilities to reduce greenhouse gas emissions to 80 percent below baseline emissions levels by 2030, 90 percent below baseline emissions levels by 2035 and 100 percent below baseline emissions levels by 2040. This means that by 2040 any heat or hot water created through using electricity will be greenhouse gas free.

Some participants noted that electrification can have disproportionate impacts on lower income communities since gas can be cheaper than electricity. Education is important to help people understand the benefits of electrification.

*Lane County Actions*: Lane County will advocate for a moratorium on new natural gas infrastructure for residential and commercial usage, for a tax credit for fuel switching, and for Energy Trust of Oregon to offer fuel switching incentives. Lane County will also work to educate the public on the benefits of energy efficiency and the electrification of heating, cooking, and water heating.

**Explore adopting a C-PACE program for Lane County.**

Commercial Property Assessed Clean Energy, or C-PACE, provides a financing mechanism for projects related to energy efficiency, water conservation, and renewable energy. The funding is long term, usually via assessment on the property’s regular tax bill. Approximately half the states in the US, including Oregon, have a C-PACE program. Oregon’s program is currently only available in Multnomah County and there is a group of local governments looking at expanding this state-wide. If Lane County were to adopt a local C-PACE program it would provide another financing tool for businesses to invest in long term projects like renewable energy or energy conservation.

*Lane County Actions*: Lane County will support legislation that creates a state-wide C-PACE program that local businesses, landlords, and non-profits could access to fund climate-friendly investments.

**Encourage home energy scoring/audits and building weatherization requirements.**

Community members stated the need for home energy scores. Home energy scores are calculated by energy experts who do an audit of a home and provide a score that indicates how much energy a home owner or renter can expect to pay. These audits also include a series of recommendations for homeowners and landlords to reduce energy consumption.

One area of focus was on apartment and home rentals. Many renters are responsible for the utility bills but do not have readily available information on how much it will cost to heat their rented home. If each apartment was required to have a home energy score, renters could have a better idea of their total cost or renting. Additionally, the landlord does not currently have a financial incentive to invest in energy efficiency upgrades. Having apartments scored would contribute to the marketability of the apartment and encourage landlords to ensure their properties are as efficient as possible.

The City of Portland requires that home energy scores be conducted during a home sale. If completed on time, it allows homeowners to finance some of the costs of energy efficiency upgrades along with their home loan.

There were some concerns over the cost of home energy scores and the impact on social equity. However, home energy scores end up costing a few hundred dollars which is a small cost in the price of buying a home. Additionally, home energy scores for apartments would address an important piece of budgeting for renters; knowing the cost of utility bills.

Community members also pointed out that the State Legislature just passed the Energy Affordability Act HB 2475. The Energy Affordability Act tackles high energy bills that burden working people by giving the Public Utility Commission (PUC) the authority to allow utilities to provide rate designs, such as discounts, that help reduce energy burden for low-income or other under-served customers. Additionally, the Legislature passed HB 2842 which increases efficiency and weatherization to make homes of low income families healthier.

*Lane County Actions*: Lane County will educate and encourage cities to encourage or mandate home energy scores at the time of home sales or for all rentals.
Incentivize decreasing building-related greenhouse gas through the use of a local cap and invest program.

Several community members voiced frustration with the state and federal government’s inability to pass meaningful cap and invest greenhouse gas reduction programs. These community members suggested that Lane County determine an annual greenhouse gas emissions fee, the cap the overall amount of emissions allowed, and then decrease that amount over time and eventually reaching zero net emissions. This type of program results in an increasing price of greenhouse gas emissions over time and raises revenue to be invested in greenhouse gas reducing actions. These programs are best suited for international, national, and even state levels but lacking action elsewhere could be implemented locally as was recently done in Multnomah County. There are equity concerns as these types of programs can be regressive but if properly designed, these concerns can be addressed.

**Lane County Actions:** In the absence of state or federal action, Lane County will investigate a local greenhouse gas cap and invest program by 2030.

Protect trees when developers build and plant more trees

A few community members commented that as new housing is developed that trees are protected. Studies have shown that trees reduce the impacts of urban heat islands. An urban heat island occurs when a city experiences much warmer temperatures than nearby rural areas. The difference in temperature between urban and less-developed rural areas has to do with how well the surfaces in each environment absorb and hold heat. Trees provide shade and reduce the amount of heat absorbed by the surrounding infrastructure.

Other community members urged the county to facilitate or lead tree-planting activities such as tree giveaways (with education), group tree-planting led by county staff, and create educational content to explain the importance of tree planting and encourage public participation.

