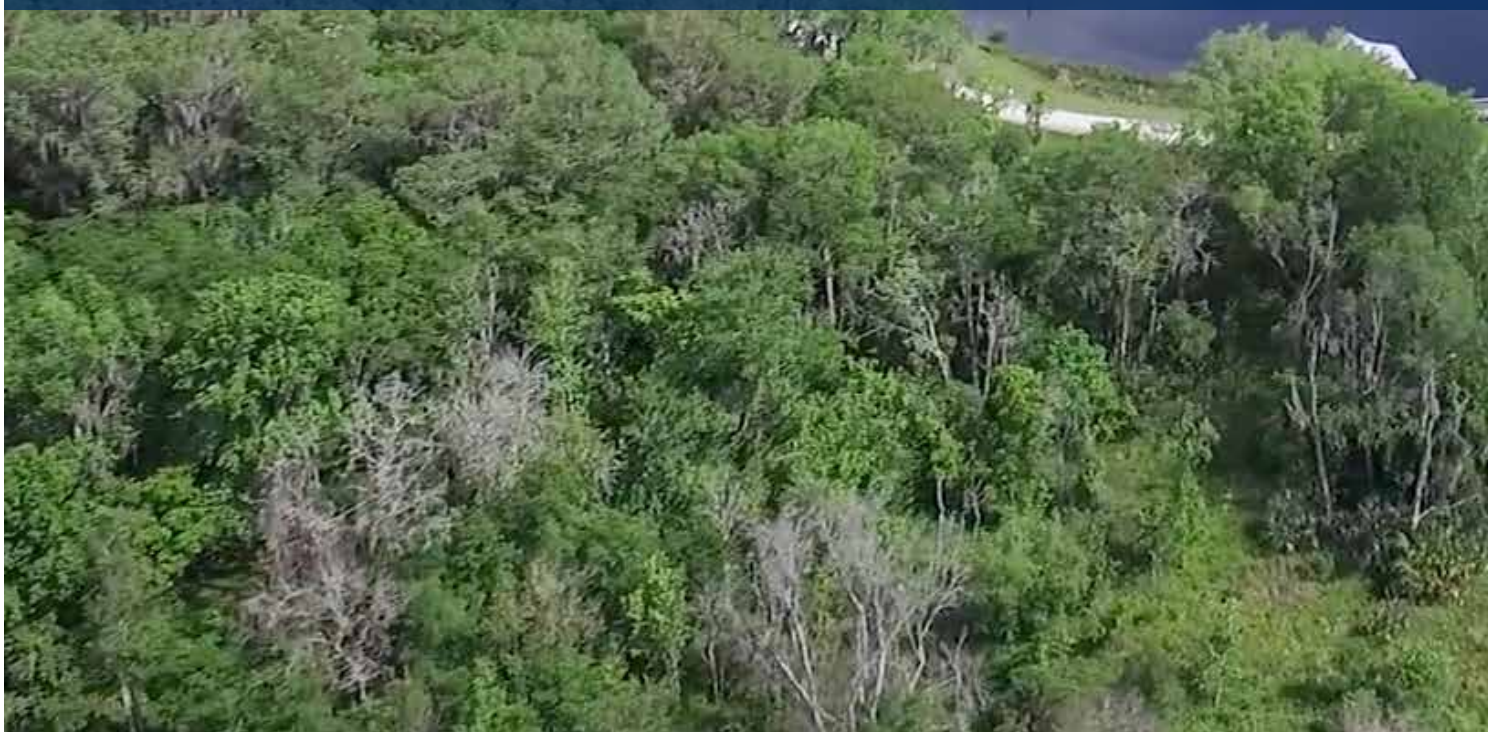
2025-49B

City of
Gainesville

# 2024 City of Gainesville Climate Resiliency Plan



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# Introduction

## Gainesville's Climate Resiliency Plan and Sustainable Development Goals (SDGs)

The City of Gainesville is committed to addressing climate challenges through a comprehensive Climate Resiliency Plan that integrates the principles of the United Nations Sustainable Development Goals (SDGs). The plan focuses on both mitigation and adaptation strategies to create a resilient and sustainable community.

## Background

In 2018, the City committed to achieving 100% net zero greenhouse gas emissions by 2045. In 2019, the city committed to zero waste by 2040 and adopted the zero-waste ordinance. Additionally, in 2021, Gainesville pledged to the Race to Zero under the United Nations, along with 1,136 other cities from 120 countries. The Climate Resiliency Plan is built on two critical components: Greenhouse Gas (GHG) Emissions and Vulnerability Assessment (VA). These elements are essential in shaping Gainesville's mitigation and adaptation efforts.


## Greenhouse Gas (GHG) Emissions

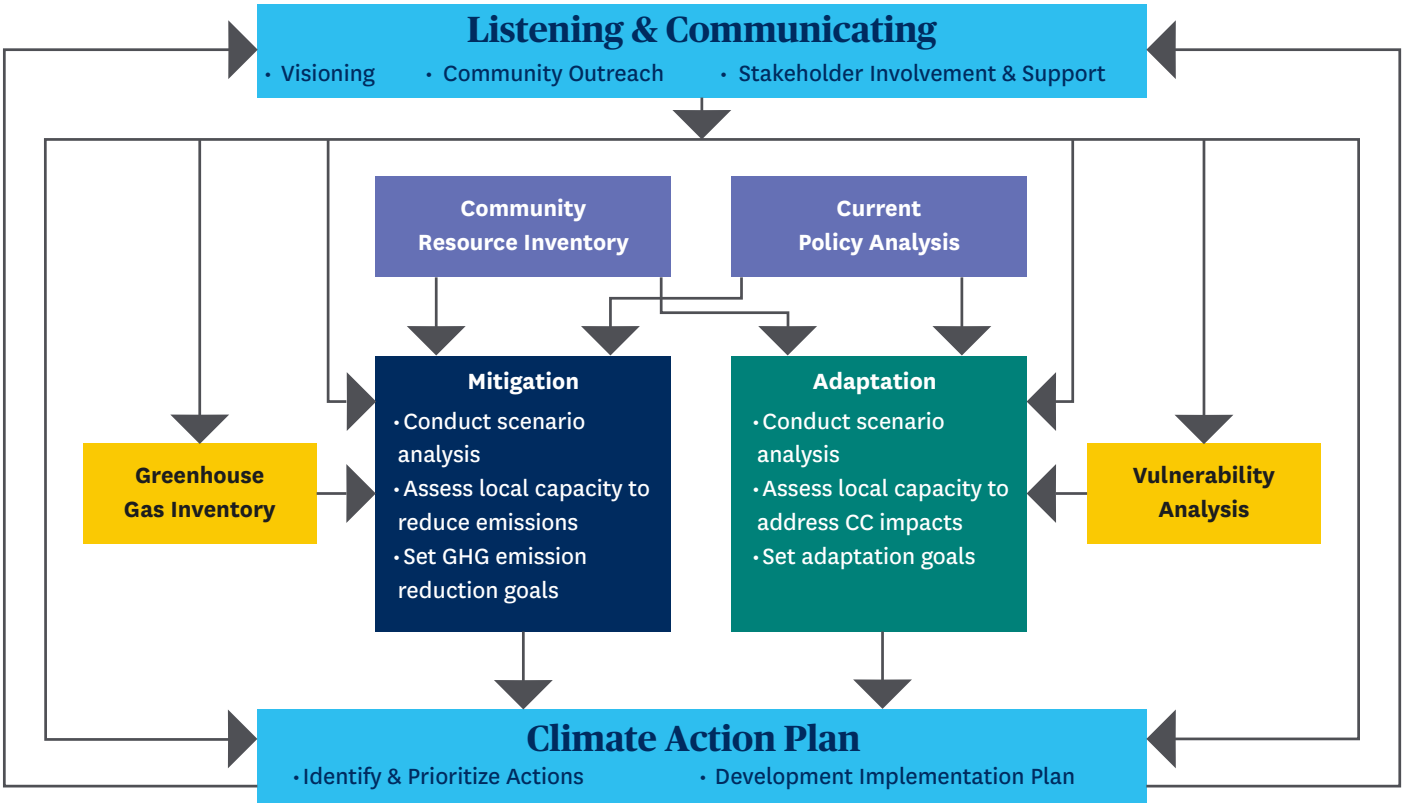
In Gainesville, energy use, transportation, and waste are the primary sources of the city's carbon footprint. The 2019 Inventory of Community and Government Operations Greenhouse Gas Emissions report provides a comprehensive estimate of greenhouse gas (GHG) emissions for the City of Gainesville in 2019, including emissions from both citywide activities and the city's government operations. It serves as a baseline inventory to assess the impact of strategic initiatives aimed at reducing GHG emissions. As part of the Climate Resiliency Plan, the city is updating the GHG inventory to help monitor the progress.

## Vulnerability Assessment (VA)

Greenhouse gas (GHG) emissions and vulnerability assessments (VA) form the foundation of the city's Climate Resiliency Plan. A city-wide flood VA was conducted in 2022, followed by a county-wide VA in 2023. Currently, an update of the city-wide VA is underway, with a focus on critical assets that are vulnerable to flooding, funded by the Florida Department of Environmental Protection.

The 2022 city-wide VA highlights the climate risks specific to Gainesville, particularly temperature increases and annual precipitation changes. The report, available online, shows that Florida, including Gainesville, is experiencing significant temperature rises and changes in precipitation patterns. This assessment helps identify areas that are most vulnerable to climate impacts and prioritize adaptation strategies.

## Climate Action Planning Process: Components




## Mitigation and Adaptation Groups

To address these challenges, ten specialized groups have been established within two tracks:

Track 1: Mitigation Groups: These five groups focus on reducing carbon emissions:

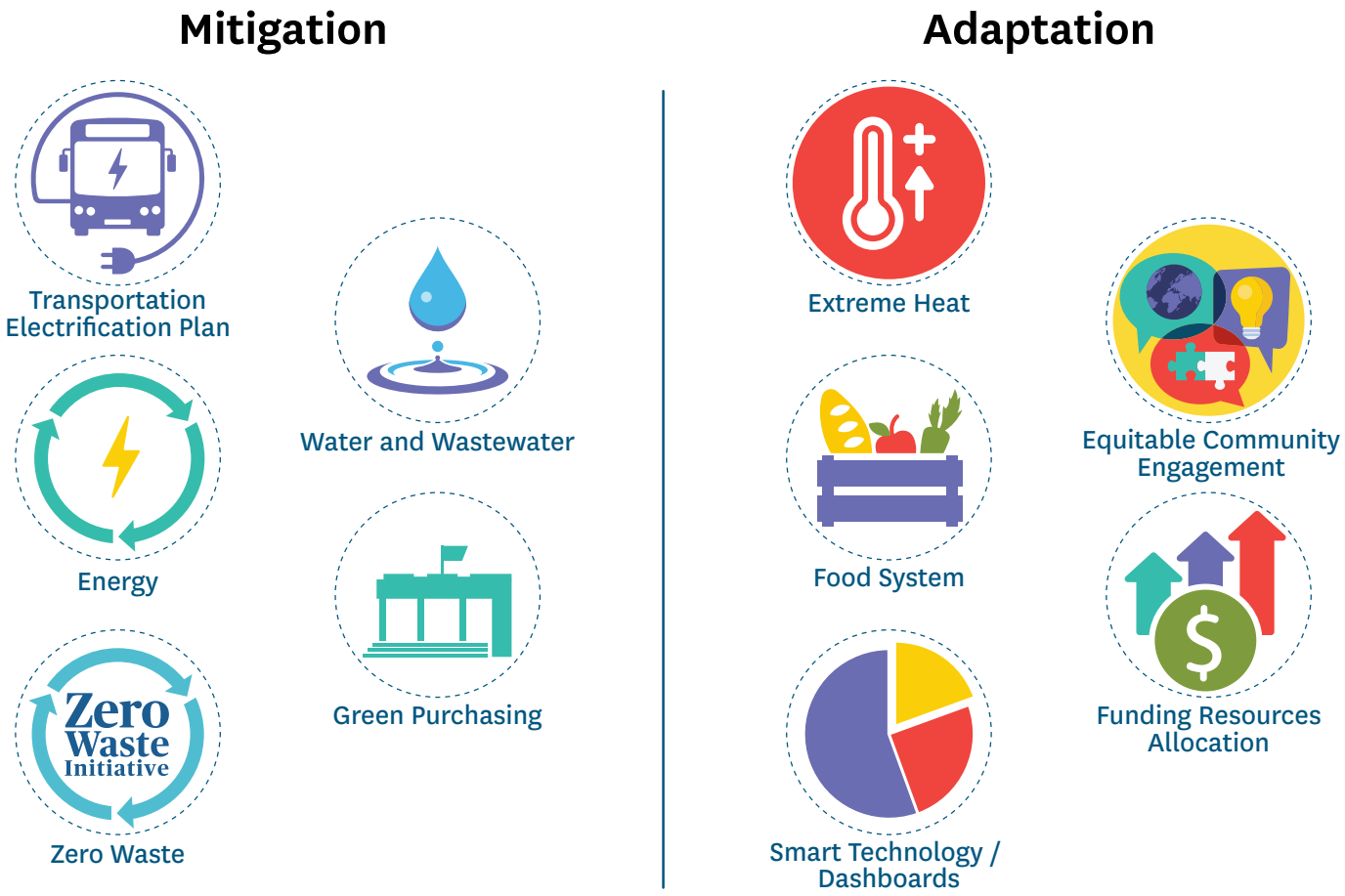
- **Transportation Electrification Plan:** Promoting electric vehicles and enhancing the city fleet with low-emission options.
- **Energy:** Implementing renewable energy solutions and improving energy efficiency.
- Water and Wastewater: Reducing water usage and improving wastewater management.
- **Zero Waste:** Advancing recycling, composting, and waste reduction initiatives.
- **Green Purchasing:** Encouraging sustainable procurement practices.

## Mitigation and Adaptation Groups

To address these challenges, ten specialized groups have been established within two tracks:

Track 2: Adaptation Groups: These five groups aim to enhance community resilience:

- **Extreme Heat:** Developing strategies to protect neighbors from heatwaves.
- **Food System:** Ensuring food security and reducing food waste.
- **Equitable Community Engagement:** Involving all community members in the planning and implementation process to ensure fair representation and inclusive decision-making.
- **Smart Technology / Dashboards:** Monitoring and reporting climate-related data using advanced digital tools and interfaces to collect, analyze, and display information on climate metrics and progress towards sustainability goals.
- **Funding Resources Allocation:** Securing and managing funds for climate initiatives.



## Integrating Sustainable Development Goals (SDGs)

Gainesville's Climate Resiliency Plan aligns with the SDGs, emphasizing the interconnectedness of climate challenges and sustainable development. Key SDGs integrated into the plan include:

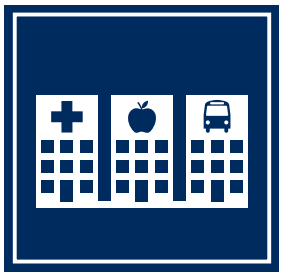
- **SDG 2 (Zero Hunger):** Supporting sustainable food systems, enhancing local food security, and establishing community resilience.
- **SDG 6 (Clean Water and Sanitation):** Ensuring sustainable water management and access to safe, clean water for all neighbors.
- **SDG 7 (Affordable and Clean Energy):** Promoting renewable energy and energy efficiency.
- **SDG 10 (Reduced Inequalities):** Ensuring equitable access to resources and benefits of sustainable development across all community groups.
- **SDG 11 (Sustainable Cities and Communities):** Building resilient infrastructure and reducing the environmental impact of cities.
- **SDG 13 (Climate Action):** Taking urgent action to combat climate challenges and its impacts.
- **SDG 15 (Life on Land):** Protecting, restoring, and promoting sustainable use of terrestrial ecosystems and biodiversity.
- **SDG 16 (Peace, Justice, and Strong Institutions):** Promoting inclusive, participatory, and representative decision-making at all levels.
- **SDG 17 (Partnerships for the Goals):** Strengthening the means of implementation and revitalizing the global partnership for sustainable development.

By aligning Gainesville's climate efforts with the SDGs, the city ensures a holistic approach that not only addresses environmental challenges but also promotes social equity and economic prosperity.

## Strategic Goals and Climate Resiliency Plan

Gainesville's Climate Resiliency Plan is intricately linked to the city's strategic goals. Gainesville's strategic goals are:

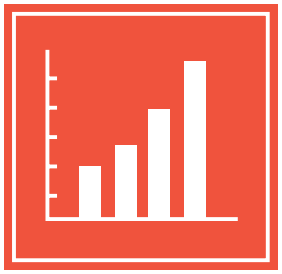
1. **Equitable Community:** Ensuring that all neighbors have access to essential services and opportunities. This aligns with Gainesville's climate resiliency efforts to engage the community equitably and ensure that vulnerable populations are protected from climate impacts.
2. **More Sustainable Community:** Promoting sustainability in all aspects of city planning and operations. This is directly connected to Gainesville's efforts in energy, water, and waste management to reduce the environmental footprint.
3. **A Great Place to Live and Experience:** Enhancing the quality of life for all neighbors through sustainable urban development. Gainesville's climate action initiatives aim to create a livable, healthy environment with green spaces and clean air.
4. **Resilient Local Economy:** Building a strong, diverse economy that can withstand climate impacts. The focus on green jobs and sustainable business practices supports economic resilience.
5. **"Best in Class" Neighbor Services:** Providing excellent services to neighbors, including efficient and sustainable public services. This includes initiatives in transportation and public infrastructure that contribute to a more sustainable city.



Equitable Community

More Sustainable Community

A Great Place to Live & Experience



Resilient Local Economy

"Best in Class" Neighbor Services

# Greenhouse Gas Inventory Summary

## Background

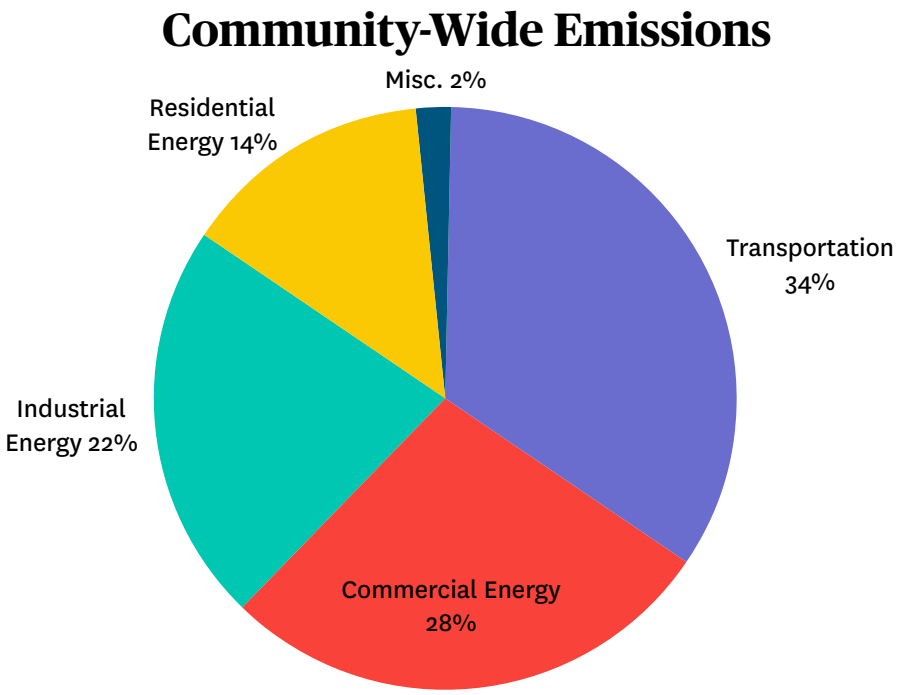
The Gainesville Greenhouse Gas Inventory was created in 2021, using data collected in 2019, in response to climate challenges. Human activities are increasing the concentration of greenhouse gases in the atmosphere, causing global average temperatures to rise, intensifying weather events, and impacting communities everywhere, especially in underserved and marginally impacted areas.

