

Climate Action in Charlottesville – A PRACTICAL GUIDE –



Explore our Sustainability Dashboard at climateaction.charlottesville.gov





Climate Action for our Community

Climate change is an increasing concern for the world and for our city. As the planet continues to warm, Charlottesville will face drastic shifts in temperature, precipitation, and seasonal patterns.

In 2019, the City adopted updated greenhouse gas (GHG) emissions reduction goals of **45%** by **2030** and **carbon neutrality** by **2050**. The baseline year for the 2030 goal is 2011.

In 2023, Charlottesville developed and adopted a comprehensive community Climate Action Plan (CAP) that provides a roadmap for helping us achieve our emissions reduction goals.

It explains where emissions come from and presents strategies and actions we can take to reduce them.

THE CLIMATE ACTION PLAN STRUCTURE



The full Climate Action Plan is available at **charlottesville.gov/climateplan**





Charlottesville's 2022 Greenhouse Gas (GHG) Inventory indicates that our community-wide emissions have dropped 42% since 2011. This is largely due to our electricity grid getting cleaner, which is reducing emissions from our homes and businesses. We are also reducing our home energy use, and vehicles are getting more efficient.

Continuing to reduce emissions is a huge challenge, but it also presents our community with an opportunity. Working together to implement the Climate Action Plan can ultimately make Charlottesville a healthier, more resilient, and more equitable place to live.

ESCALATING COSTS

Failing to act on climate will be costly, in both economic and social terms. The cost of things from food to insurance premiums is being driven up by increased climate disruption across the country. Increased climate hazards also negatively impact our health and well-being and cause damage to our environment.



Our Collective Emissions

Greenhouse gases (GHGs) in Charlottesville come from both community and municipal sources.



The community source emissions come from four main sectors:



There are three primary methods for reducing emissions:

REDUCE

the amount of energy used or emissions intensity

SWITCH

to a lower or zero carbon fuel or processing method

DRAWDOWN

the amount of carbon in the air. Also called carbon removal

Local Impacts



In addition to lowering our emissions, we must also adapt to the ways that climate change is impacting our region.

Charlottesville's 2022 Climate Risk and Vulnerability Assessment tells us that our regional hazards are the four below. An additional hazard not considered in the assessment, but that has been impacting our community, is smoke from wildfires, which has a negative impact on local air quality.

DROUGHT

Drought means longer periods without rain, which puts stress on our local ecosystems and economies. Drought and flooding are related: long periods without rain followed by strong storms can increase the likelihood of flooding. We expect to see more periods of drought in the future.

RAINFALL AND FLOODING

Our area will see increasingly intense storm events. As the Earth warms, water evaporates more quickly from soils, oceans, and other water bodies and warmer air holds more moisture. When moisture-laden air forms a storm, heavier, more intense precipitation is likely.

EXTREME HEAT

We expect longer and hotter heat waves, as well as more **extremely hot** days. An extremely hot day is where the temperature gets above 95 degrees Fahrenheit. Children, the elderly, and outdoor workers are particularly vulnerable to extreme heat.

CHANGING SEASONS

Overall warming is causing our seasons to shift, which means that pests and diseases once kept in check by the cold are spreading into our region and putting stress on our ecosystem. Trees and plants are not the only organisms at risk – pathogens that impact humans and animals, such as ticks and mosquitoes, will also spread.



ACTIONS BY SECTOR Buildings & Energy

The energy we use to power, heat, and cool our homes and businesses makes up approximately two-thirds of Charlottesville's GHG emissions.

WHAT ARE OUR STRATEGIES?

- Move new construction closer to net-zero
- Increase energy efficiency and onsite renewable use in existing buildings
- Support the transition to a carbon-free energy supply

WHAT DOES THIS LOOK LIKE?



HOW WILL YOU BENEFIT?

- Energy efficiency means using less energy, and that means saving money on utility bills
- Burning fewer fossil fuels improves air quality, which in turn improves health by reducing chronic and acute respiratory disease
- Energy efficient homes are more comfortable
- On-site power generation, when paired with battery storage, means increased energy security

ELECTRICITY

Electricity represents **more than two-thirds** of GHG emissions within Charlottesville's building and energy sectors. Thanks to the Virginia Clean Economy Act, Virginia's electricity grid is cleaner than the national average and getting cleaner each year!