**Lane County Actions:** Lane County will educate and encourage cities to protect trees when planning developments and encourage re-planting when cutting cannot be avoided. Lane County will look for appropriate opportunities for tree planting on County owned land.

Encourage Lane County businesses to track energy usage and report improvements.

Lane County Waste Management supports a local nonprofit, Bring, to conduct their Re-Think Business program. Bring's expert advisors conduct on-site assessments of businesses’ current water, waste, energy and transportation practices. The business receives recommendations, tools, and ongoing support to help them be more resource-efficient. Bring also provides information about tax incentives, rebates, and grants. Community members spoke highly of Re-Think’s addition of climate-change related evaluation and encouraged Lane County to support an expansion of the program.

**Lane County Action:** Provide more support to Bring to expand their Re-Think Business program to more businesses while including information on reducing greenhouse gas emissions.

Other energy ideas.

Community members included additional ideas such as geothermal energy exploration in Lane County, encouraging battery storage in homes, and small-scale wind turbines. All of these ideas will be part of the efforts to reduce greenhouse gas emissions and build the resilience of the Lane County energy network, but will require more research and investment before becoming mainstream at a competitive price.

Stuff We Buy and Use including food, Agriculture, and Forestry products

Educational campaign focusing on climate change and consumption.

Nearly half of Lane County’s overall greenhouse gas emissions come from things we buy and use. The more stuff we buy, the more emissions are produced where they are made. It does not matter where greenhouse gases are emitted, they all add up.

Community members stated that they hoped that Lane County would develop promotional materials that prompted residents to reflect on, “How much is enough?” Participants acknowledged that there is societal stigma around not keeping up with social,
consumption norms perpetuated by the media. Consumption is a highly psychological issue. However, as a consumer-based economy, we put ourselves in a double-bind in that if we don’t continue to consume, we risk people losing their livelihoods.

People will need to be retrained to adapt to the changing demands of the economy. However, community members voiced concern that the scale and speed of change needs to be big and quick and will therefore make people uncomfortable.

*Lane County Actions:* Lane County will partner with other local governments and nonprofit agencies to develop outreach materials that educate the public on the connection between consumption and greenhouse gas emissions.

**Reducing wasted food, food waste, and changing diets.**

Food consumption is an area where consumers have a lot of control over their personal habits to reduce the amount of wasted food. Wasted food is food that is purchased, brought home, and never consumed. Wasted food also comes from farms, distribution networks, and restaurants. Nearly a third of the food produced in the United States is wasted. When it goes to the landfill, it emits methane—a highly potential greenhouse gas—as it decomposes. Lane County has been working on preventing wasted food through the Waste Management Division’s Eat Smart, Waste Less (home) and Food Waste Stops with Me (business) program. Not only will consumers save more money by wasting less food, but they will be helping decrease greenhouse gas emissions.

Food waste is another outcome of our food system. There are parts like peels and cores that are not edible and they need to be disposed of properly. Ideally curbside composting programs such as the one in Eugene would be available throughout Lane County. In areas where that is not available, residents could do home composting. Another area for improvement is apartment buildings and other multifamily dwellings where they often lack access to good composting options.

Commercial composting products are available to people in Lane County through the City of Eugene’s Love Food, Not Waste Program and the City of Florence’s Flo Grow. Flo Grow has proven to be so popular that community members stated that they wanted the program to expand to offer even more product.

Other community members expressed concerns over the greenhouse gas intensity of some of the foods people eat. It was suggested that many people do not understand the climate impact of commercially raised beef and sheep products when compared to a more plant-based diet.

*Lane County Actions:* Lane County will continue to offer educational programs around preventing wasted food. Lane County will advocate to ensure that curbside composting is available for those who have curbside yard waste programs. Lane County will also continue to offer programs like the Master Recyclers program that teach residents how to compost (and recycle). Lane County will continue to work with cities to ensure that people living in multifamily buildings have access to composting services. Finally, Lane County will develop educational materials regarding the greenhouse gas impacts of the foods that we consume.

**Repair Hubs and Right to Repair.**

Members suggested that Lane County should employ economic development policies to create a remanufacturing hub that diverts repairable items from landfills to extend life of consumable items and the landfill. There are many high-value items that are repairable but due to a lack of technological expertise the cost of repair is often higher than buying new. Working with public-private partnership Lane County should develop a repair-hub to repair these high-value items. Lane Community College could train workers and nonprofits could host the hubs. Skilled workers and existing infrastructure could attract other repair businesses to Lane County.