Increased sustainability helps the entire Gainesville community. By making the infrastructure resilient and reducing emissions, the impact of climate can be lessened, making the city more future-ready. Furthermore, sustainability practice can help improve air quality and overall health, increase biodiversity, and create jobs. In this report, emissions are measured in metric tons of CO2 equivalent (MTCO2e).

## Community-Wide Emissions

Emissions for the entire Gainesville community total to 2,098,836 MTCO2e:

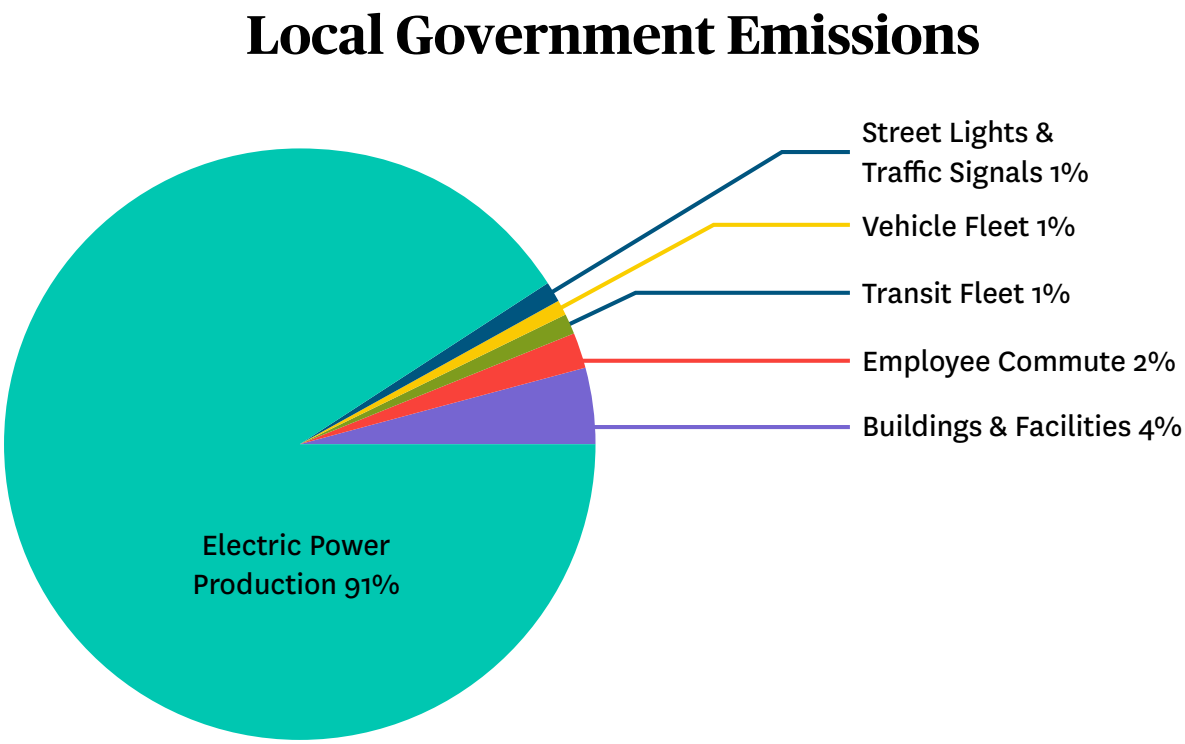
- **Transportation** (private on-road, public transit, aviation, off-road, freight rail): 710,587 MTCO2e, 34%.
- **Commercial Energy** (electricity, natural gas): 590,074 MTCO2e, 28%.
- **Industrial Energy** (power generation, electricity, natural gas, fuel oil): 450,398 MTCO 2e, 22%.
- **Residential Energy** (electricity, natural gas, propane, kerosene): 299,875 MTCO2e, 14%.



## Local Government Emissions

Emissions for Gainesville's municipal government total 1,036,952 MTCO2e. 91% of those emissions come from electric power production, 947,293 MTCO2e.

Ways to reduce both community-wide and local government emissions include vehicle electrification, increasing the use of renewable energy, and increasing energy efficiency for homes, businesses, and industry.



# Vulnerability Assessment Summary

## Background

On the current trajectory, global average temperatures are projected to increase between 3-5° C by 2100. These higher temperatures will have major implications for critical infrastructure in Gainesville, with disproportionate impacts on certain members of the community.

In 2021 and 2022, the City of Gainesville worked with FloodWise Communities to complete a self-guided vulnerability assessment of the water, wastewater, and storm water infrastructure. This had a particular focus on the vulnerability of the water infrastructure systems in the face of increased flooding from climate change.

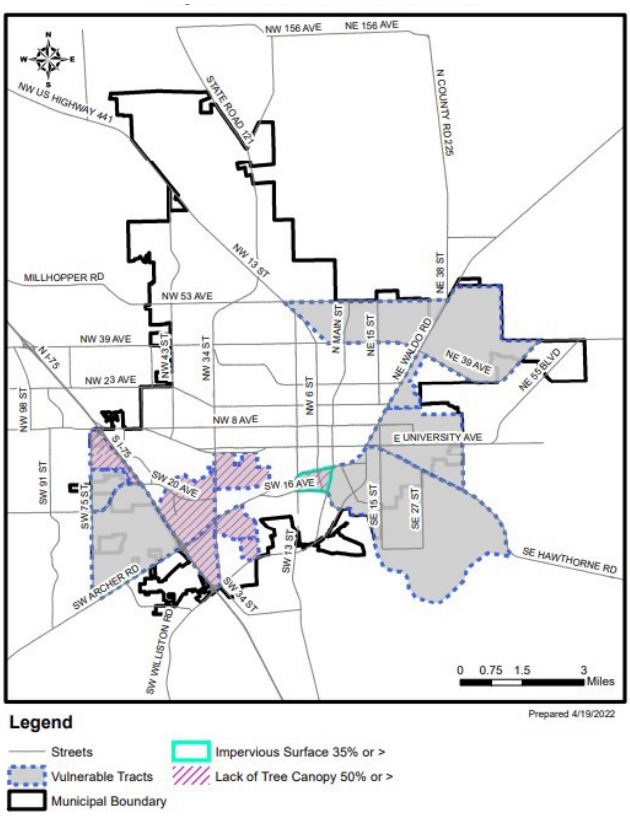
## Vulnerable Neighborhoods

Climate challenge does not affect neighborhoods equally. The vulnerability assessment utilized 13 variables relating to socioeconomic conditions and climate exposure to identify census tracts most vulnerable to climate. Emphasis was put on census tracts with a high proportion of:

- People of color and Hispanics.
- Householders with no car.
- Housing units that are rentals.
- Potential for increased temperature exposure.

These neighborhoods are already facing the disproportionate impacts of climate challenges due to a lack of access to resources, historical inequities, and physical neighborhood conditions. East and Southwest Gainesville seem to be the most vulnerable neighborhoods.

## Vulnerable Tracts at Risk - Gainesville, Florida



## Critical Infrastructure

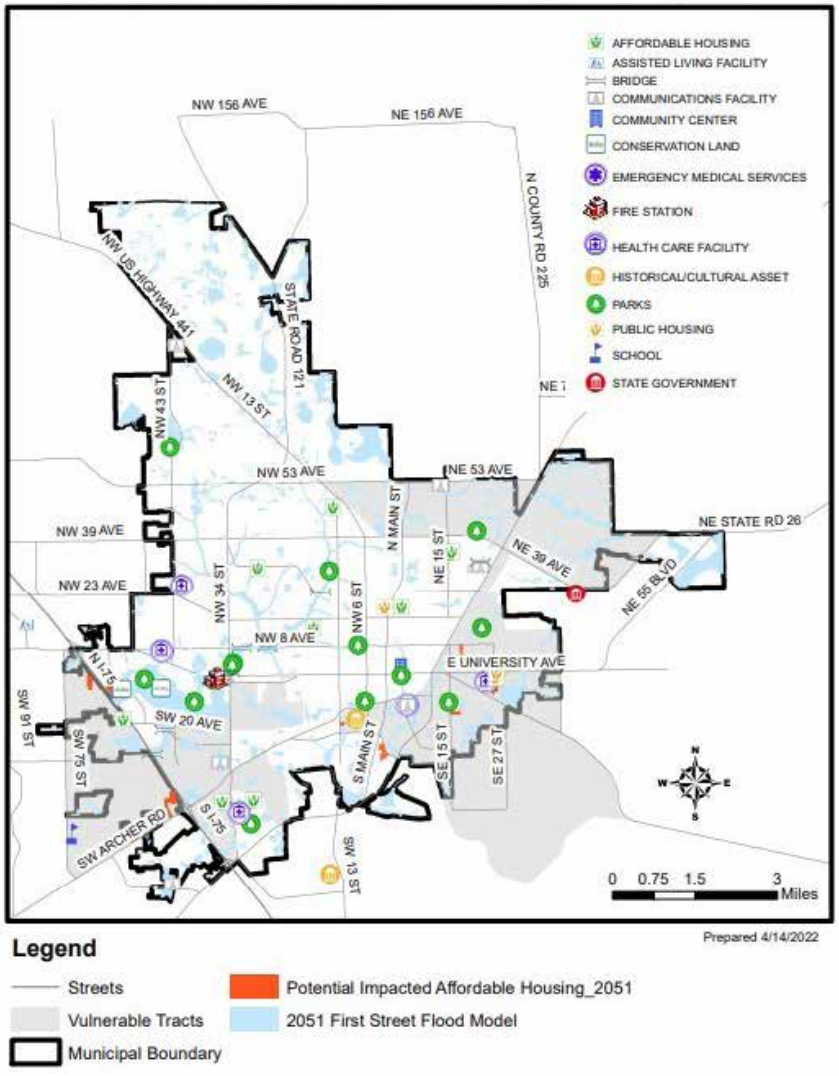
There are four key areas for critical assets vulnerable to the changing climate:

1. Transportation & Evacuation (roads, airports, etc.).
2. Infrastructure Systems (water treatment & supply, power generation, waste treatment, communication).
3. Community & Emergency Facilities (schools, community centers, healthcare, fire/police, government facilities).
4. Natural, cultural, and historical resources.

Overall, the city's critical infrastructure is relatively high-capacity and resilient to the changing climate. None of the key areas are rated as highly vulnerable, but several are at medium and medium-high vulnerability.

Many of Gainesville's critical assets and neighborhoods are especially vulnerable to the impacts of the changing climate. Infrastructure upgrades are necessary to increase resilience for citizens and systems alike.

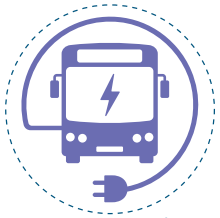
### Potentially Impacted Critical Facilities
### 2051 First Street Flood Model - 100 Year



# Mitigation

The goal of climate mitigation is to reduce the amount of pollutants in the air, water, and land in order to lessen the severity of the impacts of the changing climate. The five major areas Gainesville is focusing on to mitigate the impacts of the changing climate are: transportation, energy use, solid waste, water and wastewater, and local government operations. Action items and specific plans are as follows:

## 1. Transportation



Transportation Electrification Plan

### 1.1 Goal

The City of Gainesville has a resolution to achieve net-zero greenhouse-gas emissions by 2045, with a parallel focus on zero waste by 2040. Reduction of emissions from transportation vehicles will be a crucial step in achieving this goal. The advancement in hybrid technology and electric vehicle technology presents an opportunity to accelerate emissions reduction. Electrical vehicle (EV) growth presents a challenge to plan for new and updated existing infrastructure needed to accommodate EVs within the city and among its neighbors supported by both Gainesville Regional Utilities (GRU) and General Government (GG).

### Objectives

- Increase the percentage of EVs and hybrids in GG and GRU fleet.
- Leverage the cost savings of traditional hybrids, plug-in hybrids, and EVs within the fleet.
- Deployment of EV charging infrastructure.
- Evaluate the potential use of alternative fuel vehicles as they become available.

### 1.2 Use Case Discussion

1.2.1 – Cost Discussion: The EV Steering Committee, consisting of representatives from GRU, the city, the county fleet, and the UF Transportation Institute, is currently conducting a cost-benefit analysis. This analysis will help determine the most effective strategies for integrating electric vehicles (EVs) into Gainesville's government operations.

1.2.2 – Electric Vehicles Utilization: EVs have the lowest cost when utilized frequently. The city fleet will prioritize the use of EVs when available, assigning them first from the pool when the use case is appropriate.

### 1.3 Replacement Considerations and Methodology

Lifecycle management of fleet vehicles and setting thresholds to determine when to repair, rebuild, or replace a vehicle can benefit the city. Before replacing an internal combustion engine (ICE) car, it is mandatory to complete an assessment of the asset's lifecycle costing based on its age, usage, service area, inspection reports, repair costs, and resale value maximization to determine if it meets the requirements for replacement. A light-duty ICE vehicle must be replaced with a hybrid or electric vehicle (EV) or usage of alternative fuels with reduced greenhouse gas emissions. However, if there is no comparable and compatible hybrid or EV available in the market, only then the ICE vehicle can be replaced with another ICE vehicle.

## 1.4 Strategies and Actions

1.4.1. Electrification of GRU/City Fleets and Public Transport:

**a. GRU & GG Fleets - Light Duty Vehicles:**

- **Current Status:** Out of 1080 light-duty vehicles, 11 are EVs and 120 are hybrids (12% combined).
- FY2025 Milestones: - Combined EVs and Hybrids: 15% of the fleet (162 vehicles).
- FY2030 Milestones: - Combined EVs and Hybrids: 32% of the fleet (345 vehicles).
- 2040 Target: 62% electrified with a mix of EVs and hybrids (670 vehicles).
- 2045 Goal: 77% electrified light-duty vehicle fleet (830 vehicles), leaning towards all EVs when feasible.

**b. RTS Buses:**

- **Current Status:** Of 118 buses, 4 are BEBs (Battery Electric Bus) and 5 are hybrids (7.62% combined). RTS currently has grant awards for two additional BEBs and 2 Level 3 chargers. In addition, 19 hybrid buses were awarded in 2024. RTS continually submits grant applications on an annual basis with FTA for hybrid bus procurement and is in the process of a Zero-Emission Transition Plan, expected to be completed by the end of 2024.
- 2025 Milestones: - Combined EVs and Hybrids: 8.47% of the fleet (10 buses).
- 2030 Milestones: - Combined BEBs, Hybrids, and hydrogen:15% of the fleet (18 buses).
- 2040 Target: 60% electrified with a mix of BEBs, hybrids, and hydrogen (70 buses).
- 2045 Goal: 80% low or no emission bus fleet.

**c. RTS Light Duty Vehicles:**

- **Current Status:** Of 36 light-duty vehicles, eight are hybrids (22.2%).
- 2025 Milestones: - Combined EVs and Hybrids: 30% of the fleet (10 vehicles).
- 2030 Milestones: - Combined EVs and Hybrids: 35% of the fleet (12 vehicles).
- 2040 Target: 75% electrified with a mix of EVs and hybrids (25 vehicles).

## 1.5 Infrastructure Development

The City of Gainesville acknowledges the rapid evolution of transportation and the pivotal role of infrastructure in facilitating this transition. Presently, the city boasts about 132 charging stations, which include 36 fast chargers and 29 superchargers. This infrastructure supports the growing number of electric vehicles, which, as of 2021, stands at 1,600, accounting for 0.6% of the 245,000 light-duty vehicles on Gainesville's roads. With projections indicating a rise to 29,000 EVs by 2030, it is evident that the demand for robust and widespread charging infrastructure will only intensify. As such, Gainesville remains committed to scaling its infrastructure development in parallel with the growth of electric vehicle adoption, ensuring neighbors have easy and convenient access to charging facilities.

## 1.6 Incentives for EV Adoption

1.6.1. Grants, Rebates, and Tax Credits:

- Education initiative for consumers for federally available grants and rebates for EV purchases.
- Seek grants and funding opportunities from state, federal, and international environmental bodies.
- Partner with local businesses, universities, and NGOs for collaborative initiatives.

1.6.2. Parking Benefits:

- Offer preferred parking spots for EVs in public parking areas when feasible.

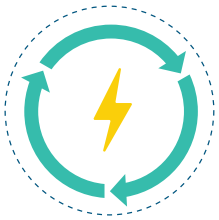
## 1.7 Monitoring and Feedback (as it relates to fleet vehicles within GG and GRU)

- Set up a bi-annual review process to track the progress of the plan's implementation.
- Engage with community stakeholders, local businesses, and transportation experts from UF, SF College, County, and City for feedback for continuous improvement.

## 1.8 Conclusion

The City of Gainesville's Transportation Electrification Plan is a testament to its unwavering commitment to a more sustainable, accessible, and cleaner future. Recognizing the intrinsic link between transportation and environmental impact, this plan seeks to propel Gainesville forward, meeting the demands of the modern age while preserving the planet. From advancing electrification in its fleets and expanding charging infrastructure to promoting active transportation choices, every facet of this plan is designed to reduce the carbon footprint, enhance carbon-free mobility options, and contribute to the broader goals of achieving zero waste by 2040 and net-zero emissions by 2045. As this transformative journey begins, all neighbors, businesses, and stakeholders are invited to join in shaping a greener, healthier, and more resilient Gainesville for generations to come.

# 2. Energy Use




## 2.1 Introduction

Gainesville's commitment to sustainability and climate resilience is exemplified through its comprehensive energy strategies. The goal is to transition to a cleaner, more efficient energy system. This chapter outlines the key initiatives, goals, and actions that will guide the city's efforts in transforming the energy landscape. By leveraging innovative technologies, enhancing community benefits, and prioritizing renewable energy, Gainesville aims to create a sustainable future for all neighbors.

