# 2021

CLIMATE SMART LARIMER COUNTY FRAMEWORK SUMMARY



# Introduction



# Larimer County's Commitment to Addressing Climate Change

#### Dear Larimer County Resident,

Our county is a beautiful and unique place to live, work and play. All of us who call this place home value our rich quality of life, which is at greater risk by our changing climate. County elected officials and employees are organized to serve the public today and into the future, and how we serve the public will need to change with our changing climate. How much our climate changes in turn depends on the actions we as residents, county staff and decision makers take today to reduce our impact on the environment.

Our purpose with the Climate Smart Larimer County (CSLC) Framework is to provide a foundational document to address climate change with mitigation and adaptation strategies intended to lessen impacts on our residents and the county's identified priorities and aspirations. A working group of county employees and agency partners dedicated their time and expertise to preparing this CSLC Framework, which contains baseline information about the county's current policies and practices related to environmental responsibility, sustainability and climate action – internally (organization) and externally (community).

This summary document references the full CSLC Framework Report and is intended to initiate a robust community discussion on this complex topic of climate change. By taking an inclusive approach that involves all sectors of our community we can better address this problem. How we frame this topic and how we engage the community are critically important elements of this project, and research shows that focusing on local impacts and people's connections to their communities can achieve more robust community engagement and produce common-ground solutions. It is a fair statement that we all value clean air, clean water and clean land, whether we work in a Fort Collins coffee shop or we work the land as a farmer or rancher in the Waverly- Buckeye area.

We look forward to hearing each of your perspectives on how to best address climate change in Larimer County.



Sincerely,

#### Jody Shadduck-McNally, John Kefalas, and Kristin Stephens

Larimer County Board of Commissioners

# **Executive Summary**

#### The earth's climate is rapidly changing due to human activity.

Larimer County is not special in regard to the changing climate. Climate change has the potential to do great damage to this community by worsening social, environmental, and economic problems. As greenhouse gases continue to be released into the atmosphere trapping warm air, severe weather will become more common and natural disasters will occur with greater frequency leading to a myriad of detrimental community impacts.

The CSLC Framework is a foundational document, which summarizes local climate change research, and highlights ways to utilize technology, innovation, and community input to plan a path forward. The Framework provides potential strategies to better adapt to - and mitigate against the social, economic, and environmental risks that the County faces from climate change. Climate Change adaptation seeks to limit the negative effects or capitalize on the new conditions presented by a changing climate. Climate Change mitigation focuses on efforts to reduce or prevent the emission of greenhouse gases. The CSLC Framework is meant to foster community conversations aimed at prioritizing and developing an Action Plan to help secure a safe, sustainable, and prosperous future for Larimer County's community, environment and economy.

It is critical, at this moment, for all residents to take part in the Climate Smart Larimer County Initiative by learning more about this issue and offering perspective to address this monumental challenge.



# Greenhouse Gas Emissions Profile

# The greenhouse effect is a natural process that traps heat in our atmosphere, warming our planet and making it habitable for all life.

Greenhouse gases (GHG) form through natural processes like volcanic activity, and more recently through human activities such as the burning of fossil fuels. These gases comprise only a small amount of all the gases in the atmosphere, but they still have a profound effect on the temperature of our planet and climate. As the concentration of greenhouse gases increases in the atmosphere, its capacity to hold heat increases. Mitigation strategies must target a reduction in greenhouse gas emissions throughout the community. For example, the County could adopt a strategy aimed at increasing public transit options so that fewer vehicles are on the road emitting GHGs.

A 2017 GHG inventory focused on emissions created in Larimer County, revealed the largest sources are vehicle use and the use of natural gas and electricity in buildings<sup>1</sup>. By conducting future GHG inventories as a tracking component of the Climate Smart Larimer County Initiative, the County can observe emission trends and set realistic standards that limit or off-set GHGs.

<sup>1</sup>Longstein, Kirk, member, Larimer County Environmental and Science Advisory Board. For methodology and data sources, see https://drive.google.com/drive/folders/1nBUT25cpF0XxRbMOPWHy0mzSInKdSbFM?usp=sharing

### 2017 Larimer County: Largest GHG Emissions Sources



\*MTCO<sub>2</sub>e - Metric Tons of Carbon Dioxide Equivalent

# Larimer County Climate Hazards

# The most common natural hazards that affect Larimer County are severe weather events including tornadoes, lightning, blizzards, thunderstorms, hail, and winter storms. Climate Change impacts all these hazards.