WHAT ARE SOME OTHER CONSIDERATIONS?

- Incorporate solar- and EV-readiness during the design and construction of new buildings to avoid the increased cost of adding these technologies in the future
- Many of the proposed renewable energy or increased energy efficiency options available require ownership of the building and/ or systems where they might be installed
- Multi-family homes and mixed-use developments are energy efficient, have reduced infrastructure and transportation costs, and increase access to services

MAKING IMPROVEMENTS?

Consider installing solar at the same time. It can pay for itself more quickly than ever with **incentives**, **rebates**, **tax deductions**, and **reduced utility bills**.



LEARN MORE AND GET HELP!

Visit the Energy Resource Hub to learn how to save energy in your home or business. <u>https://energyresourcehub.org</u>



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ACTIONS BY SECTOR Transportation

Transportation contributes approximately 30% of Charlottesville's total community-wide greenhouse gas emissions. Almost all emissions from this sector come from using gasoline and diesel fuels to power vehicles.

WHAT ARE OUR STRATEGIES?

- Increase walking, biking, and transit use
- Support the use of high-efficiency and zero emissions vehicles
- Develop a community-wide EV charging network
- Encourage alternative travel behaviors

WHAT DOES THIS LOOK LIKE?

Reduced
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occupancy
vehicle usePipe
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IMPROVED BIKE/PED INFRASTRUCTURE

TRANSPORTATION

America's per-capita GHG **emissions are double** those of a person in Germany or Japan, largely due to our dependence on cars.¹ In Charlottesville, nearly **70% of us** commute to work alone.²

¹https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions ²American Community Survey (ACS) 5-Year Estimates (2014-18)



HOW WILL YOU BENEFIT?

- Shifting away from travel in single-occupancy vehicles will help improve Charlottesville's air quality and reduce traffic congestion
- Encouraging safe, accessible public transit, bike, and pedestrian options will connect destinations in a secure, reliable manner
- Improving transportation options will increase access to healthy foods, recreation, jobs, and other important services
 - Spending less money on fuel means more for other needs

WHAT ARE SOME OTHER CONSIDERATIONS?

- Electric vehicles (EVs), once primarily used only by higher-income owners, are now more affordable. Pre-owned models and tax credits are available to many buyers across an increasing number of makes and models
- Federal incentives, state level grants and partnerships for EVs and charging points can be utilized to help meet the growing need for more energy efficient transportation
- Maintaining transit access for those who rely on public transportation will be important
- EV charging infrastructure must be accessible and available throughout the community

LEARN MORE AND GET HELP!



Charlottesville is trying to help community members access ebikes! Check out the program at <u>https://cvilleebike.com</u>



Everything we put in our garbage bins ends up in the landfill. Once in the landfill, it breaks down, releasing methane and CO₂ – two greenhouse gases that are significant contributors to climate change.

Reducing the amount of waste that enters the landfill will have an immediate impact on greenhouse gas emissions. Ways to keep this waste out of the landfill include composting, reusing, and recycling.

In Charlottesville waste accounts for 5% of community emissions. 70% of this waste is inorganic material and 30% is organic matter. Inorganics include plastics, glass, metals, and other materials. Organics consist of yard waste, food scraps, and biodegradable food containers.

FOOD WASTE

More food is thrown away in the United States than any other country. **30-40% of our food** – about **80 billion pounds** – is thrown away each year.¹

WHAT ARE OUR STRATEGIES?

- Develop a sustainable materials management platform
- Reduce food and other organic-based materials waste
- Divert organics from the landfill

HOW WILL YOU BENEFIT?

- Reducing waste results in financial savings
- Composting organic waste creates material for healthy soils
 - > Systems that prevent food waste help increase food access

WHAT DOES THIS LOOK LIKE? Reduced food waste U P C Y C L I N G COMPOSTING less stuff REPAIR Resource conservation Buy less stuff

METHANE



Over a 20 year period, one ton of methane (e.g. from a landfill) has a **global warming potential** that is around **85 times greater** than carbon dioxide.²

WHAT ARE SOME OTHER CONSIDERATIONS?