## 2.2 Current Energy Landscape

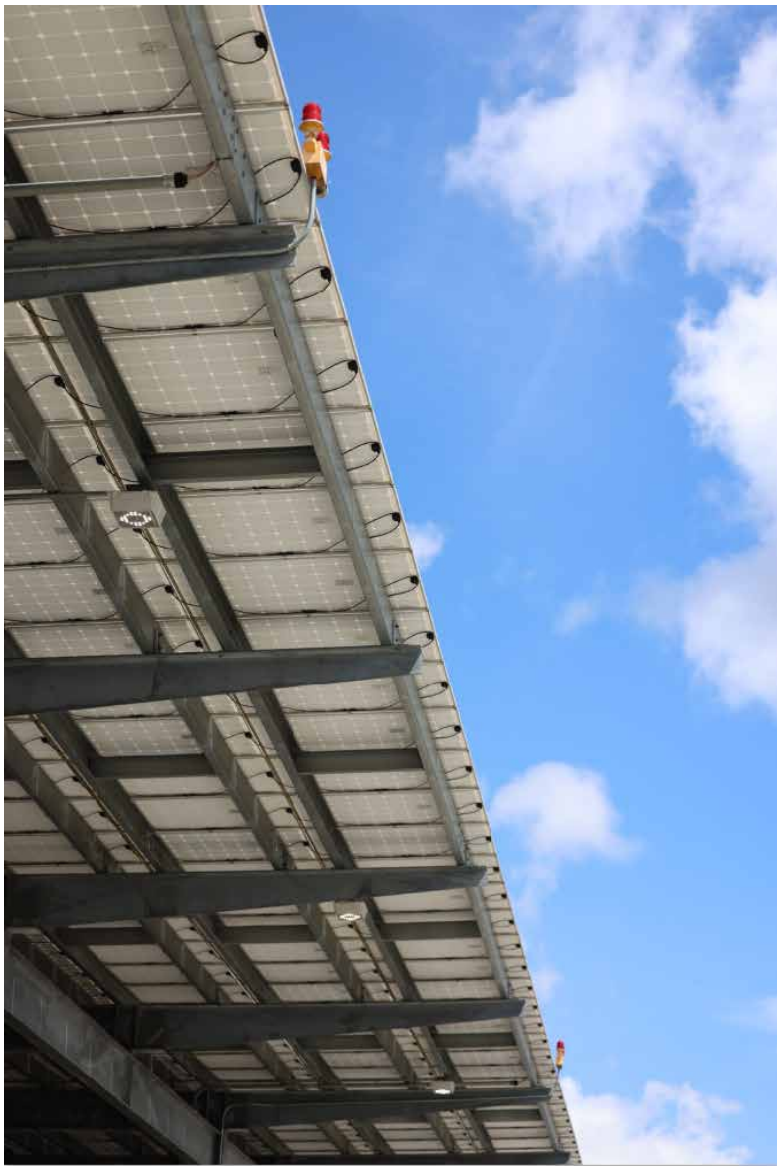
Gainesville Regional Utilities (GRU) plays a pivotal role in the city's energy management. GRU has consistently prioritized renewable energy integration, energy efficiency, and customer engagement. The current energy mix includes a significant proportion of renewable sources, which positions GRU well on the path to sustainability. GRU's commitment to sustainable energy is demonstrated by its diverse portfolio of renewable energy projects and ongoing efforts to improve grid reliability and efficiency.

## 2.3 Goals and Targets

- **Increase Grid Reliability:** Strengthen grid infrastructure to reduce outages and enhance storm resilience by deploying self-healing technologies, upgrading aging components, and undergrounding key distribution lines, especially in areas prone to extreme weather events.

- **Expand Clean Energy Capacity:** Increase system capacity to support distributed generation, utility-scale solar, and electric vehicle integration, creating a cleaner and more resilient energy supply that reduces greenhouse gas emissions while supporting job creation, energy independence, and long-term economic growth.

- **Enhance Energy Efficiency:** Improve energy efficiency in residential, commercial, and municipal buildings through various retrofit programs, incentives, and educational initiatives. Enhancing energy efficiency will lower energy costs for consumers and reduce overall energy demand, easing the transition to a sustainable energy system.

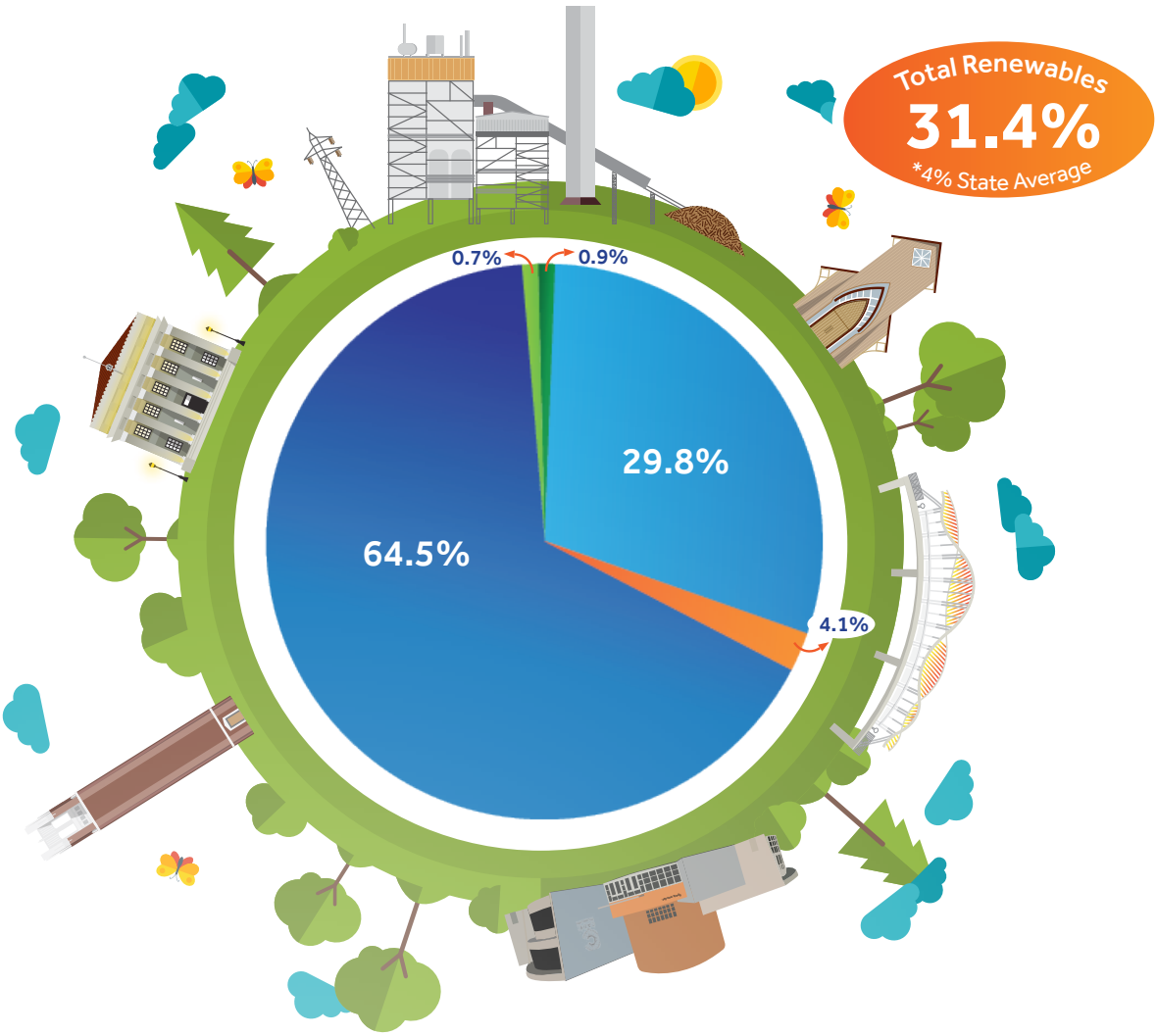


GRU More than Energy

# Renewable Energy Report

GRU is the state leader in power generation from renewable fuel sources and is committed to achieving the city's goal of net zero community-wide greenhouse gas emissions by 2045.

The graphic below shows how GRU powered your homes and businesses for the second quarter of fiscal year 2023.




## OUR PLANTS

**Deerhaven Generating Station -** coal and natural gas
**Kelly Plant -** natural gas
**Deerhaven Renewable -** biomass
**South Energy Center -** natural gas

Landfill Gas
Coal
Solar FIT
Natural Gas
Biomass

*Florida Reliability Coordinating Council, 2020.

## 2.2 Current Energy Landscape

Gainesville Regional Utilities (GRU) plays a pivotal role in the city's energy management. GRU has consistently prioritized renewable energy integration, energy efficiency, and customer engagement. The current energy mix includes a significant proportion of renewable sources, which positions GRU well on the path to sustainability. GRU's commitment to sustainable energy is demonstrated by its diverse portfolio of renewable energy projects and ongoing efforts to improve grid reliability and efficiency.

## 2.3 Goals and Targets

- **Increase Grid Reliability:** Urge GRU to strengthen grid infrastructure to reduce outages and enhance storm resilience by deploying self-healing technologies, upgrading aging components, and undergrounding key distribution lines, especially in areas prone to extreme weather events.
- **Expand Clean Energy Capacity:** Encourage Gru to increase system capacity to support distributed generation, utility-scale solar, and electric vehicle integration, creating a cleaner and more resilient energy supply that reduces greenhouse gas emissions while supporting job creation, energy independence, and long-term economic growth.
- **Enhance Energy Efficiency:** Improve energy efficiency in residential, commercial, and municipal buildings through various retrofit programs, incentives, and educational initiatives. Enhancing energy efficiency will lower energy costs for consumers and reduce overall energy demand, easing the transition to a sustainable energy system.

## 2.4 Key Initiatives and Actions

**2.4.1 Renewable Energy Expansion:** Encourage GRU to expand rooftop solar programs and community solar initiatives with a focus on policy and incentives. Collaborate with GRU to streamline permitting, reduce regulatory barriers, and provide financial incentives for residential and commercial solar installations where feasible. By promoting solar adoption, the city aims to leverage Gainesville's abundant sunlight to increase renewable energy use, reduce emissions, and support energy resilience in a sustainable, cost-effective manner.

**2.4.2 Grid Resilience and Clean Energy Capacity:** Urge GRU to enhance grid resilience, particularly in Disadvantaged Communities (DACs), by implementing advanced grid hardening technologies. GRU is evaluating an advanced distribution management system (ADMS), strengthening transmission infrastructure for solar interconnections, and undertaking reconductoring, hardening, and undergrounding of distribution lines. These actions would improve outage response, support the adoption of distributed solar and electric vehicles, create local job opportunities, and advance the city's clean energy and energy security goals.

**2.4.3 Building Retrofit Programs:** Continue utilizing GRU's Low-income Energy Efficiency Program plus (LEEPplus) to help low-income households lower energy bills and improve comfort through targeted upgrades. Eligible participants can receive improvements such as efficient HVAC systems, duct sealing, insulation, programmable thermostats, and LED lighting. Expanding this program strengthens energy efficiency, reduces costs for vulnerable populations, and advances the city's sustainability goals.

**2.4.4 Electric Vehicle (EV) Infrastructure:** Expand EV charging infrastructure across the city, including public charging stations and incentives for home charging installations. Based on current usages, EVs would represent approximately a 30% increase in electricity needs for a typical GRU residential customer. Partner with local businesses to increase charging accessibility. Promoting the adoption of electric vehicles will reduce emissions from the transportation sector and improve air quality.

**2.4.5 Create Jobs and Build Workforce Skills:** Support local economic development and a robust clean energy workforce by generating new construction jobs and training apprentices through hands-on experience. Additionally, provide internship opportunities for university students to build relevant skills and prepare them for careers in the growing green energy sector. This workforce initiative not only drives economic growth but also aligns with the city's commitment to sustainable energy and community resilience.

## 2.5 Monitoring and Reporting

To ensure transparency and accountability, a robust monitoring and reporting framework will be established within the GRU service area. Key performance indicators (KPIs) will be developed to track progress towards energy goals, with regular updates provided to the community through public reports and meetings. This framework will enable the measurement of success, identification of areas for improvement, and celebration of achievements.

## 2.6 Conclusion

The Energy Chapter of Gainesville's Climate Resiliency Plan represents the city's proactive approach to addressing a changing climate through sustainable energy practices. By investing in renewable energy, enhancing energy efficiency, and fostering community collaboration, Gainesville is building a resilient and sustainable future. The city is committed to collaborating with all stakeholders to achieve the vision of a clean, green, and thriving city.

# 3. Zero Waste

## 3.1 Introduction

In 2018, the City of Gainesville adopted the Zero Waste Ordinance, setting a goal to achieve zero waste by 2040. This ordinance supports policies that significantly reduce waste and encourages citizens to rethink waste material flows. On June 2, 2022, the City Commission adopted Ordinance No. 210129, enacting new regulations regarding solid waste, recycling, and landfill diversion initiatives. These regulations focus on enhancing waste reduction and recycling efforts across commercial businesses and multi-family properties.

Zero Waste

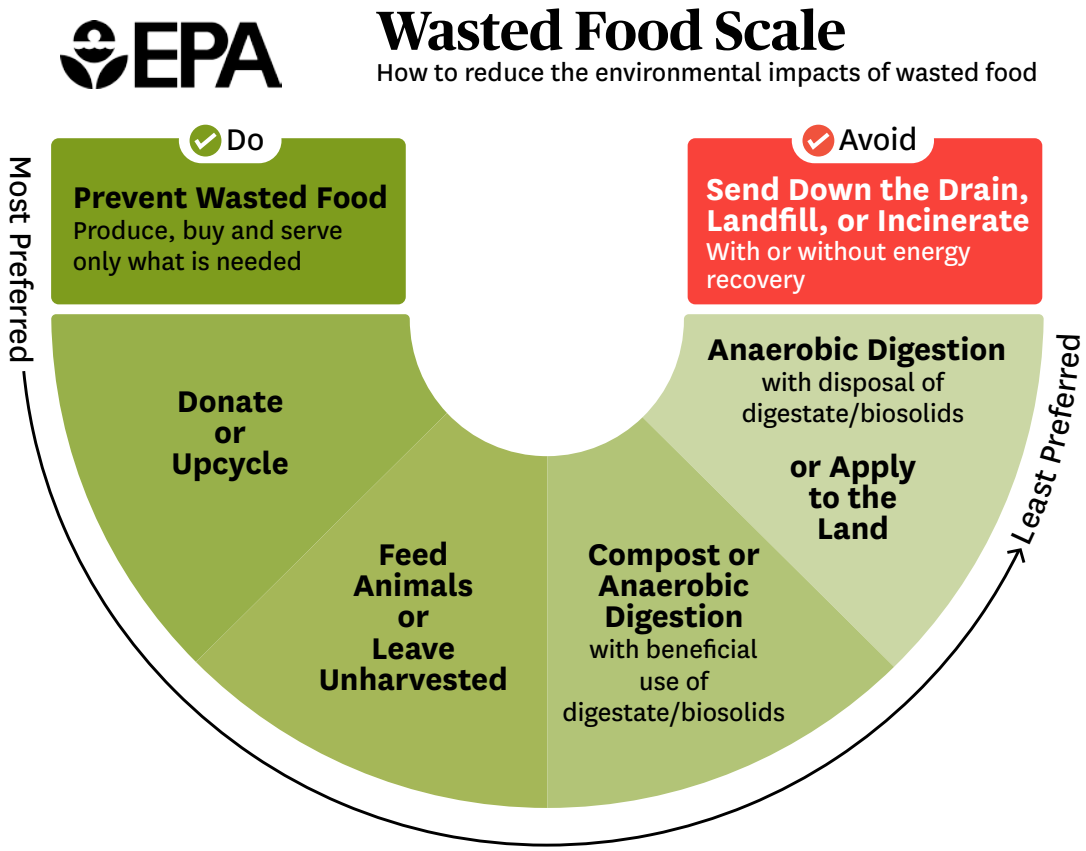
## 3.2 Current Status

Gainesville is actively assessing waste reduction and recycling efforts to refine policies, systems, and infrastructure that enhance waste diversion through reducing, reusing, and recycling. The city has implemented ordinances aimed at lowering consumption, expanding recycling opportunities, and improving community aesthetics. Businesses are encouraged to review the Zero Waste Ordinances for compliance and to optimize their waste and recycling practices to reduce landfill contributions.

## 3.3 Goal and Objectives

Achieve zero waste by 2040, diverting all waste from landfills through comprehensive recycling, composting, and waste reduction strategies.

- Increase recycling rates across all sectors.
- Promote composting and other sustainable waste management practices.
- Educate and engage the community about the importance of waste reduction.
- Implement and enforce regulations effectively to ensure compliance.



## 3.4 Key Actions

### 3.4.1 Regulations Related to Commercial Businesses

Achieve zero waste by 2040, diverting all waste from landfills through comprehensive recycling, composting, and waste reduction strategies.

- **Single-Use Accessories by Request Only – Effective September 2022** – Plastic flatware, condiment packages, etc., are only available by request or at self-serve stations. Education, warnings, and enforcement are ongoing.
- **Public Litter Receptacles – Effective September 2022** – At commercial properties, an equal number of recycling receptacles are required to be placed for the collection of designated recyclables next to the garbage receptacles. Focused education and warnings are ongoing.
- **Broader Minimums for Recycling Requirements – Effective September 2022** – Businesses must have recycling collection if 15% of their waste volume is comprised of designated recyclable materials. Previously, this requirement was based on 15% of any one item. Education, warnings, and enforcement are ongoing.
- **Food Waste Collection – Effective June 2023** – Any business with more than one cubic yard of food waste per week must separate food waste for collection and composting. Education is ongoing. Enforcement is on hold until the local composting infrastructure catches up to service capacity.
- **Food Waste Diversion – Effective January 2023** – Food retailers that occupy at least 25,000 sq. ft. (including but not limited to grocery stores, convenience stores, meat markets, poultry markets, fish and related aquatic food markets, and produce markets) shall divert food or food waste from the waste stream following the hierarchy of (1) Feeding hungry people; (2) Feeding animals; (3) Providing for industrial uses; and/or (4) Composting. Compliance is higher than anticipated; any non-compliant facilities are subject to enforcement. There is extremely limited local capacity for the diversion of prepared food.
- **Pharmacy Prescription Take-Back – Effective June 2023** – Pharmacies are to provide publicly accessible containers for the destruction of prescription medicines or drugs on-site at the location where prescription drugs are dispensed. No reports received of non-compliance with this ordinance.
- **Increased Collection Frequency at Food Service Establishments – Effective September 2022** – Commercial-collected waste generators not serviced by a compacting dumpster are required to receive garbage collection service no less than 4 days per week if open 7 days a week, and no less than 3 days per week if open 5 or 6 days a week. Education, warnings, and enforcement are ongoing.