Several participants shared that furniture disposal is a key issue and that many furniture pieces can be repaired but are discarded instead. Furniture takes up a lot of landfill space and the lack of skilled workers makes repair work difficult. One suggestion was to drive consumer demand towards remanufactured items. For example, Orcas County has a “repairable items” section at their transfer station where residents can find repairable items for free exchangeorcas.org/.
Another idea was to have Lane County to continue to promote and fund Maker Spaces and Fix-it Fairs to share resources with consumers.

Closely related to this topic, participants expressed a strong desire for the right to repair legislation. Currently industries incentivize replacement and/or force upgrades especially in the technology area. Community members voiced a need for European-like legislation that force manufacturers to offer products that are repairable and to supply spare-parts so that technicians can do that job.

Lane County Actions: Lane County will explore creating a repair hub for high value items including looking at barriers to offering repair-related career and technical education, the funding of these hubs, creating donation spaces for repairable items, and the infrastructure needs to host a hub. Additionally, Lane County will support right to repair legislation at the state and federal levels.

Packaging concerns.

Product packaging can be wasteful, particularly the amount of plastic. Community members stated they wanted new policies to ban plastics, promote recyclable, wood-based and reusable containers and for locally sourced packaging. While an important component of waste management, these concerns need to be coupled with protecting the products being transported. Some products have a great deal of embodied emissions, emissions that come from the manufacturing of the product, and it is important to have sufficient packaging to ensure their safe arrival to their end use.

Fortunately, the State of Oregon addressed this issue in the 2021 Legislative Session by passing a packaging extended producer responsibility bill. This shifts the responsibility of recycling packaging onto the manufacturers. Oregon is one of the first states in the nation to pass this kind of legislation.

Two other related actions were also recommended. Lane County should promote reusable packaging and bulk purchasing options at local stores. Purchasing in bulk can be a useful way to focus on reusable packaging. Additionally, it was suggested that Lane County should advertise the cost of disposal of each product on the packaging.

Lane County Actions: Lane County will continue to work with the Oregon Department of Environmental Quality to ensure that packaging is recycled in the most effective and efficient way possible.

Promotion of local farmers through farmers markets.

Community members had strong feelings about promoting and supporting our local agricultural-based businesses. They suggested that Lane County should promote farmers markets throughout the county in order to support local growers, encourage healthier eating, and to build the local economy. Rural community members voiced that farmers markets are helpful to low income residents when they accept SNAP benefits.

Community members felt that by supporting farmers markets Lane County would gain multiple benefits: local businesses would thrive, residents would eat healthier and have better health outcomes, and farmers using greenhouse gas friendly techniques could help sequester carbon into the soil.

They also stated the need for better education about the relationship between the foods we eat and the greenhouse gas emissions associated with them. People pointed out that raising cows and sheep for meat result in a very high amount of greenhouse gases. They also stated that Lane County should promote feeding techniques that can lower these emissions. Members also stated that commercial and processed food results in more negative impacts to ecological systems and our health than organic, regenerative foods. Increased education about how food is farmed, produced and transported to market could result in behavior change.

Finally, stakeholders acknowledged that making eco-friendly food choices is easiest for those with the privilege of time, financial resources and operational kitchens. Lane County will need to be cautious to ensure that the benefits of healthy eating are not just confined to the upper incomes.

Lane County Actions: Lane County will promote locally-based farmers markets throughout the county. Lane County will partner with local, sustainable businesses to create an ad campaign to promote these businesses. Lane County will work with local school
districts to explain the relationship between climate change and food consumption.

**Sustainable construction.**

Emissions associated with construction come primarily from the materials used in modern construction practices. Concrete and steel manufacturing both result in high levels of greenhouse gas emissions. Community members suggested that the County explore opportunities to require new construction to use sustainable materials and materials that are not energy-intensive to create. While Lane County has limited legal authority over building codes, Lane County can commit to using sustainable building techniques such as certified sustainable forestry products and low-carbon concrete for County owned buildings.

Community members talked about alternative building materials such as mass timber or cross laminated timber. These building techniques use locally- and sustainably-sourced, small diameter logs to produce modular building materials. These structures would replace traditional steel and concrete construction and result in lower greenhouse gas emissions while sequestering carbon for the life of the building. Members also discussed using emerging fiber technologies such as mycelium and hemp to replace traditional building materials.

*Lane County Actions:* Lane County will commit to using sustainable building techniques such as certified sustainable forestry products and low-carbon concrete for County owned buildings. Lane County will promote the development of emerging markets around mass timber, mycelium, and hemp to replace traditional building materials.

**Gas powered leaf blowers and gas powered mowers.**

Community members suggested that Lane County should discourage use of gas powered leaf blowers and gas powered mowers. A participant noted that a gas-powered leaf blower can have a higher impact than driving. An equity concern here is the disproportionate impact to landscaping companies.