The two most frequent and highly destructive hazards in Larimer County are severe flooding and wildfires. Climate change makes wildfires more frequent and intense by raising temperatures and drying out forests. Rising temperatures are also increasing the amount of moisture that the atmosphere can hold, increasing the probability of historic rainfall and flood events. We are already beginning to see rising temperatures in our historical weather data. These effects of climate change in Larimer County hurt the economy, degrade the environment, and weaken human health.



Fort Collins: Number of days per year that reached 95° and higher\*

# **Climate Smart Larimer County Framework**

In 2019 County staff, advisory committee members and decision makers began an effort to adapt and mitigate future climate change. In the fall of 2020, the CSLC Framework was completed as part of this effort.

The CSLC Framework takes a holistic approach by applying the Triple Bottom Line Assessment to identify current and future impacts of climate change in Larimer County and proposes strategic action (through adaptation and mitigation) as part of the larger CSLC Initiative.

The Triple Bottom Line considers the social, environmental, and economic impacts and benefits of a project or policy to ensure robust and sustainable outcomes.

The CSLC Framework was created to guide a robust plan that is unique and beneficial to Larimer County. To read the entire Framework Report go to: www.larimer.org/climate-smart



Source: https://en.wikipedia.org/wiki/Triple\_bottom\_line

# Climate Smart Larimer County Framework Goals

- Compile a list of existing community priorities and initiatives that applies to climate change adaptation and mitigation
- Compile a list of potential climate change impacts in Larimer County with a Triple Bottom Line Assessment - Social, Economic, and Environmental
- Propose potential climate change adaptation and mitigation strategies
- Outline public outreach process to solicit community input on a potential action plan

# Climate Action Has The Potential To

- Prevent life and property losses
- Enhance environmental stewardship and social equity
- Identify economic opportunities in new markets
- Save money, energy, water, and similar resources otherwise wasted

- Reduce vulnerability through revised development standards and land use codes
- Expand inter-jurisdictional coordination
- Demonstrate a firm commitment to improving community health and safety

# **Current Efforts Guiding Climate Smart Actions**

The CSLC Framework overlaps with and builds on other Larimer County planning efforts such as:

- ▲ Larimer County 2019-2023 Strategic Plan <u>https://www.larimer.org/strategicplan</u>
- ▲ Larimer County Comprehensive Plan <u>https://www.larimer.org/planning/documents</u>
- Larimer County Multi-Jurisdictional Hazard Mitigation Plan <u>https://www.larimer.org/emergency/mitigating-against-hazards</u>

## Next Steps: Community Engagement

# For the Climate Smart Initiative to be successful, input from community members and stakeholders is critical.

The community engagement phase of the Initiative will take an inclusive approach aimed at developing a climate action plan that is socially equitable.

#### To do so, CSLC community engagement will:

- Assess community understanding of climate change
- Raise awareness of the CSLC Framework and Initiative
- Educate residents, stakeholders and decision makers on climate change issues that are impacting the community
- Collect diverse feedback through various venues and communication tools
- Involve community members who already show interest and recruit new participants throughout the assessment and implementation of the CSLC Framework recommendations to ensure diversity of opinions
- Identify community ambassadors- leaders in various communities who will commit to serving as a conduit between their community and the CSLC Framework process

## Planning Areas: Building A Strong Framework

# The Climate Smart Larimer County Initiative began with a group of County staff, advisory board members and decision makers.

To build the foundational CSLC Framework, this core group was tasked with examining potential threats to various planning areas within the Country using a Triple Bottom Line Assessment. Following the assessment each planning area proposed potential climate smart adaptation and mitigation strategies, and questions to begin a community dialogue.

The Framework involves the following seven planning areas. The goals within each planning area incorporated the philosophy of the triple bottom line, which considers impacts through the lens of society, the economy, and the environment.

#### A. Buildings, Land Use and Energy

Buildings are one of the primary consumers of energy and one of the major sources of GHG emissions in Larimer County. Energy produced for buildings by burning fossil fuels accounts for 34% of Larimer County GHG emissions. Buildings are typically designed for the local climate that exists when they are constructed. However, the earth's climate is changing and since buildings may last 50 to 100 years or more, we should design our buildings for the climate of the next century.