### 3.4.2 Regulations Related to Multi-Family Properties (MFPs) - commercial-collected residential waste generators.

- **Lease Transition Plan –** Effective July 2023 for MFPs with 200 or more units and January 2025 for properties with 50 or more units. MFPs must submit a plan to the city for diverting furniture, household goods, and cardboard during heavy move out move-in and move-out periods that often correspond with the start or end of college semesters. The local reuse/thrift facilities infrastructure is limited by storage capacity, transportation, and labor availability.
- **Food Waste Collection –** Effective June 2024 – Collection of food waste at multifamily properties. Enforcement is on hold until the local composting infrastructure catches up to service capacity.
- **Property Provided Education and Equipment –** Effective September 2022 – Multi-Family Residential Properties must establish a recycling program that (1) Include recycling of all designated recyclable materials (Corrugated Cardboard, Paperboard, Newspaper & Magazines, Office Paper, Metal Cans, Glass Bottles & Jars, and Plastic Bottles, Jugs & Jars); (2) Must be as convenient and accessible to residents as garbage collection; (3) Provide an adequate level of service and capacity of designated recyclable collection containers; (4) Post and maintain recycling educational signs in common areas where recyclables are collected; and (5) Distribute recycling information to all tenants at least once annually and to all new tenants on move-in. Beginning October 2023 property owners must provide a recycling storage container to each unit.
- **Converting Properties with multiple four unit or less business to commercial dumpster service** – Effective June 2023 – The City's previous code required that residential buildings with four or fewer units receive curbside cart service. This has resulted in carts scattered on the streets and in association communities. However, properties could petition to convert to commercial service. The ordinance change gives the City more latitude in requiring properties to convert to dumpster service.

The City of Gainesville's Zero Waste Plan aims to significantly reduce waste and promote sustainable practices. Through comprehensive regulations, education, and enforcement, the city is committed to achieving zero waste by 2040. Continuous community engagement, infrastructure development, and collaborative efforts with various stakeholders will be crucial to overcoming challenges and reaching the city's goals. For detailed information, please refer to the Zero Waste Ordinance.

# 4. Water and Wastewater

Gainesville Regional Utilities (GRU) provides essential water and wastewater services to a significant portion of Alachua County's population. This document combines detailed analysis from GRU's service area with the strategic goals of the Gainesville Climate Action Plan, focusing on sustainable water management and conservation efforts.

## 4.1 Current State Assessment

GRU plays a vital role in Alachua County's infrastructure by providing water services to approximately 200,000 people, which accounts for around two thirds of the county's population. This extensive coverage includes not just residential areas but also essential institutions and key businesses, encompassing University of Florida, Santa Fe College, numerous hospitals, and a variety of commercial enterprises. These entities rely on GRU for consistent and reliable water supply, which is crucial for their daily operations and the well-being of the community they serve. In addition to water provision, GRU is also committed to sustainable practices through its water reclamation services, treating and reusing wastewater from about 185,000 individuals. This effort not only underscores GRU's commitment to environmental stewardship but also highlights its role in promoting economic and social sustainability. By integrating water supply with water reuse and conservation initiatives, GRU ensures the long-term viability of water resources, supporting the community's needs while safeguarding the environment for future generations.

**4.1.1 Population Growth and Water Demand:** Alachua County's population is projected to grow steadily over the next two decades, with significant implications for water demand. Population projections developed by the University of Florida Bureau of Economic and Business Research are shown in Table 1. GRU's planning must accommodate this growth while maintaining sustainable water resource management.

**Table 1 - City and County Population Estimates and Projections**

| Year | Alachua County Population | City of Gainesville Population | Unincorporated Population |
|---|---|---|---|
| **2016 Estimate** | 257,062 | 128,612 | 102,298 |
| **2025 Projection** | 300,161 | 152,418 | 115,598 |
| **2030 Projection** | 317,962 | 161,245 | 121,390 |
| **2035 Projection** | 335,764 | 170,060 | 127,376 |
| **2040 Projection** | 353,566 | 177,193 | 133,929 |

Table 1 – City and County Population Estimates and Projections

**4.1.2. Water Supply and Levels of Service:** GRU operates under a Consumptive Use Permit that allows withdrawals up to 30 million gallons per day (mgd) on an annual average basis. Current average daily flow is projected to remain below this limit through the duration of the permit which expires in 2034.

### Table 2 - GRU Population and Water Demand Projections

| Year | Service Area Population | Average Daily Flow (mgd) |
|---|---|---|
| 2020 | 196,495 | 22.1 |
| 2025 | 198,934 | 24.7 |
| 2030 | 213,020 | 26.7 |
| 2035 | 227,072 | 28.6 |
| 2040 | 239,695 | 30.3 |

Source: GRU Planning Department

**Water Conservation, Reclamation, and Reuse:** GRU promotes a sustainable water supply by combining conservation with wastewater treatment to produce reclaimed water, reducing groundwater impact and supporting natural systems. GRU's comprehensive conservation program enhances system efficiency, reduces demand, and maximizes water reuse through proactive leak detection, regular meter replacements, and infrastructure updates.

To further reduce demand, GRU employs a tiered water rate system, educational campaigns, high water bill reviews, and home water use surveys. Advanced Metering Infrastructure (AMI), or "Smart Meters," is being implemented to help customers monitor usage and detect leaks in real time.

Public education is key to GRU's outreach. GRU engages the community through events like science nights at schools, STEAM activities, social media posts, bill messaging, and booths at fairs, sharing practical tips and resources on water conservation. GRU collaborates with local partners and provides schools with tailored materials to strengthen community conservation knowledge.

Collaboration is central to GRU's strategy. In partnership with UF/IFAS, GRU developed the H2OSAV tool, used by GRU, Alachua County, the City of Gainesville, and water management districts to track water use trends and measure program effectiveness. As part of this effort, GRU annually mails conservation letters to the top 100 highest water users, comparing their usage to the community average and offering tips and resources to help reduce consumption. H2OSAV data enables tracking of these interactions to monitor effectiveness.

Beneficial use of reclaimed water is key to minimizing the water footprint our community exerts on the environment. GRU has achieved a 100% reuse rate for its reclaimed water, using it for groundwater recharge, residential and golf course irrigation, and environmental restoration. Approximately 70% of the groundwater GRU withdraws to serve its customers is returned to the aquifer via recharge. GRU has several projects designed to maximize recharge and is currently developing a groundwater recharge wetland known as the Southwest Nature Park. That project will receive high quality reclaimed water from the GRU Kanapaha Water Reclamation Facility, further treat it to further reduce nutrients through natural wetland processes, and recharge it into the Floridan Aquifer. The project will help to offset the impacts of regional pumping on flows to the Santa Fe and Ichetucknee Rivers. GRU is partnering with Alachua County to make the facility a public park which will provide recreational opportunities and wildlife habitat.


Use of reclaimed water for residential and golf course irrigation reduces the amount of groundwater pumping for these purposes. The Sweetwater Wetlands Park is an environmental restoration project that was constructed jointly by GRU and City of Gainesville Public Works. The project receives and treats reclaimed water, stormwater runoff and other flows from Sweetwater Branch to produce high quality low nutrient water that is discharged to Paynes Prairie. The project helps to restore the natural water balance and restore wetlands on the prairie while reducing nutrients. The City of Gainesville Parks Recreation and Cultural Affairs department has partnered manage public access to the park.

Through these diverse yet interconnected programs, GRU is able to offset and/or mitigate the impacts demonstrates its commitment to sustainable water management, balancing the needs of its customers with those of the environment.

**4.1.3. Challenges and Commitments:** As Alachua County anticipates welcoming roughly 50,000 new residents over the next two decades, marking a significant population increase of approximately 20-25%, GRU is facing the critical task of managing its water resources to accommodate this growth. GRU plans to meet the water needs of its customers while protecting natural resources through a combination of water conservation and water reuse. Conservation efforts by GRU, its partners, and its customers have resulted in a 40 percent decrease in water use on a per person (per capita) basis since 2007. GRU will continue to work with its partners to minimize this per capita usage. However, as shown in Table 2 groundwater withdrawals are expected to increase as population continues to increase. GRU will continue to develop groundwater recharge and other beneficial water reuse projects to recharge the aquifer and offset the impacts of pumping. This commitment is vital for ensuring the long-term health and viability of the region's springs, lakes, and rivers, which are crucial not only for the ecosystem but also for the community's quality of life and the local economy. By proactively addressing the challenges associated with population growth and water demand, GRU is setting a precedent for responsible resource stewardship, demonstrating its role as a forward-thinking utility that prioritizes both the needs of its expanding customer base and the preservation of the natural environment.

## 4.2 Goals and Objectives:

- **Resource Preservation for Growth:** Ensure sustainable water use that includes conservation and beneficial water reuse to accommodate the expected population increase, focusing on preserving springs, lakes, and rivers.
- **Sustainable Water Use:** Promote the efficient use of water to achieve economic, environmental, and social sustainability.
- **Community Engagement and Education:** Foster community involvement in water conservation efforts through education and outreach programs.

## 4.3 Strategies and Actions

- **Efficient Operations and Infrastructure Upgrades:** Implement AMI (smart meters), continue programs for meter replacement, replacement of aging piping and other infrastructure, pressure monitoring, leak detection, and efficient operations.
- **Conservation Programs:** Utilize tiered water rates, educational campaigns, and home water use surveys to influence consumer behavior, akin to promoting healthy food choices. Continue to share information and collaborate with partners.
- **Treatment and Beneficial Reuse of Reclaimed Water:** Continue to expand beneficial use of reclaimed water for aquifer recharge and other environmental benefits. Highlight initiatives like Sweetwater Wetlands Park and Southwest Nature Park.

## 4.4 Partnerships and Collaboration

GRU actively collaborates with an array of local entities to bolster water conservation efforts, demonstrating the critical role of partnership in achieving sustainability goals. Through strategic alliances with local governments, GRU is integral to initiatives like the Joint Alachua County/City of Gainesville Water Supply Facilities Work Plan and the North Florida Regional Water Supply Plan, ensuring a unified approach to water resource management. Collaborations with educational institutions such as the University of Florida and Santa Fe College extend beyond academia, fostering innovation in water conservation and enhancing community awareness through educational programs. Moreover, GRU's engagement with community organizations, exemplified by its partnership with the UF/IFAS H2OSAV Extension Program, amplifies its outreach and effectiveness in promoting water- saving practices. These cooperative endeavors highlight the importance of combined efforts, much like those observed in the food system plan, where community involvement and multi-stakeholder participation are pivotal for addressing environmental challenges and advancing sustainable water use.

Through these partnerships, GRU not only amplifies its conservation capabilities but also fortifies the community's commitment to preserving local water bodies for future generations.

## 4.5 Funding and Resources

In the realm of GRU's water conservation initiatives, identifying and securing adequate funding sources is essential to facilitate and sustain their efforts. Federal and state grants represent significant potential funding avenues, particularly when targeting infrastructure improvements and the implementation of innovative water resource management strategies such as groundwater recharge wetlands. Effective resource allocation is key, directing funds toward high-impact projects such as efficient system operations, replacement of aging infrastructure, demand- side management programs, and initiatives promoting the beneficial reuse of water. By strategically managing these financial resources, GRU aims to enhance its conservation capabilities, ensuring the long-term sustainability and resilience of local water resources.

## 4.6 Monitoring and Evaluation:

- **System Demand Monitoring:** Track the total water demand and utilize the H2OSAV tool over time to assess the overall effectiveness of conservation efforts. By comparing current usage data with historical baselines, GRU can evaluate the impact of its conservation strategies on reducing water consumption across the service area.
- **Metering and Data Analysis:** Utilize advanced metering infrastructure (AMI) to collect detailed water usage data at various scales (residential, commercial, institutional). This data can provide insights into consumption patterns, identify high-usage sectors or areas, and help target conservation efforts more effectively.
- **Leak Detection Programs:** Monitor the results of leak detection and repair initiatives by tracking the number of leaks identified and repaired, along with estimated water savings. This can highlight the effectiveness of infrastructure maintenance programs in reducing water loss.
- **Conservation Program Participation:** Keep records of participation rates in programs like LEEPplus (toilet retrofits) and home water use surveys. Evaluating changes in participation over time can help gauge community engagement and the potential water savings these programs generate.
- **Tiered Rate Impact Assessment:** Analyze the effects of the tiered water rate structure on consumption behavior. By examining usage patterns before and after the implementation of tiered rates, GRU can assess whether higher rates for increased usage lead to measurable conservation outcomes.
- **Educational Outreach Evaluation:** Track the reach and impact of educational programs and advertising campaigns. Surveys, feedback, and engagement metrics can help determine whether these initiatives effectively raise awareness and influence water-saving behaviors.
- Beneficial Reuse Metrics: Measure the volume of reclaimed water used for irrigation, industrial processes, or environmental restoration, providing a clear indicator of how these practices contribute to reducing potable water demand.

By implementing these tracking mechanisms, GRU can systematically monitor and evaluate the progress of its water conservation efforts, drawing on a data-driven approach to refine strategies and maximize their impact over time.

**Intergovernmental Coordination:** Several policies in both the City of Gainesville and Alachua County comprehensive plans require coordination between the City, County, and Water Management Districts on water management issues and initiatives. Additional policies ensure consistency between local water management programs and the Regional Water Supply Plan.

# 5. Local Government Operations

## 5.1 Purpose:

In accordance with the City of Gainesville's Zero Waste Initiative and Greenhouse Gas (GHG) Reduction Goal, the city recognizes its responsibility to minimize negative impacts on human health and the environment while supporting a diverse, equitable, and vibrant community and economy. The city also understands that the types of products and services it buys have inherent social, human health, environmental and economic impacts, and that it should make procurement decisions that embody the city's commitment to sustainability.

This Sustainable Purchasing Policy is intended to:

- Communicate the city's commitment to sustainable purchasing to its employees, vendors, and community;
- Complement and support implementation of the City's sustainability goals and policies;
- Provide implementation guidance; and
- Empower employees to be innovative and demonstrate leadership by considering sustainability benefits when making purchasing decisions.

## 5.2 Connection to the city's strategic goals:

**Goal 2: More Sustainable Community**

- Pursue zero waste goal
- Reduce the city organization's carbon footprint by 25% to achieve the climate resiliency goal

**Goal 4: Resilient Local Economy**

- Prioritize environmentally and socially responsible products and services that stimulate local business
- Create green jobs

**Goal 5: "Best in Class" Neighbor Services**

- Develop a city organization culture that emphasizes professionalism, service, teamwork, results, and performance accountability
- Have all City departments working together without silos
- Develop effective and usable performance metrics for evaluating the service performance and value to Neighbors

## 5.3 Policy

The City of Gainesville is committed to promoting environmental stewardship and reducing greenhouse gas emissions when buying goods, materials, services, and capital improvements. When a choice exists between competing products, the sustainable product should be chosen if safety, quality control, and life expectancy are acceptable. City community builders should utilize sustainable products when planning and designing projects, developing project and operations budgets, developing asset management plans, writing product and service specifications or standards, selecting materials, making purchasing or supplier decisions, and developing and managing city contracts and price agreements as applicable to their roles and responsibilities and/or to a specific project. In doing so, city employees should strive to be leaders in sustainable procurement and reduce adverse social, human health, and environmental impacts associated with city purchases, while concurrently maintaining fiscal responsibility, both in the short and long-term.

## 5.4 Sustainability Benefits

City employees will encourage sustainability benefits to the maximum extent feasible when writing specifications, evaluating bids, and making other purchasing decisions.

### 5.4.1 Environmental and Health Benefits:

- Minimizing pollutant releases to air and water, particularly indoor air emissions;
- Avoiding products that contain toxic chemicals, especially persistent, bioaccumulative, and toxic (PBT) chemicals;
- Preventing acute and chronic human health risks, including cancer, asthma, reproductive toxicity, obesity, ergonomic effects, etc.;
- Reducing waste generation by choosing products that are reusable, recyclable, compostable, or made with recycled content;
- Lowering greenhouse gas (GHG) emissions associated with a product's manufacture, transportation and use;
- Saving energy through the purchase of energy-efficient products and increasing use of renewable energy such as solar or wind;
- Conserving natural resources including water, petroleum, rare earth minerals, etc.
- Protecting biodiversity by avoiding products that contribute to deforestation, ocean pollution and other environmental destruction; and
- Promoting transparency, including disclosure of environmental, health, economic and social risks using Environmental Product Declarations (EPDs), Health Product Declarations (HPDs), vendor sustainability ratings, etc.

### 5.4.2 Social Equity Benefits:

- Use of items whose materials are sourced locally;
- Use of disadvantaged businesses (e.g., certified minority- and woman-owned, disabled, veteran-owned businesses, etc.);
- Use of certified B Corps, worker-owned cooperatives and non-profit organizations;
- Use of certified "green" businesses; and
- Use of products that are certified "fair trade," sweatshop-free, or made without child labor, etc.

### 5.4.3 Fiscal Benefits:

- Reducing consumption by choosing reusable products; leasing or renting, rather than buying; etc.;
- Ensuring performance and quality;
- Reducing impacts on staff time and lowering maintenance costs;
- Leveraging buying power by aggregating demand, cooperative purchasing, etc.;
- Promoting "Best Value" based on a life-cycle cost or total cost of ownership assessment; and
- Reducing financial risks.

While not all factors will be incorporated into every purchase, it is the intent of this policy that city employees will make a good faith effort to promote sustainability factors to the maximum extent feasible. At the discretion of the city, formal solicitations may offer a discount or additional points to bidders that offer sustainable goods and services or that deliver goods or services using sustainable practices.

Nothing in this policy shall be construed as requiring a city employee or contractor to procure goods or services that do not perform adequately for their intended use, that exclude adequate competition, or that are not available at a reasonable price in a reasonable period of time.

## 5.5 Sustainable Purchasing Standards:

City employees will encourage sustainability benefits to the maximum extent feasible when writing specifications, evaluating bids, and making other purchasing decisions.

### 5.5.1 Use of Social and Environmental Product or Service Labels:

City employees are encouraged to use independent, third-party social and/or environmental product or service labels (sustainability labels) when setting standards, writing specifications for, or procuring products or services as long as such labels:

- Were developed and awarded by an impartial third-party;
- Were developed in a public, transparent, and broad stakeholder process; and
- Represent specific and meaningful leadership criteria for that product or service category.

In addition, whenever feasible, sustainability labels used in product or service specifications should be based on a standard that addresses multiple attributes and life-cycle considerations with claims verified by an independent entity. Examples of credible sustainability labels include, but are not limited to, ENERGY STAR, Green Seal, Cradle to Cradle, Safer Choice, Forest Stewardship Council, and the Electronic Products Environmental Assessment Tool (EPEAT).

### 5.5.2 Reduce Waste at Point of Purchase

Priority should be given to purchasing products made from recycled material. Some examples:

- Calendars, file folders, clip boards, scissors, notepads, pens, hanging folders, bins, baskets, desk accessories, glue sticks and many other office supplies using recycled materials are available for purchase.
- Office paper, letterhead stationery, envelopes, and business cards from recycled paper; all paper purchases should be made of 30% post-consumer content, with a goal of using 100% post-consumer content, whenever feasible.
- Recycled, remanufactured or re-filled toner cartridges. Make sure the product purchased meets or exceeds OEM (Original Equipment Manufacturer) standards.
- Buy eco-friendly, biodegradable, and compostable cups, napkins, straws, plates, stir sticks, cutlery, and clamshell to-go boxes. These are typically made from plant-based plastics or wood.
- Minimize the purchase of beverages, especially water, in plastic disposable bottles.
- Furniture made with a percentage of post-consumer or post-industrial material and/or Forest Stewardship Council (FSC) 50% certified wood. Purchase LEED (Leadership in Energy and Environmental Design) green furniture.
- Search out the most energy efficient and longest-lasting equipment and appliances and, when feasible, purchase equipment that is ENERGY STAR® rated and/or recommended.