- Residents who do not have access to municipal recycling and composting facilities may benefit from expanded curbside pick up
- Renters may not have landlord support or access to yard space to compost
- Composting requires some knowledge and skills, as well as time
- Expanded education services and curbside compost pick-up can help to alleviate these concerns

LEARN MORE AND GET HELP!



Interested in composting? We can help you get started at home or you can use a drop-off location. Learn more at <u>https://charlottesville.gov/</u> <u>composting</u>



Nature-based solutions involve increasing vegetation and tree cover within the city. This helps reduce GHG emissions, improve air quality, provide cooling from shade, reduce flooding and increase biodiversity. Areas with vegetation are cooler and more habitable, and shaded buildings require less energy to cool.



One of Charlottesville's top climate risks is extreme heat over longer durations of time. This is made worse by the urban heat island effect – when cities experience higher temperatures due to large areas of concrete or pavement and lack of tree cover.¹

Tree cover and increased vegetation reduce both GHGs and the urban heat island effect.

WHAT ARE OUR STRATEGIES?

- Maintain a robust urban forest on City-owned land
 - Encourage increased tree canopy on private land
 - Integrate greenspaces and shade throughout the urban landscape



DRAWDOWN

On average one acre of forest can draw down (remove) **2.5 to 3 metric tons of CO₂** — as much as the amount emitted by two cars driven for 12 months.²

¹https://www.charlottesville.gov/1469/Urban-Heat-Island-Mapping-Campaign ²sarpo.net/how-much-carbon-does-a-tree-absorb



HOW WILL YOU BENEFIT?

- Preserving ecosystems improves biodiversity. For example, increased connectedness between green spaces allows for natural movement of animals, while preserving their natural habitat
- Greenspaces help manage stormwater and can lessen urban flooding
- Access to nature and greenspace has a positive impact on mental health
- Healthy ecosystems make our neighborhoods more resilient to the impacts of climate change

TREES

Planting the right tree in the right place can **improve survival** of the tree and **minimize upkeep**. It's important to consider the mature size of the tree when planting near buildings, power lines, or other infrastructure.

WHAT ARE SOME OTHER CONSIDERATIONS?

- Older and less wealthy neighborhoods have noticeably fewer trees and greenspaces than other areas of Charlottesville
- Residents have raised concerns about trees being close to their homes and potential costs for maintenance, damage from downed limbs, and roots impacting utility lines
- Density in urban areas helps to protect rural and natural areas around cities and towns, and lessens pollution from transportation



Mitigation means reducing our emissions to help address the cause of climate change. Achieving our goals won't be easy and it will take all of us to make choices to reduce our energy use in our homes and within the community.

We have lots of resources to help you get started. Here are some suggestions of affordable actions everyone can take to help reach our goals.



Adaptation



Adaptation is reacting to the symptoms, or impacts, of climate change. We have to strengthen our systems and plan ahead to keep our neighborhoods safe and healthy as the climate changes.

GET TO KNOW YOUR NEIGHBORS

It's important to know one another before a hazard event occurs! Are there elderly people who live alone near you? People with disabilities? A single parent with young children? Knowing who might need extra help in the event of an emergency is important.

MAKE A PLAN FOR YOUR HOUSEHOLD

When you have everything you need to take care of yourself and your family, you are more able to help take care of others.

GET EDUCATED

Consider taking an emergency preparedness class or training Become a member of a local Community Emergency Response Team

STAY INFORMED

Be aware of hazards that are more likely to occur in our region. Sign up for Community Alerts.

CREATE A NEIGHBORHOOD RESILIENCE PLAN

Work together with your neighbors to create a plan for how you will work together to respond to an emergency.



TOGETHER WE CAN ACHIEVE OUR GOALS

Important next steps include collaborations, partnerships, and increased communication between the community, the City, and local and regional partners.

WHAT YOU CAN DO

- Review strategies and key concepts in this booklet
- Connect with us on social media
- Tap into local resources and events at our Linktree.



LEARN MORE AND FIND RESOURCES HERE https://linktr.ee/charlottesville_sustainability