#### **Potential Climate Smart Strategies:**

- Collaborate with organizations that focus on building efficiency programs; such as Larimer County Conservation Corps home efficiency assessments and Low-Income Energy Assistance programs.
- Adopt new land use codes to discourage urban sprawl.
- Lead by example! Update internal county policies and the Facilities Master Plan to increase energy-efficient design standards in new facilities.

#### **Potential Community Engagement Questions:**

- What energy efficiency improvements would you support?
- How should the county land use code promote climate-smart policies?
- How should Larimer County collaborate with other local governments, special districts, Colorado State University, and non-profit organizations?

#### **B. Economic Health**

The Economic Health planning area focuses on climate change impacts affecting Northern Colorado's ability to further build and maintain a robust, resilient, and inclusive economy. The cascading effects of increased flooding, wildfires, drought, and similar catastrophes threaten profitability for agriculture, recreation, and many other business sectors.

#### **Potential Climate Smart Strategies:**

- Recruit firms with social and environmental responsibility policies.
- Create workforce training programs that teach alternative skills in sustainable industries.
- Serve as a testbed of innovation for clean, renewable technology and economic investments.

#### **Potential Community Engagement Questions:**

- What is the county's role in assisting the business community in addressing climate change?
- How do we engage your business in efforts to address climate change?
- How does your business fit into a Climate Smart Larimer County framework?

#### C. Emergency Management and Public Safety

Climate change adaptation involves building Larimer County's capacity to address existing vulnerabilities, building infrastructure that is resilient, and engaging the public with safety concerns.

#### **Potential Climate Smart Strategies:**

- Strengthen existing plans and procedures by ensuring they are equitable, inclusive and account for the most vulnerable populations.
- Continue collaborative efforts with private and non-governmental partners in the utility sector to strengthen capacity.
- Update the Larimer County Multi-Jurisdictional Hazard Mitigation Plan with Climate Smart strategies.

#### **Potential Community Engagement Questions:**

- How can Larimer County and the community build programs that increase overall public safety and security?
- In what ways should the county leverage technology to increase the resiliency of our critical lifelines (water, electricity, broadband, gas, etc.)?
- In what ways can existing networks be connected to strengthen resilience to disasters?

#### D. Watershed, Agriculture, Open Spaces and Forestry

Impacts of climate change on our natural resources include increased tree mortality<sup>2</sup> from diseases, fire, high temperatures and drought,<sup>3</sup> soil erosion, over-sedimentation in streams from post-wildfires effects, and species migration to higher elevations.



#### **Potential Climate Smart Strategies:**

- Develop and implement a county-wide forestry plan to reduce catastrophic wildfires.
- Restore ecosystem function and carbon sinks on marginal lands through collaboration.
- Establish development fees that offset forest health, wildfire mitigation and pest management costs in the forested exurban portions of the county.

#### **Potential Community Engagement Questions:**

- Are you concerned about water quality in the streams, rivers and lakes of Larimer County?
- What are your ideas for restoring ecosystem function and carbon sinks on marginal land?
- Are healthy, functioning forests and watersheds important to you?

<sup>&</sup>lt;sup>2</sup>www.opscience.iop.org/article/10.1088/1748-9326/aa6f94/pdf

<sup>&</sup>lt;sup>3</sup>Singer, J., Turnbull, R., Foster, M., Bettigole, C., Frey, B., Downey, M.,... Ashton, M. (2019). Sudden Aspen Decline: A Review of Pattern and Process in a Changing Climate. Forests, 10(8), 671. doi: 10.3390/f1008067



#### E. Public and Environmental Health

Climate change impacts human health and the environment by putting stress on our most basic needs for clean water, clean air, food, and shelter. These are affected by precipitation levels, impaired air quality, and warmer temperature ranges. Changing outdoor temperatures increase the cost of cooling homes, schools, and office buildings and impact vulnerable populations disproportionately.

#### **Potential Climate Smart Strategies:**

- Collaborate with state and local partners to track health and environment data related to climate change impacts such as air quality, water quality, temperature trends and behavioral health.
- Work with state and local partners to assure appropriate water-borne disease and harmful algal bloom tracking systems are adequate.
- Enhance community public health partnerships to address climate change in the areas of air quality, water quality and mental health.

#### **Potential Community Engagement Questions:**

- What climate-related health impacts are most concerning to you and your family?
- How can the county make air quality and water quality data more accessible to community members and businesses?
- What changes to policies or regulations would you recommend for improving community health outcomes?