### 5.5.3 Specify Eco-Friendly Product Packaging:

- Ask vendors to minimize use of packing materials.
- Request biodegradable or compostable packing materials (bioplastics or paper-based fillers) – avoid use of Styrofoam or other non-biodegradable (petrochemical based) packing peanuts, etc.
- When ordering large items, request that they are shipped blanket wrapped or using reduced biodegradable or compostable packing material.
- When shopping request paper bags or use reusable bags – avoid plastic bags.

### 5.5.4 Purchase Goods Containing Few Toxic Elements:

By procuring goods with fewer or no toxic chemicals, the city can reduce hazardous waste disposal, lower future liability concerns, and minimize the risk of occupational exposure and spills. Purchase low-toxicity products such as:

- Low mercury light bulbs/lamps
- Printing ink low in Volatile Organic Compounds (VOCs)
- Look for products with the EPA authorized “Safer Choice” logo which indicates that the products meet EPA standards for safety for humans and the environment

### 5.5.5 Purchase Eco- and Human-Friendly Cleaning Supplies:

Priority should be given to purchasing cleaning supplies that are eco- and human-friendly. Examples include supplies:

- Made with renewable resources, such as biobased solvents from citrus, seed, vegetable, and pine oils (avoid cleaning products that contain chrome, phosphate, nitrogen, fragrance, or chlorine, when possible).
- That are sold in spray pumps bottles rather than aerosols.
- Available in concentrated formulas, with appropriate handling safeguards and use refillable bottles for diluting the formula for use

### 5.5.6 Purchase Durable and Reusable Goods:

Using life-cycle cost analysis, rather than automatically choosing goods with the lowest purchase price can help determine the best long-term value. Factor in a product’s estimated life span as well as its energy, maintenance, consumable supplies, and disposal costs.

- Consider durability and reparability of products prior to purchase.
- Save money and minimize waste by eliminating single-use items, such as non-rechargeable batteries, in favor of rechargeable batteries. Use rechargeable ink and toner cartridges.
- To reduce disposal costs and waste, choose items that can be remanufactured, recycled, or composted.

### 5.5.7 Reduce Paper Use

Purchase office equipment that:

- Allows for printing on both sides of paper automatically.
- Allows for the sending and storage of information electronically.

### 5.5.8 Purchase Environmentally Preferred Products (EPP):

Priority should be given to environmentally preferred products (EPP) whenever feasible. Examples of EPP include:

- Recycled paper and paper products that are processed without Elemental Chlorine. *Chlorine Dioxide is acceptable.
- Remanufactured laser printer toner cartridges.
- Energy Star Rated computers and appliances.
- Rechargeable batteries.
- Re-refined lubrication, hydraulic oils, and antifreeze.
- Compost, mulch and other organics including recycled bio solid products.
- Re-manufactured and/or low or VOC-free paint.
- Cleaning products with lowered toxicity.
- Energy saving products.
- Waste-reducing products.
- Water-saving products.

### 5.5.9 Collecting Data and Reporting Results

Each city department should cooperate in collecting data for the purposes of tracking and reporting results and evaluating the sustainable purchasing program. City staff will work to develop a system for tracking information and reporting as well as educating City departments on this initiative.

## 5.6 Related City, State and Federal Policies

It is the intent of this policy to support and complement all relevant city laws, regulations, resolutions and plans as well as applicable state and federal laws and regulations.

- City Policies and Ordinances
  - City Procurement Policy
  - Zero Waste Ordinances
  - General Government Green Purchasing Program
  - Gainesville Regional Utilities Administrative Guideline 2.19
  - Gainesville Regional Utilities Administrative Guideline 4.8
- County Policies and Ordinances
  - Zero Waste Procurement Procedure
- State/Federal Laws
  - HB3 (2023) - Government and Corporate Activism

## 5.7 Definitions

- **Biodegradable** – Items that can break down safely and relatively quickly, (one year of less) by biological means, into the raw materials of nature and disappear into the environment. To be truly biodegradable, a substance or material should break down into carbon dioxide (a nutrient for plants), water and naturally occurring minerals that do not cause harm to the ecosystem (salt or baking soda, for example, are already in their natural mineral state and do not need to biodegrade). Plastics made from petrochemicals are NOT biodegradable.

- **Bioplastics** – Plastics made from starch, cellulose, wood, and sugar used as a substitute for fossil resources more typically used in the production of plastics.

- **Compostable** - A product that is capable of disintegrating into natural elements in a compost environment, leaving no toxicity in the soil, typically within about 90 days. Items such as fruits, vegetables, dead leaves, branches, grass clippings, and most food scraps are compostable if they contain only food products. Third-party verifications, such as BPI Certification, TUV Austria, and the Australian Standard, ensure that products are truly compostable and free of non-biodegradable plastic linings.

- **Durable Goods** – Items with a higher cost per unit that are replaced infrequently and/or require capital outlays to purchase. Such items include, but are not limited to, electric powered equipment and furniture such as computers, monitors, copiers, printers, scanners, fax machines, refrigerators, ice machines, dishwashers, water coolers, external power adapters, televisions, or audiovisual equipment.

- **Eco-friendly** – (Environmentally Friendly) – Not harmful to the environment; practices that conserve water and energy and prevent contributions to air, water, and land pollution.

- **Environmentally Preferable Purchasing (EPP)** – The purchase of a product that has a lesser or reduced negative effect or increased positive effect on human health and the environment, when compared with competing products that serve the same purpose. Incorporating EPP in the procurement process considers raw materials acquisition, production, fabrication, manufacturing, packaging, distribution, reuse, operation, maintenance, and disposal of the product. This term includes sourcing recyclable products, recycled products, and reusable products.

## 5.7 Definitions

- **LEED** – Leadership in Energy and Environmental Design is a green building certification program which is administered by the U.S. Green Building Council – committed to building sustainable buildings.

- **Life Cycle Cost Analysis/Total Cost of Ownership (TCO)** – A method for assessing the total cost of ownership that considers all costs associated with a purchase; including the cost of acquisition, maintenance, operation, supply, and disposal of the product.

- **On-going Consumables** – materials with a low cost per unit that are regularly used and restocked through the course of business including, but not limited to, paper (print or copy paper, notebooks, notepads, envelopes), toner cartridges, binders, batteries, and desk accessories.

- **Petrochemicals** – Petroleum based products and packaging. Items made of petrochemicals are not compostable or biodegradable.

- **Pre-Consumer** – A product made from pre-consumer recycled content – manufacturer waste like scraps, rejects and trimmings.

- **Post-Consumer** – A product made from waste that has been used by a consumer, disposed of and diverted from landfills – like aluminum cans and newspapers.

- **Post-Industrial** (aka Pre-Consumer) – Materials diverted from the solid waste stream during the manufacturing process.

- **Recycled** – materials that have been recovered or otherwise diverted from the waste stream, either during the manufacturing process (pre-consumer) or after consumer use (post-consumer). Ex. recycled raw material, recondition and re-manufactured components.

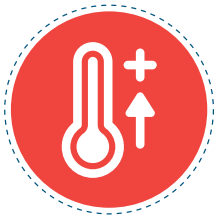
- **Recyclable** – materials (such as plastics in bottles, glass in jars, and non-contaminated paper) that can be collected, separated, or otherwise recovered from the waste stream through an established recycling program for reuse or use in manufacturing or assembling another item.

- **VOCs** – Volatile Organic Compounds - VOCs are industrial solvents often found in petroleum fuels, paints, paint thinners, and dry-cleaning agents. The most common VOCs are emitted by consumer products such as cleaning solvents, paints, and printers in an indoor environment. Many building materials such as paints, adhesives, wall boards, and ceiling tiles, new furnishings, wall coverings, and office equipment such as photocopy machines can also push VOC particles into the air.

# Adaptation

The impacts of a changing climate are already apparent in the ecosystem. It is clear that Gainesville must take proactive steps to adapt to the new and ever-changing environment. The five major areas Gainesville is focusing on to adapt to this new normal are: extreme heat, food systems, equitable community engagement, climate analytics and modeling, and resource allocation. Action items and specific plans are as follows:

## 6. Extreme Heat



Extreme Heat

### 6.1 Introduction

#### 6.1.1 Overview

In response to the rising threat of heatwaves, Gainesville has redoubled its efforts to safeguard neighbors. At the forefront of these initiatives is an Early Warning System through Alachua County communications designed to provide timely alerts to citizens. To complement this, Public Awareness campaigns have been rolled out, aiming to educate the community about heat risks and safety measures.

To address the critical need for home cooling, the city and its partners at Gainesville Regional Utility (GRU) have allocated American Rescue Plan Act (ARPA) funds to enhance the energy efficiency of low-income housing, which is essential for maintaining reliable cooling services during peak heat periods. This program is expected to continue with the receipt of the Energy Efficiency and Conservation Block Grant (EECBG) from the federal government. This financial strategy is part of a broader Resilience Hub Plan, which has been developed to provide community support, demonstrating a holistic approach to temperature regulation and safety during extreme heat events.

Recognizing the city's substantial 59% tree canopy as a valuable natural resource, there are comprehensive plans in place to capitalize on and enlarge this asset. The strategy involves not just an increase in tree planting and distribution across the city but also the introduction of various other cooling infrastructures. This multi-faceted approach to public cooling measures is expected to deliver an enhanced urban environment that is both resilient to and prepared for the challenges presented by an increasingly hot climate.

### 6.1.2 Warning signs for heat-related illness

Heat Exhaustion

- Weakness, headache, dizziness, or fainting.
- Paleness.
- Unusually elevated heart rate.
- Fast and shallow breathing.
- Nausea or vomiting.
- Muscle cramps

Heat Stroke

- Confusion altered mental status.
- Slurred speech, loss of consciousness.
- Hot, dry skin, profuse sweating, seizures.
- Extremely high body temperature (above 103°F)

Tips for keeping safe and prepared

- Stay hydrated with water; avoid sugary and alcoholic beverages.
- Wear lightweight, light-colored, and loose-fitting clothing.
- Stay cool in an air-conditioned area.
- Avoid engaging in strenuous activities during peak hours.
- Take a cool shower or bath.
- Check on friends, family, and neighbors who may be vulnerable to excessive heat

## 6.2 Challenges and Commitments:

Anticipating a rise in the frequency and intensity of heatwaves, Gainesville is addressing significant challenges to enhance its response capabilities and protect vulnerable populations. The city is expanding the Early Warning System, integrating EMS data and NOAA resources to provide more targeted and effective responses. Additionally, efforts are being made to increase the capacities of public cooling centers, ensuring that relief from the heat is accessible to all who need it. Central to Gainesville's climate action efforts is the commitment to achieving net zero carbon emissions by 2045, a promise made as part of its broader engagement with the United Nations' climate goals. This pledge reflects the city's determination to address the urgent global issue of a change in climate through local initiatives and policy alignment with international standards.

## 6.3 Goals and Objectives:

Gainesville's commitment to public health is unwavering, particularly in mitigating the effects of extreme heat. The city is enhancing its systems and educational outreach to significantly reduce heat-related health issues, aiming to ensure that every member of the community has the knowledge and resources to stay safe during heatwaves.

Access is central to Gainesville's home cooling initiatives. The city is working to guarantee that efficient cooling solutions are accessible to all, regardless of socio-economic status. This includes prioritizing the distribution of resources to ensure that everyone, especially those in low-income housing, has a respite from the heat.

Expanding the reach and improving the usage of public cooling facilities is another critical objective. Gainesville is broadening the availability of these essential services to ensure that relief from the heat is always within reach. Through these efforts, the city strives to provide a safer, healthier environment for all neighbors during the hottest times of the year.

## 6.4 Strategies and Actions:

Gainesville is committed to enhancing community resilience against heatwaves through a multifaceted approach. Key to this strategy is the broadening of community preparedness via robust educational and training programs. These initiatives aim to empower neighbors with the knowledge and skills needed to protect themselves and their loved ones from the dangers of extreme heat, fostering a well-informed and prepared community.

Concurrently, Gainesville is advancing efforts to make homes more heat-resilient by retrofitting them with energy-saving systems. This initiative focuses not only on the installation of such systems but also on ensuring their longevity and efficacy through regular maintenance. By doing so, the city provides neighbors, particularly those in vulnerable housing, with more sustainable living environments that offer relief from the heat and contribute to energy conservation.

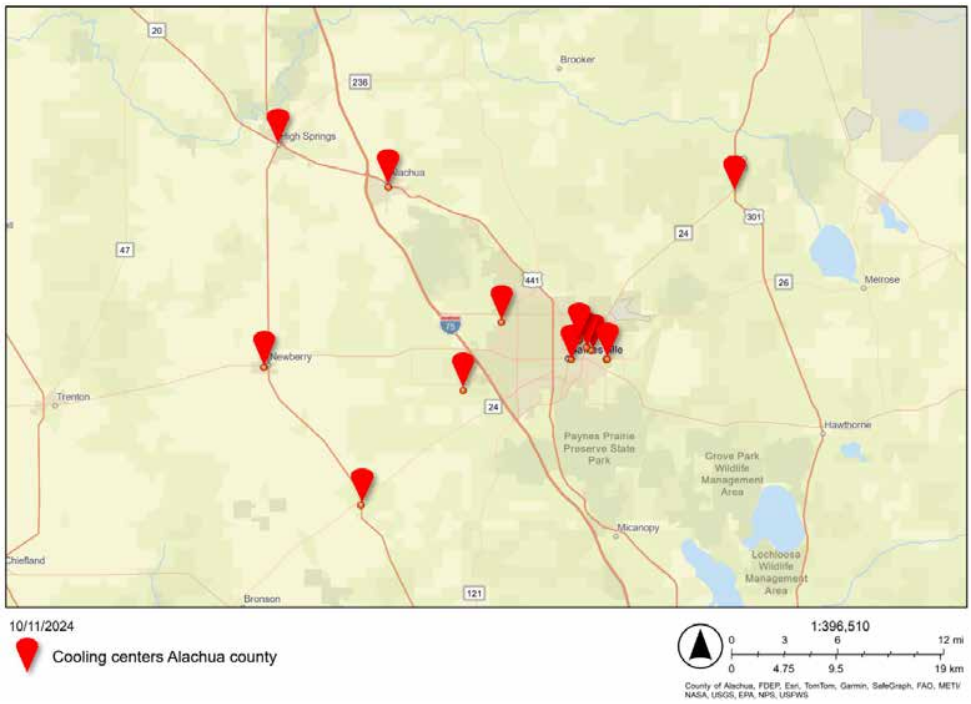
Further enhancing Gainesville's defenses against heat is the commitment to enrich public cooling options. This endeavor includes maximizing the use of natural resources and expanding green cover. By increasing tree planting and enhancing green spaces, the city not only improves the aesthetic and environmental quality of urban areas but also creates more natural cooling zones. These efforts collectively aim to provide accessible and effective cooling solutions, contributing to the overall resilience and well-being of the community.

The Heatwave Response Plan for Gainesville involves three goals and 18 critical steps aimed at protecting the community, especially vulnerable populations, during extreme heat events. Here is a structured approach:

### 6.4.1 Warning System and Public Awareness:

- **Implement an Early Warning System:** Utilize local meteorological data to forecast heatwaves and disseminate alerts through social media, local news, and other channels.
- **Public Awareness Campaigns:** Educate neighbors about heatwave risks, safety measures, and resources like cooling centers.
- **Education Programs in Schools:** Increase the number of schools and children involved in heatwave education programs.
- **Community Outreach and Training:** Expand the reach to more people and organizations for awareness and training.
- **Legislation for Outdoor Workers:** Advocate for and pass legislation to protect outdoor workers from heat risks.
- **Professional and Volunteer Training:** Train more professionals and volunteers for effective heatwave response.
- **Reduction in Heat-Related Illnesses and Deaths**: Aim to decrease heat-related health issues through these initiatives

**Cooling Centers in Alachua County**




### 6.4.2 Home Cooling

- Use EECBG Funds for Low-Income Home Energy Efficiency: Upgrade insulation and install energy-efficient cooling systems in low-income homes.
  - City of Gainesville has been named the recipient of a $189,820 Energy Efficiency and Conservation Block Grant Program from the U.S. Department of Energy.
  - It will be used to provide rebates to 25-30 low-income households for energy efficiency upgrades through Gainesville Regional Utilities.
- Retrofitting Housing Units: Increase the number of single and multi-family housing unit retrofits.
  - If homeowners began energy upgrades or retrofits to their home on or after August 16, 2022, they may be eligible for reimbursement under Florida's Whole Home Rebates.
- Efficient AC Systems Installation: Enhance the number of efficient air conditioning systems in homes.
- Energy Backup System Inspections: Conduct more site visits to inspect energy backup systems at nursing homes and assisted living facilities.
- Energy Redundant Emergency Facilities: Increase the number of energy redundant or resilient emergency facilities.
- Resilience Hub Plan: Develop a citywide resilience hub plan which is connecting community facilities that provide essential support and resources during emergencies, enhancing neighborhood resilience in climate-related events.
- Use the Florida's Whole Home Rebate (HOMES) Program: Upgrade the energy efficiency of single-family and multifamily households with discounted prices.
  - This program will provide rebates for energy efficiency retrofits ranging from $2,000 to $4,000 for individual households and $2,000 to $4,000 per dwelling in multifamily buildings.
- Use HEAR Program: Use to purchase high-efficiency equipment.
  - Florida's Home Electrification and Appliance Rebates Program is only for low- and moderate-income households.

### 6.4.3 Public Cooling

- Optimize Use of Cooling Centers: Strengthen collaboration with the city to enhance the accessibility and distribution of cooling centers. Ensure they are reachable for all neighbors, including those without personal vehicles.
- Leverage 59% Tree Canopy Coverage: Use the extensive tree canopy to mitigate urban heat island effects. Focus on expanding green spaces, especially in areas with less canopy coverage, to enhance natural cooling.
- Increase Tree Planting on Public Lands: Plant more trees on city land, targeting areas with low canopy and high poverty rates, and through partnership programs.
- Tree Distribution to Private Neighbors: Encourage the planting of trees on private property by distributing trees to private neighbors.
- Installation of Other Cooling Features: Install additional features like cool pavements and assess changes in relative temperature and humidity.
- Community-Wide Tree Canopy Goal: Maintain or increase the percentage of the community-wide tree canopy.