#### F. Public Works and Engineering

Larimer County provides safe, efficient, and maintained transportation infrastructure, water, and waste systems through road maintenance and improvements, public improvement districts, bridge and structure rehabilitation and replacement, traffic safety, stormwater, drainage, floodplain regulation and operation of the county landfill. Climate change impacts will increase the costs associated with long-term maintenance.

#### **Potential Climate Smart Strategies:**

- Explore transportation alternatives, including passenger rail, interconnected bus systems, countywide carpooling application, county shuttle buses, enhanced bicycle lanes, electric vehicle infrastructure.
- Encourage conservation of forested zones along low elevation river and stream ecosystems to reduce erosion and improve water quality.
- Educate the community through media outlets about the importance of stormwater quality and what they can do to reduce their contribution to water pollution.

#### **Potential Community Engagement Questions:**

- How important to you is having access to multi-modal transportation options?
- Do you think floodplain restoration should be a priority for Larimer County owned properties?
- Would you support incentives for low impact development and other green infrastructure techniques to manage pollutants associated with stormwater runoff?

#### G. Greenhouse Gas Management

#### **Potential Climate Smart Strategies:**

**Studies:** We recommend that Larimer County invest more resources to compile a robust countywide inventory. The County should also consider a consumption-based inventory, as that level of detail further identifies emission sources that will facilitate a more strategic course of action.

**Management:** A recurring GHG inventory would provide clear metrics for the Larimer County Board of Commissioners to inform governance decisions on our GHG emissions, which affect not only global temperatures but local climate. We recommend that the Board of County Commissioners (BOCC) direct the County Manager to allocate staff resources to generate a biannual GHG inventory, including measurable outcomes and progress towards any policy goals set by the BOCC, similar to what Eagle and Summit Counties do.



#### **Potential Community Engagement Questions:**

- How do you think that GHG emissions affect you/your community?
- Where do you rank climate change as a concern for you and your family?
- What should be the next step for the County to reduce its GHG emissions? Changing operations or providing services/programs for residents?



# Key Words

Adaptation: refers to adjustments that societies or ecosystems make in response to a pressure or force. Climate change adaptation can limit the negative effects or capitalize on the new conditions presented by a changing climate.

**Greenhouse Effect:** is the process of planetary warming as greenhouse gases absorb infrared radiation (heat) emitted from the earth's surface, and keep that heat trapped between the earth and the upper atmosphere instead of allowing it to escape. This process is natural and facilitates life on earth. As the concentration of greenhouse gases increase in the atmosphere, its capacity to hold heat increases.

**GHG Inventory:** A process of tracking the sources of Metric Tons of Carbon Dioxide Equivalent (MTCO2e) and the associated emission trends within specified jurisdictional boundaries. An inventory does not set strategies for reducing MTCO2e, rather assists with benchmarking its findings between peers. The Larimer County community inventory reflects the contributing sources and will appear unique as compared to another business or jurisdictional inventory.

**Mitigation:** refers to efforts that people, communities and governments take to reduce or prevent the emission of greenhouse gases. Examples of mitigation efforts include using new technologies and renewable energy sources, retrofitting older equipment for greater energy efficiency, and changing management practices or consumer behavior. **Non-renewable energy:** energy from sources that once consumed are no longer available, such as fossil fuels. Fossil fuels derive from fossilized organic remains that over millions of years have been converted to oil, gas, and coal. Non-renewable energy sources are finite and cannot be replenished.

**Renewable energy:** energy from sources that are not exhausted by conversion to energy. Examples include wind, sun, water, biomass (vegetation) and geothermal heat. Renewable energy sources are not limited in quantity and continuously available.

**Social Equity:** is the active commitment to fairness, justice, and quality in the formulation of public policy, distribution of public services, implementation of public policy, and management of all institutions serving the public directly.

**Social vulnerability:** refers to the characteristics and situation of a person or group that influence their capacity to anticipate, cope with, resist, or recover from the impact of a hazard. Social vulnerability is determined by a number of preexisting social and economic characteristics.

**Triple Bottom Line:** is the philosophy of considering the social, environmental, and economic impacts and benefits of a project or way of doing business. When all three aspects are equally considered in decision-making, the result is more likely to lead to a strong and successful strategy.



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www.larimer.org or call 970.498.7000



Photo: Alisha Jeffer