### 6.4.4 Cooling Public Spaces

Here are the public areas that can be used for cooling purposes during the heat waves:

- **Dwight H. Hunter Pool:** 1100 Northeast 14th Street, Gainesville
- **Andrew R. Mickle, Sr. Pool:** 1717 SE 15th St, Gainesville
- **H. Spurgeon Cherry Pool**: 1001 NW 31 Dr, Gainesville
- **Alachua Branch Library**: 14913 N.W. 140 Street, Alachua
- **Archer Branch Library:** 13266 S.W. State Road 45, Archer
- **Clarence R Kelly Center:** 1701 N.E. 8th Avenue, Gainesville
- **Cone Park Branch Library:** 2801 E. University Ave., Gainesville
- **Eastside Community Center at Cone Park:** 2841 E. University Avenue, Gainesville
- **Headquarters Library – Gainesville:** 401 E. University Avenue, Gainesville
- **Library Partnership Branch – Gainesville:** 912 N.E. 16 Avenue, Gainesville
- **Millhopper Branch Library:** 3145 N.W. 43rd Street, Gainesville
- **MLK Center**: 1028 N.E. 14th Street, Gainesville
- **Newberry Branch Library**: 110 S. Seaboard Drive, Newberry
- **Tower Road Branch Library**: 3020 S.W. 75th Street, Gainesville

## 6.5 Partnerships and Collaboration:

In Gainesville, a collaborative approach underscores the city's resilience strategies, particularly in addressing the impacts of extreme heat. The University of Florida and Santa Fe College, both world class educational institutions, and community healthcare providers, are at the forefront of these efforts, playing a pivotal role in enhancing community awareness and preparedness for heat-related challenges. Their expertise and reach are crucial in disseminating information and educating the public on how to stay safe during heatwaves.

Moreover, environmental groups contribute significantly to the city's green initiatives, especially in tree planting efforts. Their involvement not only aids in expanding the urban canopy but also aligns with broader environmental goals, providing cooler, greener spaces for all neighbors. Concurrently, housing agencies are integral partners in the city's endeavor to improve residential energy efficiency. Their collaboration in retrofitting programs ensures that homes, particularly those vulnerable to heat stress, are equipped with energy-saving systems, thereby enhancing indoor climate control and reducing energy consumption.

Together, these partnerships form a robust network of support and action, underpinning Gainesville's commitment to creating a resilient, informed, and sustainable community in the face of rising temperatures.

## 6.6 Funding and Resources:

Gainesville's initiatives to combat heatwaves and enhance cooling infrastructures benefit significantly from a diverse funding landscape. The city relies on a strategic mix of federal, state, and local resources, with EECBG funds playing a pivotal role in its projects. Looking ahead, Gainesville is committed to exploring new grants and cultivating public-private partnerships to further invest in the community's cooling facilities.

Central to these collaborative efforts is the partnership with Alachua County, which has been instrumental in aligning and amplifying the city's climate resilience goals. Additionally, close collaborations with the University of Florida through the Gatorshade project and with Gainesville Regional Utilities underscore the community-wide approach to addressing heat-related challenges. These partnerships not only enhance the city's capacity to implement effective solutions but also ensure that initiatives are grounded in local expertise and resources, supporting a comprehensive and community-oriented response to climate challenges.

## 6.7 Monitoring and Evaluation:

Gainesville is committed to a comprehensive evaluation and enhancement strategy for its climate resilience initiatives, focusing on several critical areas. The effectiveness of the Early Warning System is a key concern; the city plans to assess its impact through public response metrics, ensuring that the system is both effective and responsive to the community's needs. In tandem, the progress and outcomes of home cooling programs are under continuous scrutiny. By monitoring energy usage and health outcomes, the city can gauge the success of these programs and identify areas for improvement.

Furthermore, the utilization of public cooling facilities is a vital aspect of Gainesville's evaluation process. By analyzing usage patterns and feedback, the city aims to make strategic improvements that increase accessibility and comfort for all neighbors. Additionally, the growth and health of the urban tree canopy are being monitored to quantify its environmental and cooling benefits. This multifaceted monitoring approach ensures that each element of Gainesville's heat response strategy is optimized for maximum effectiveness and sustainability.

## 6.8 Additional Initiatives:

Gainesville is advancing its climate resilience efforts by incorporating a strategic blend of local data, community engagement, and collaborative partnerships. By integrating localized health data from Florida CHARTS, the city aims to tailor its public health interventions more precisely to address the specific impacts of heatwaves, ensuring that responses are data-driven and effectively mitigate health risks.

Recognizing the energy and innovation of local student bodies, Gainesville is launching a Campus Ambassador Program at the University of Florida and Santa Fe College. This initiative is designed to harness the enthusiasm and potential of students, mobilizing them in various climate action efforts and fostering a culture of environmental stewardship and proactive engagement in climate resilience.

In addition, a partnership with the Alachua County's EMPOWER Program represents a significant step forward. This collaboration allows the city to leverage the program's experience and resources, enhancing Gainesville's capacity to address heat resilience comprehensively and effectively.

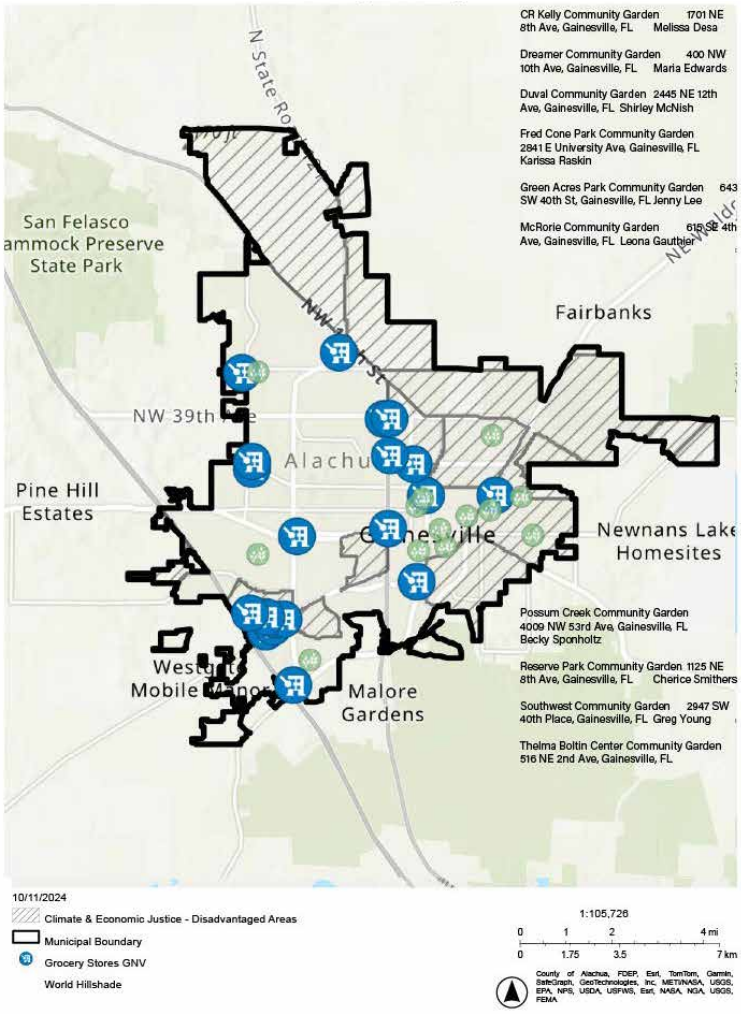
Another forward-thinking strategy proposal involves the University of Florida partnering with the City of Gainesville on Gatorshade, an innovative AI-driven infrastructure that aids in community heat response and planning. This collaboration marks a significant leap forward in the city's approach to managing extreme temperatures, with the university expected to play a key role in implementing this technology within the community.

Finally, Gainesville's participation in the Leadership in Energy and Environmental Design (LEED) for Cities program marks a critical milestone in its commitment to sustainability. Being part of this esteemed program enables the city to benchmark its efforts, receive guidance on best practices, and align its strategies with the ambitious goal of achieving net zero carbon emissions by 2045, reflecting a dedication to a sustainable and resilient future for the community.

# 7. Food Systems


## 7.1. Current State Assessment:

**Figure 1: Gainesville Food Systems Map**




### 7.1.1 Grocery Stories in Gainesville:

Gainesville currently hosts twenty grocery stores (Figure 1, blue markers), which play a crucial role in ensuring food accessibility for all neighbors. These stores are integral to local food initiatives, providing a variety of options for fresh, healthy food and supporting the community's food security.

### 7.1.2 Community Gardens Expansion:

Gainesville has expanded its commitment to local food production and community engagement with thirteen total community gardens (Figure 1, green markers), with seven of them registered under the USDA People's Garden Initiative. These gardens not only enhance local food supply but also serve as hubs for community involvement and education in sustainable food practices.



### 7.1.3 Collaboration with MEANS Database:

Gainesville has embarked on a significant collaboration with the Matching Excess and Needs for Stability (MEANS) database. This partnership is key to expanding the diversion of edible food from commercial entities, marking a substantial move towards reducing food waste and enhancing food security in the community by efficiently redistributing surplus food.

### 7.1.4 Local Food Diversion Initiatives:

Gainesville's efforts in local food diversion are noteworthy, encompassing a variety of programs and partnerships. These initiatives encourage food businesses to reduce waste and redistribute surplus food, in alignment with the city's zero waste ordinance. Such efforts underscore the city's proactive approach to managing food resources, highlighting potential areas for further development in waste reduction and food redistribution.

### 7.1.5 Edible Groves Project Creates Locally Grown Food Source

In 2021, the city unveiled its Edible Groves project in an effort to increase access to healthy food. Currently, three sites have been planted: Smokey Bear Park in Northeast Gainesville, Fred Cone Park in East Gainesville, and an area known as Bountiful Boulevard, located along the 4200-4300 block of SW 40th Blvd.



## 7.2. Goals and Objectives:

### 7.2.1 Healthy Bites for All:

Ensure Gainesville neighbors have access to nutritious and fresh food, wherever they reside. This goal focuses on offering food choices that are mindful of everyone's cultural backgrounds, ensuring they align well with local and environmental values.

### 7.2.2 Waste Not, Want Lots:

Focus on minimizing, reutilizing, or recycling food-related waste through zero waste ordinance. This objective aims to transform Gainesville's approach to food waste, turning it into a resource rather than a problem.

### 7.2.3 Grow and Show:

Encourage and support the cultivation of food within Gainesville, for both personal enjoyment and commercial endeavors. This goal promotes a closer connection between neighbors and their food sources.

### 7.2.4 Economy and Gastronomy:

Foster the growth of businesses involved in the cultivation, processing, distribution, and sale of local and nutritious food. This objective aims to enhance the local economy through a vibrant, locally focused food sector.

## 7.2. Goals and Objectives:

### 7.2.1 Healthy Bites for All:

Ensure Gainesville neighbors have access to nutritious and fresh food, wherever they reside. This goal focuses on offering food choices that are mindful of everyone's cultural backgrounds, ensuring they align well with local and environmental values.

## 7.3. Strategies and Actions:

### 7.3.1 Health Bites for All:

- Develop accessible points for acquiring healthy food, including increasing the number and capacity of community gardens and edible groves.
- Provide support for establishing farmers market in areas identified as lacking in food security.
- Set nutrition standards in city-supported childcare environments and implement guidelines for healthy food vending on city properties.
- Expand programs like "Farm to School" and initiatives promoting affordable food bags.
- Community Garden Expansion: Develop programs to increase the number and capacity of community gardens.
- Food Security Enhancement: Collaborate with food banks and NGOs to optimize food distribution networks.

### 7.3.2 Waste Not, Want Lots:

- **Launch Waste Reduction Initiatives:** Implement city-wide programs aimed at reducing the disposal of edible food. This involves educating the public on methods to lessen food waste at the source and prioritizing the redistribution of edible food to those in need, in alignment with the city's Zero Waste Ordinance.
- **Enhance Food Waste Recycling and Redistribution:** Strengthen food waste recycling efforts, especially in residential and commercial sectors. This includes supporting the existing composting program and ensuring that the priority for any edible food diversion is to feed the hungry, as stipulated by the Zero Waste Ordinance.
- **Expanding Composting and Food Redistribution Infrastructure:** Continue to develop composting systems at city facilities and explore ways to increase composting capacity. Simultaneously, work on enhancing infrastructure and partnerships for the redistribution of edible food to address hunger in the community, in line with the Zero Waste Ordinance.

### 7.3.3 Grow and Show:

- **Educational Initiatives:** Focus on increasing public awareness about sustainable food practices and the role of community gardens.
- **Cultivating Food on Municipal Properties:** Create and improve initiatives that allow for food cultivation on city-owned properties. This could include transforming public spaces, parks, and even rooftops of municipal buildings into areas for growing food. Explore partnerships with community organizations and local gardening groups to manage and maintain these spaces.
- **Encouraging Food Production on Private Land:** Encourage homeowners and businesses to grow food on their private properties. This could involve providing resources and support for creating home gardens or incorporating food-producing landscapes in commercial areas. A system could also be developed where homeowners let farmers use their land to grow in exchange for some of the produce.
- **Capitalizing on Building-Integrated Agriculture:** Investigate and leverage opportunities for agriculture that can be integrated directly into building designs, such as rooftop gardens or green walls. This approach not only promotes local food production but also contributes to building sustainability and improves urban air quality. The city will consider supporting pilot projects and partnerships with developers to showcase the feasibility and benefits of building-integrated agriculture.

### 7.3.4 Economy and Gastronomy:

- Foster community gardening projects, especially targeted towards underserved communities.
- Evaluate the need for and potentially develop local facilities for food processing and storage.
- Provide comprehensive resources for those interested in food processing businesses.
- Promote local food as a distinctive aspect of Gainesville's character.
- Provide support to local farmers' markets and retailers focusing on healthy, local produce.

## 7.4. Partnerships and Collaboration:

- Strengthen existing partnerships with Bread of the Mighty Food Bank, MEANS, Growhub, Organix, Beaten Path, and other NGOs in aiding those in need.
- Engage Alachua County School Board, University of Florida, and Santa Fe College in educational initiatives and research on sustainable food practices.

## 7.5. Funding and Resources:

- Explore additional funding opportunities for enhancing food distribution networks.
- Allocate resources efficiently to maximize the impact of food diversion programs.

## 7.6. Monitoring and Evaluation:

- Track the expansion of community gardens and improvements in food security metrics.
- Assess the effectiveness of educational programs and waste reduction initiatives.

# 8. Community Engagement

Gainesville's commitment to climate action has been marked by a comprehensive approach in community engagement, strategic partnerships, and a wide array of initiatives focusing on raising awareness, fostering participation, and integrating sustainability into the community's fabric.

Equitable Community Engagement

## 8.1. Current State Assessment:

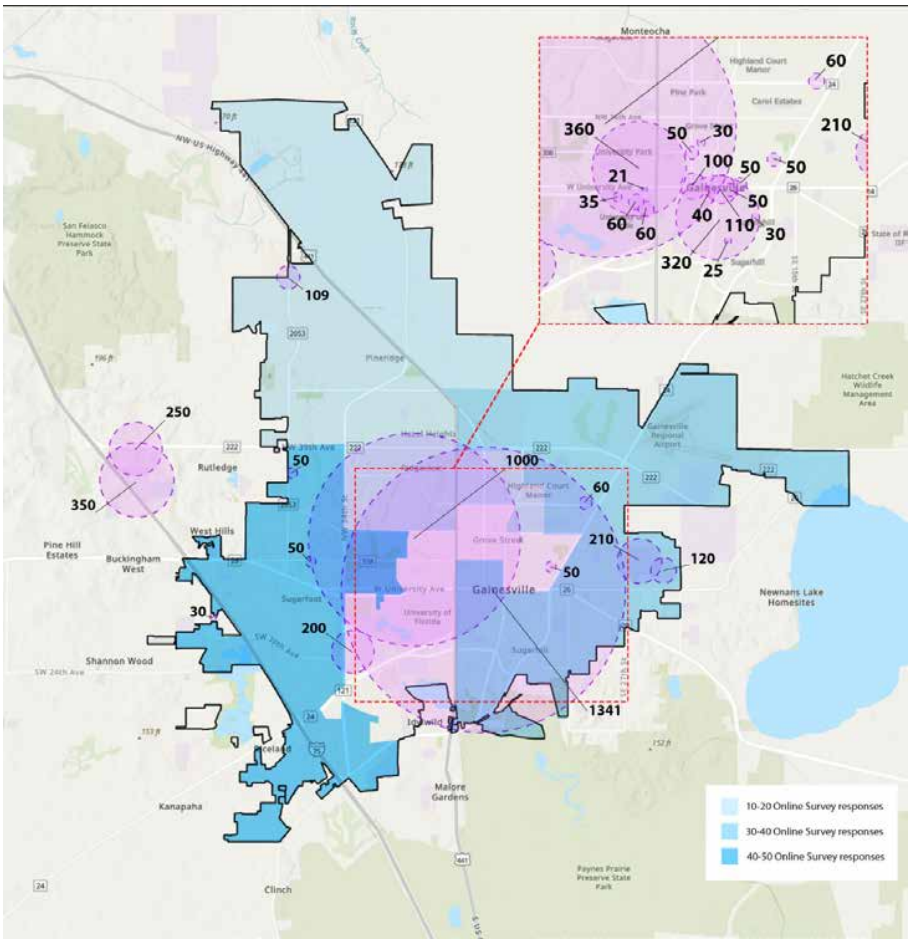



**Figure 2: Gainesville Community Engagement Map**

### 8.1.1 Extensive and Diverse Engagement Activities:

Gainesville has a proven track record of sustainability efforts, especially since February 2023 with the appointment of the city's first Chief Climate Officer. Over the past year, this leadership has driven a wide range of engagement activities, including 55 one-on-one meetings, 45 interviews with community leaders, 150 survey responses, 160 virtual meetings to broaden participation, and 32 public seminars for in-depth climate discussions. The city's commitment to raising awareness and fostering public participation in climate action is further evidenced by seven instances of major media coverage, ten sustainability tours, eight tree planting events, and eight tabling events that directly engaged the public and encouraged climate action—all within one year. Additionally, Gainesville has conducted 12 unique engagement activities with students and the community, enhancing involvement and fostering climate awareness across diverse groups.

- **Tree Planting:** Engaging community members in planting trees to enhance urban green spaces.
- **Community Garden:** Developing community gardens for local food production and education.
- **Adopt a Tree Program:** Encouraging neighbors in urban forestry.
- **Composting Initiative:** Implemented in over 400 homes and two city departments.
- **Sustainability Tours:** Six tours conducted, educating on local sustainable practices.
- **Research and Data Collection:** Gathering data for climate action strategies.
- **Policy Making:** Community involvement in developing environmental policies.
- **Collaboration with Local Organizations:** Partnering with local groups for climate initiatives.
- **Community Workshops:** Conducting workshops on environmental topics.
- **Science Night**: Launched in November to foster science-based climate understanding.
- **Climate Ambassador Program:** In progress, to create an informed community network.
- **Photo/Video Contest:** In progress, to encourage creative expression on climate impact and sustainability.

**8.1.2 Collaborative Efforts:**

- **Formation of New Partnerships:** A key aspect of Gainesville's strategy has been the formation of 24 new local partnerships. These collaborations span various sectors and have been crucial in pooling resources, expertise, and efforts towards shared climate goals. The partnerships reflect a concerted effort to integrate climate action into various aspects of community life and infrastructure.
- **Integration with Community Infrastructure:** These collaborations have been integrated into various aspects of community life, enhancing the city's overall resilience and sustainability framework.

## 8.2. Goals and Objectives:

### 8.2.1 Community Collaboration:

To enhance engagement and participation among Gainesville residents in climate-related discussions and decision-making. This involves tapping into local expertise and experiences, especially from underrepresented communities, to ensure a diverse range of voices and perspectives in climate action initiatives.

### 8.2.2 Green Career Cultivation:

To create and promote opportunities for sustainable employment in the local community. This goal focuses on developing the green job sector, providing training, and facilitating employment in areas contributing to environmental sustainability.

### 8.2.3 Climate Consciousness Education:

To raise awareness and understanding of climate resiliency and its impacts among all neighbors. This includes developing accessible and culturally relevant educational programs and materials that cater to different community segments.

### 8.2.4 Solutions and Strategies Development:

To empower neighbors to actively participate in and contribute to the development of practical, effective solutions for local climate challenges. This goal seeks to develop a culture of innovation and problem-solving within the community.






## 8.3. Strategies and Actions:

### 8.3.1 Community Collaboration:

- **Implement Local Expertise in Planning:** Integrate feedback and insights from community engagement activities into city planning and risk mitigation.
- **Develop Inclusive Community Events:** Organize events and workshops that address climate hazards and resilience, ensuring the participation of diverse community groups.

### 8.3.2 Green Career Cultivation:

- **Training Program Expansion:** Collaborate with UF, Santa Fe College and local businesses to offer comprehensive training programs in sustainable industries.
- **Job Fair Organization:** Connect trained individuals with green job opportunities in the local market.

### 8.3.3 Climate Consciousness Education:

- **Youth Engagement and Educational Programs:** Expand initiatives like Science Night to educate youth about environmental stewardship.
- **Tailored Communication Efforts:** Create communication channels specifically designed for underserved communities, providing essential information about climate resiliency and sustainability practices.

### 8.3.4 Solutions and Strategies Development:

- **Encourage Community-Driven Solutions:** Create platforms for neighbors to propose and participate in developing local climate solutions.
- **Integrate Local Solutions into City Policies:** Ensure that community-proposed solutions are considered and, where feasible, integrated into the city's climate policies and initiatives.




### 8.4. Monitoring and Evaluation:

- **Engagement Metrics:** Develop more nuanced metrics to measure the depth and quality of engagement in addition to the reach.
- **Feedback Systems:** Establish a regular schedule for surveys and feedback collection, ensuring ongoing community input in climate action planning.
- **Green Job Metrics:** Set clear benchmarks for green job creation and evaluate the effectiveness of training programs against these benchmarks.
- **Continuous Improvement:** Implement a regular review system to assess the plan's impact, with adjustments made based on community feedback and changing environmental conditions.

## To get involved:

**Tree Planting**

Come help us beautify the Santa Fe College campus by joining us in planting trees around campus. Join our tree planting events and help make the world greener one tree at a time.

**Community Garden**

Get your hands dirty and contribute to our community garden. Learn to grow your own food and build a stronger, sustainable community.

**Adopt a Tree**

Support our tree fund to protect and nurture trees in your neighborhood. Become a tree parent and watch your love for nature grow.

**Collaboration with Local Organizations**

Together, we can achieve more! Collaborate with local organizations, like the City of Gainesville, to strengthen our commitment to sustainability.

**Community Workshops**

Learn new skills and share knowledge at our community workshops. Together, we can build a better, sustainable future.

**Composting**

Reduce waste and enrich the soil by learning the art of composting. Discover the benefits of turning scraps into nutritious soil for your garden.

**Sustainability Tour**

On October 21st, embark on a journey to explore sustainable practices in our community. Be inspired and take ideas back to your own life.

**Research and Data Collection**

Join our mission to collect vital data to support sustainable initiatives. Contribute to meaningful research that helps shape the future.

**Policy Making**

Be a part of the change by participating in policy-making discussions. Advocate for sustainability and influence positive policies.

**Science Night**

Get ready for an exciting night of scientific exploration. Join us in November for a fun and educational experience.

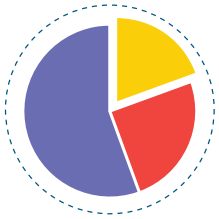
**Climate Ambassador Program**

Become a climate ambassador and play a pivotal role in spreading awareness about climate change and sustainable practices.

**Photo/Video Contest**

Showcase your creativity and capture the beauty of sustainability through your lens. Participate in our contest and win amazing prizes!

# 9. Climate Analytics & Modeling



Smart Technology / Dashboards

## 9.1 Climate Action Dashboard

At the forefront of the City of Gainesville's efforts to protect the environment and communicate sustainability information to the public is the Climate Action Dashboard, offering insights into emissions tracking and management. The Climate Action Dashboard provides citizens unparalleled access to vital data and information about the city's climate action initiatives. This robust tool allows neighbors to access a rich array of insights into Gainesville's emissions profile, energy consumption patterns, and progress toward sustainability goals. For example, users can examine detailed breakdowns of greenhouse gas emissions by sector, gaining a thorough understanding of the sources contributing to climate resilience within the city (see Figure 2).

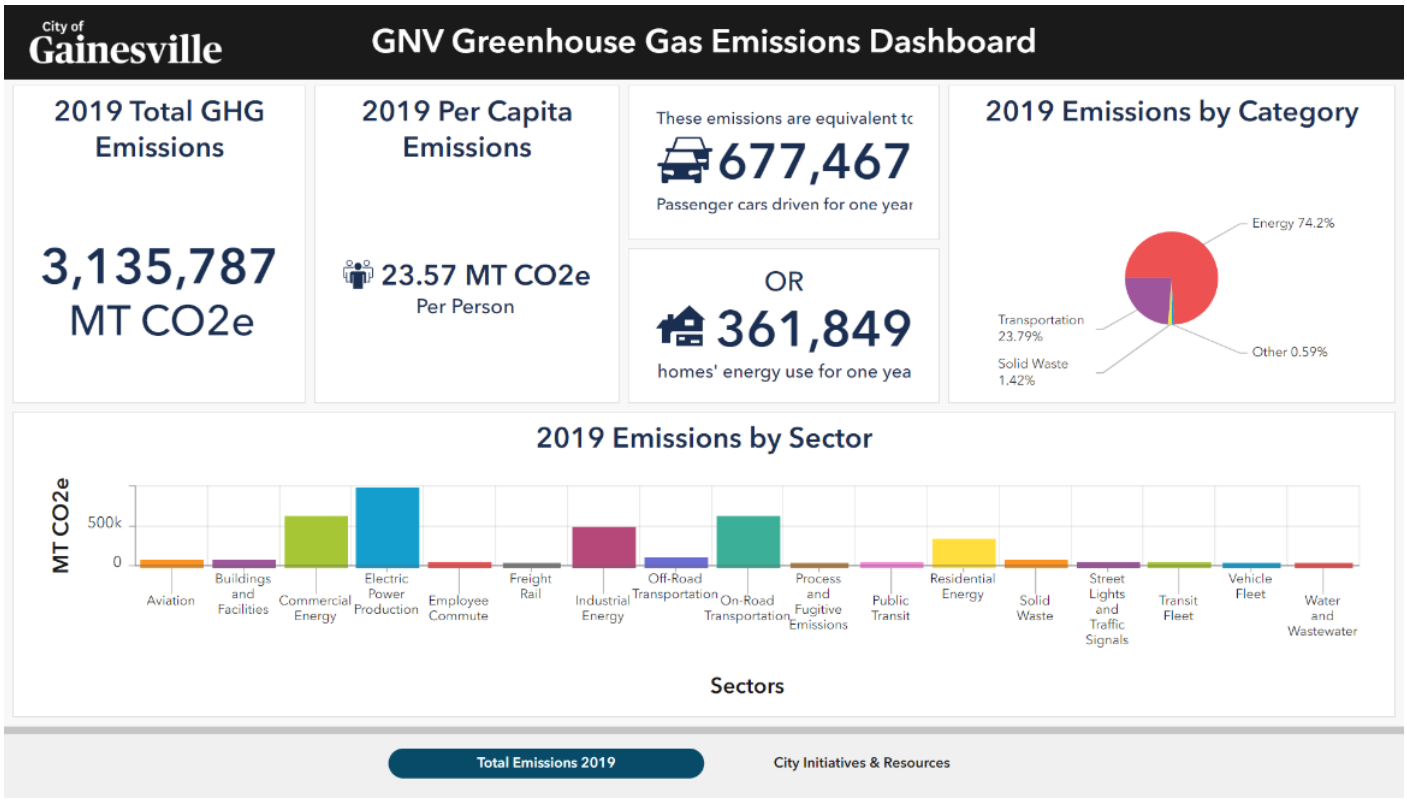



**Figure 2: Gainesville Climate Dashboard, Total Emissions 2019**
[GNV Greenhouse Gas Emissions Dashboard (arcgis.com)]

Furthermore, the Dashboard presents the city's total greenhouse gas emissions for government operations and community emissions in aggregate. It also translates these emissions into equivalents, such as the number of passenger cars driven for one year or the energy use of homes for one year, making the metric tons of $CO_2$ equivalent (MT $CO_2e$) more comprehensible for the general public. In addition, the dashboard offers interactive updates on renewable energy usage, highlighting the concrete effects of initiatives like solar energy installations and energy efficiency programs (see Figure 3).

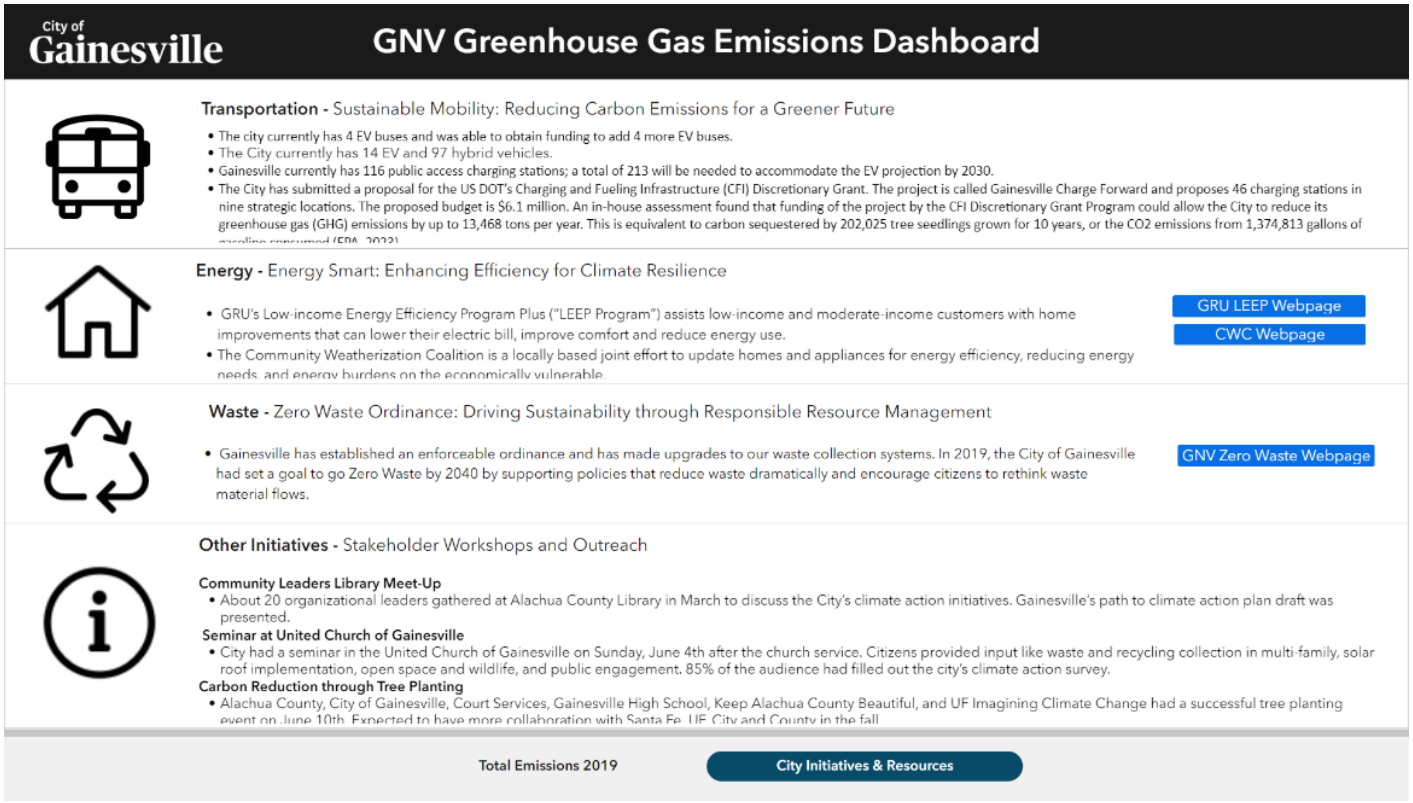



**Figure 3: Gainesville Climate Dashboard, City Initiatives & Resources**
[GNV Greenhouse Gas Emissions Dashboard (arcgis.com)]

The Climate Action Dashboard aligns with the City's involvement in the Climate Disclosure Project, ensuring transparent reporting of climate-related data to global stakeholders. The city also pledged to the United Nations Race to Zero, underscoring Gainesville's dedication to ambitious climate action and its contribution to the global shift toward a net-zero future. By making this comprehensive information easily accessible to citizens, the Climate Action Dashboard enables individuals to actively reduce their carbon footprint and advocate for sustainable practices, symbolizing environmental stewardship.

## 9.2 Sustainable Development Interactive Maps

The Sustainable Development Interactive Maps and Dashboard places powerful knowledge of the local environment directly into the hands of Gainesville's citizens (see Figure 4). This indispensable tool provides users with a holistic view of their surroundings, showcasing crucial aspects such as wetlands, strategic ecosystems, and wellfield protection zone. By offering insights into environmental features and historical data, the map empowers neighbors to understand the intricate relationship between human activities and natural resources. Through this heightened awareness, individuals gain a deeper appreciation for their environmental footprint and the importance of sustainable practices.

The suite of sustainability development interactive maps and the accompanying dashboard serve as a catalyst for community engagement, encouraging neighbors to explore and appreciate their local environment while fostering a sense of responsibility for its preservation, even as the city changes and grows as a community. In essence, the Sustainable Development Interactive Maps and Dashboard exemplify Gainesville's commitment to environmental stewardship by equipping neighbors with the knowledge and tools necessary to make informed decisions and actively contribute to the well-being of their community and its natural surroundings.

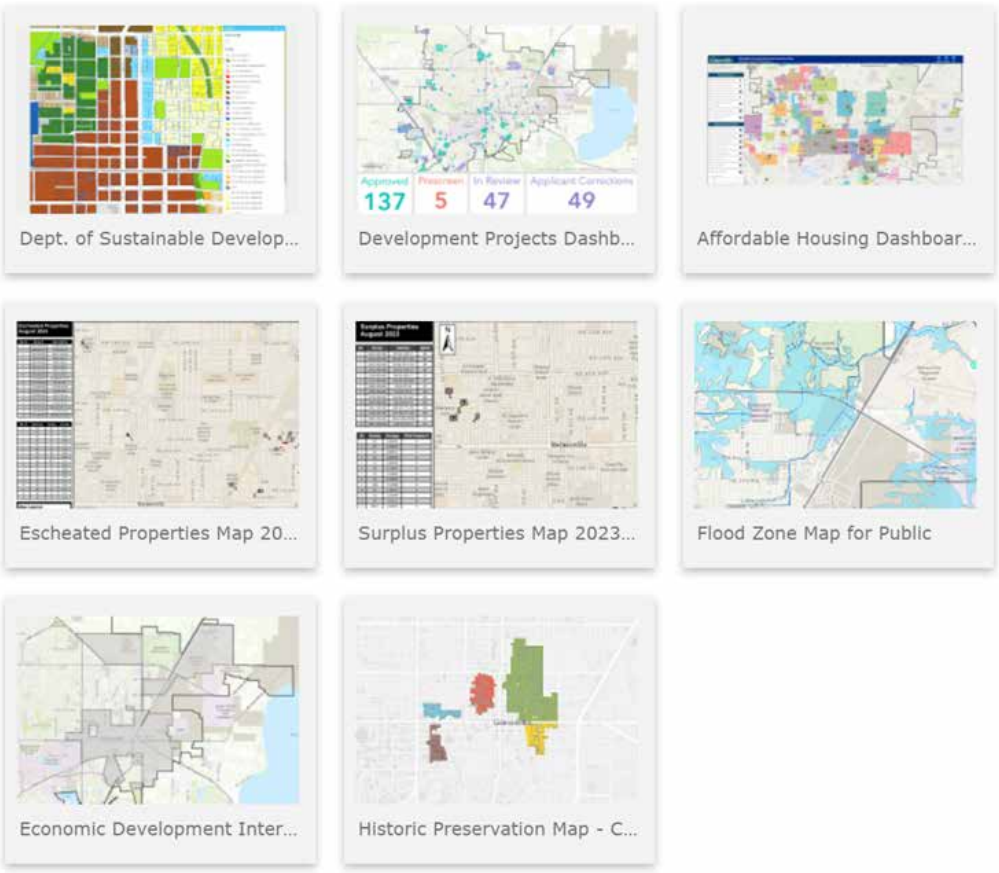



**Figure 4: Gainesville Sustainable Development Interactive Maps**
[Planning & Development Welcome to the City of Gainesville (gainesvillefl.gov)]

## 9.3 Green Mobility / ChargePoint Dashboard

Supplementing these tools are other dashboards like the green mobility dashboard, which enhance public involvement and collaboration in environmental stewardship efforts (see Figure 5).

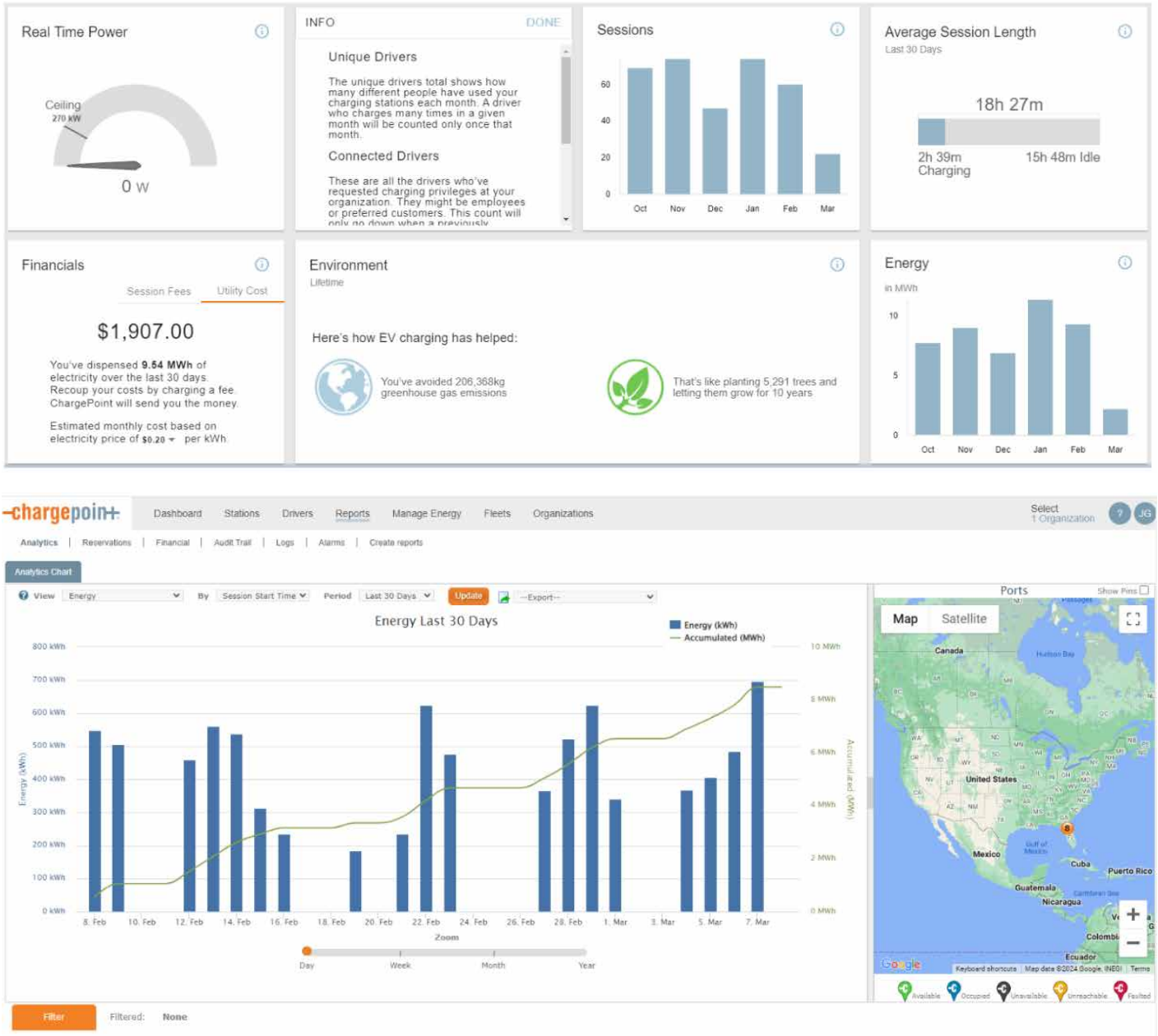



**Figure 5: ChargePoint Green Mobility Dashboard**

## 9.4 Big-Belly Smart Trash Cans & Dashboard


**Figure 6: Big-Belly Trash Cans**

Regarding smart waste management, over the past 5 months, Gainesville has deployed 45 smart 'Big-Belly' trash cans, sourced from the Big-Belly Waste Management Products (see Figure 6). Each of these cans is equipped with solar panels on top, internal sensors, and a compactor. This advanced design allows them to hold up to 5 times more trash than traditional trash cans, enhancing efficiency and reducing the frequency of waste collections. In addition to the 45 trash cans, the city has also installed 44 recycling bins. These smart units notify the city via email when they are ready to be emptied, streamlining waste management operations, and contributing to a cleaner, more sustainable urban environment (see Figure 7).

By optimizing collection schedules, the city significantly reduces transportation carbon emissions and improves staff efficiency. The implementation of the smart Big-Belly Trash Cans underscores Gainesville's commitment to sustainability, promoting waste management efficiency and community participation in Gainesville's climate resiliency goals.

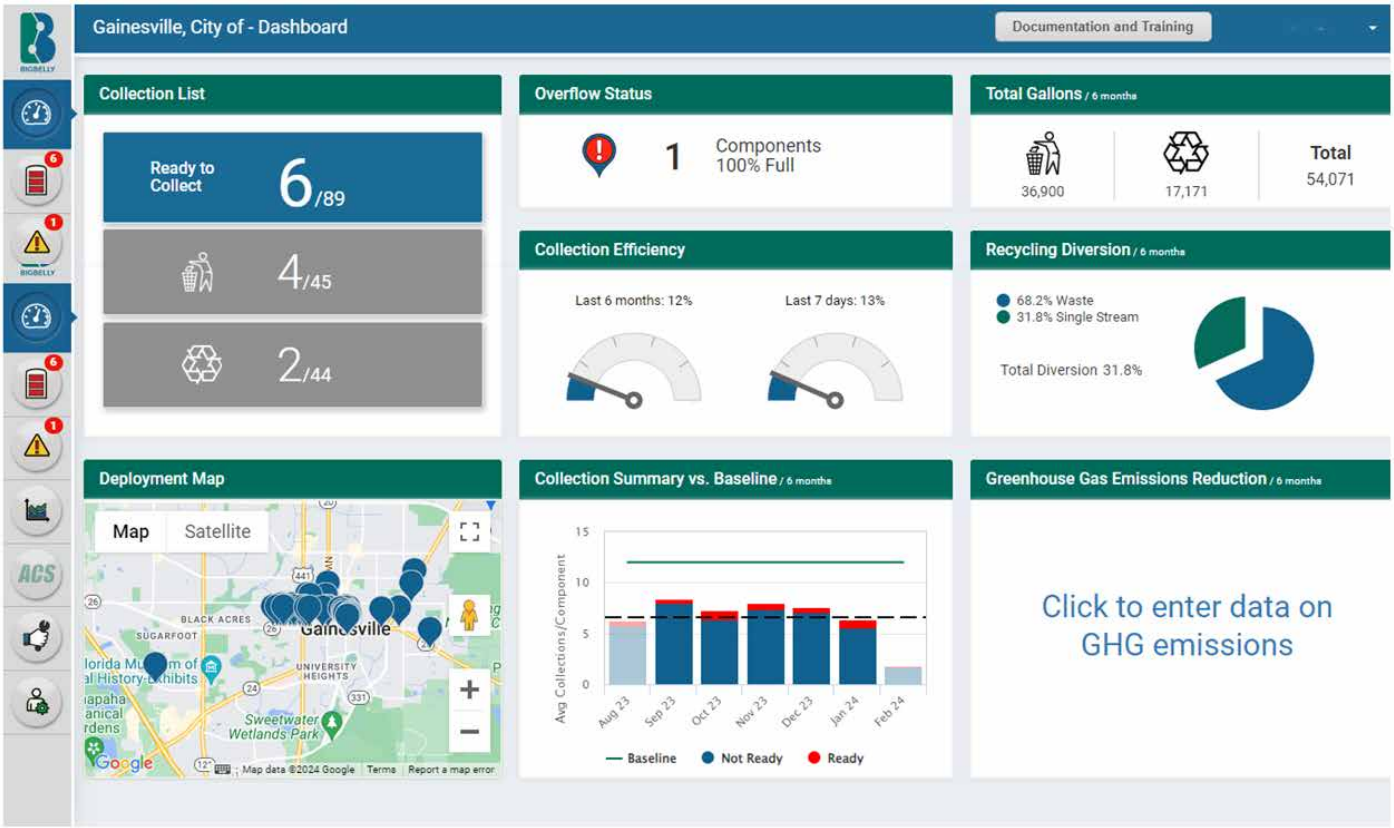



**Figure 7: Big-Belly Collection Dashboard**

## 9.5 Urban Forestry Dashboard

Gainesville is at the forefront of urban environmental stewardship, as evidenced by the ongoing development of its Urban Forestry dashboard. This innovative platform, which integrates comprehensive data on tree planting, maintenance, and canopy inventory, demonstrates the city's unwavering commitment to ecological conservation and enhancement (see Figure 8). With 59% of its urban area covered by a thriving tree canopy, Gainesville proudly upholds its status as a Tree City USA community, a testament to the community's efforts in expanding green infrastructure.

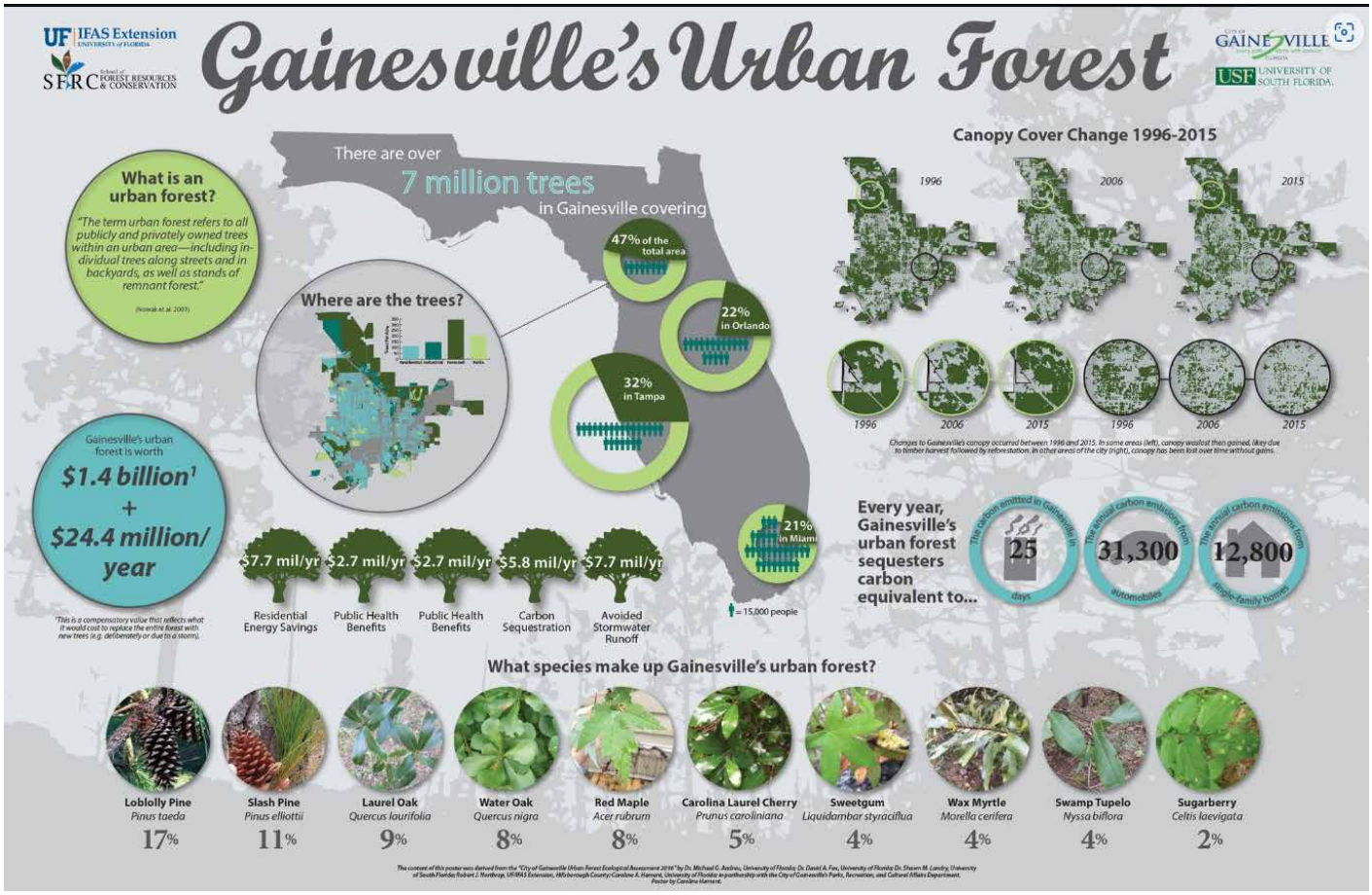



**Figure 8: Urban Forestry Poster**
[Urban Forest Management Plan (gainesvillefl.gov)]

# 10. Funding Resource and Allocation


Gainesville's commitment towards enhancing the city's resilience is reflected in its active pursuit of funding opportunities. These efforts are critical for implementing projects that mitigate environmental impacts and adapt to a changing landscape. This chapter outlines multiple examples of funding that have been secured or are being pursued, and how these resources are allocated to various resiliency-related projects.

### Efficiency and Conservation Block Grant Program, US Department of Energy

Duration February 2024- February 2026
Purpose: This grant supports the city's initiative to help low-income households improve home energy efficiency, reducing energy bills and contributing to the overall reduction of the city's carbon footprint.

### City of Gainesville Anaerobic Digester Feasibility Study, US Department of Energy

Duration: April 2023 - March 2026
Purpose: This study aims to assess the feasibility of implementing anaerobic digesters to manage organic waste, thereby reducing greenhouse gas emissions and producing renewable energy.

### Glen Springs Creek Restoration Project, Florida Department of Environmental Protection

Purpose: Funding is allocated for the restoration of Glen Springs Creek, improving water quality, enhancing biodiversity, and increasing the area's resilience.

### Food Waste Pilot Program

Purpose: This program focuses on reducing food waste through improved waste management practices, contributing to the reduction of greenhouse gas emissions associated with landfill waste.

### Critical Infrastructure: Vulnerability Assessment and Adaptation Plan, Florida Department of Environmental Protection

Duration: February 2023 - September 2026
Purpose: The project involves assessing the vulnerability of critical infrastructure and developing an adaptation plan to enhance resilience.

### Energy Future Grant, US Department of EnergyEnvironmental Protection

Purpose: This grant will support the development of strategies to ensure a sustainable energy future for Gainesville, focusing on renewable energy sources and energy efficiency.

### Electric Transit Bus Grant Program

Purpose: Funding will be used to introduce electric buses into the city's public transportation fleet, significantly reducing emissions and advancing the city's goals towards sustainable transportation.

### LEED for Cities Local Government Leadership Program

Purpose: This program supports Gainesville's efforts to achieve LEED certification, recognizing the city's commitment to sustainability, human health, and environmental quality.

### EPA Electric Bus Video

Purpose: This funding is aimed at supporting the production of educational materials to promote the adoption of electric buses, contributing to reduced emissions and public engagement in climate action initiatives.

### Low and No Emissions, Federal Transit Administration

Purpose: This funding will provide 19 hybrid buses and solar canopies for employee parking at the RTS headquarters. By supporting the transition to low and zero-emission vehicles, it directly advances the city's Climate Resiliency Plan, aiding in the reduction of greenhouse gas emissions and promoting sustainable urban mobility.

Gainesville's strategic approach to securing and allocating funding for resilience projects demonstrates the city's commitment to environmental stewardship and sustainable development. By leveraging these financial resources, Gainesville is positioned to make significant advancements in reducing its environmental impact, enhancing the quality of life for its neighbors, and serving as a model for other cities to address local resiliency.

# Conclusion

The City of Gainesville's Climate Resiliency Plan represents a comprehensive and collaborative effort to address the urgent challenges of a changing climate. Through extensive community engagement, strategic partnerships, and a multidisciplinary approach, the city has developed a roadmap that aligns with its commitment to achieving net zero emissions by 2045. This plan outlines actionable strategies across various sectors, including energy, transportation, and waste management, to create a sustainable and resilient future for the city.

The city's journey towards a sustainable future is not just about reducing emissions but also about enhancing the quality of life for all neighbors. The initiatives detailed in this plan are designed to encourage economic growth, improve public well-being, and ensure environmental justice. By leveraging innovative technologies, enhancing policy frameworks, and promoting sustainable practices, Gainesville aims to create a model for other cities to follow.

As Gainesville moves forward, it is crucial to remain adaptive and responsive to new challenges and opportunities. To ensure accountability and progress, the city will release comprehensive interim reports, detailing achievements, challenges, and areas for improvement. Furthermore, the Climate Resiliency Plan will be reviewed and updated every five years, incorporating community feedback, advancements in technology, and evolving environmental conditions. Continuous monitoring, transparent reporting, and community engagement will be vital in refining and advancing the city's efforts. The City of Gainesville encourages all neighbors, businesses, and stakeholders to actively participate in the implementation of this plan and contribute to the shared vision of a sustainable and resilient Gainesville.

# City Climate Resiliency Plan Development Team (in alphabetical order)

## Community and Government Operations Greenhouse Gas Emissions (Mitigation)

**1. Transportation & Mobile Sources Team:**
Focused on reducing emissions from transportation, which is a large contributor to community-wide emissions.

- Jason Garrett
- Jesus Gomez
- Brittany McMullen
- Andrew Persons
- Ari Rabinovich
- Jacob Yan (UF)
- Dan Zhu

**2. Residential, Commercial & Industrial Energy Team:**
To work on energy efficiency and renewable energy solutions for residential, commercial, and industrial sectors.

- Daniel Blumberg
- Rick Smith

**3. Solid Waste Management Team:**
To work on waste reduction, recycling, and composting programs.

- Mateusz Buszko
- Keith Hampson
- Jarod Lloyd
- Brian Singleton
- Austin Smith
- Thomas Strickland

**4. Water & Wastewater Team:**
To focus on reducing emissions from water and wastewater treatment facilities.

- Jennie Ford
- Rick Hutton (GRU)
- Gail Mowry
- Shane Williams
- Dan Zhu

**5. Local Government Operations Team:**
To work on reducing emissions from government buildings and facilities.

- Kristen Bryant
- Gary Cothren
- John Freeland
- Dennis Nguyen
- Andrew Persons
- Brian Singleton
- Neysa Walkin-Boothe
- Dan Zhu

## Critical Infrastructure and Land Use Climate Vulnerability Analysis (Adaptation):

**1. Extreme Heat Response Team:**
To focus on vulnerable populations and areas with high heat exposure.

- David Conser
- Jennie Ford
- Chelsea Proia
- Brandy Stone
- Dan Zhu

**2. Food Systems & Agricultural Production Team:**
To address the vulnerabilities in food production due to climatic shifts.

- Michael Barnes
- Nina Bhttacharyya (USDA)
- Mateusz Buszko
- Porshe Chiles
- Zeriah Folston
- John John
- Jarod Lloyd
- Evan Smith
- Dan Zhu

**3. Community Engagement Team:**
To prepare for climate migration effects, engaging with the community, stakeholders, and educating the public on climate action.

- John Alexander
- Forrest Eddleton
- Zeriah Folston
- Jennifer Smart
- Dan Zhu

**4. Climate Analytics & Modeling:**
To provide data analytics and modeling support to all teams.

- Juan Duque
- Jennie Ford
- Katherine Michael
- Sheyla De-Santana
- Evan Smith (UF)
- Aleksandra Timofeeva (UF)

**5. Funding & Resource Allocation Team:**
To identify and secure funding and resources for climate action initiatives.

- John Alexander
- Jason Garrett
- Thomas Harrington
- Francis Donahue
- John Freeland
- Sarit Sela
- Evan Smith
- Todd Tuzzolino
- Dan Zhu