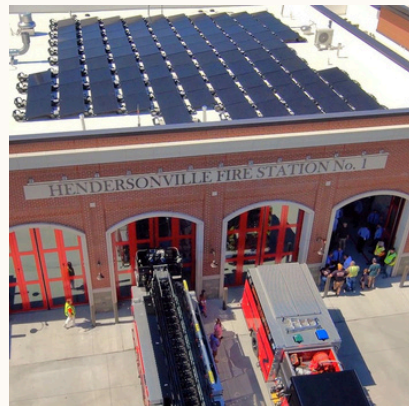


CITY OF HENDERSONVILLE

Sustainability Strategic Plan Annual Report



2024-2025



Introduction

This report highlights the 2024 progress made towards the City of Hendersonville's Sustainability Strategic Plan, adopted May 1, 2024 by City Council. The plan outlines actions within the focus areas of energy, transportation, waste management, land management and water to reach our goal of reducing greenhouse gas emissions 30% by 2035. The plan includes 5 goals and 14 measurable actions. The plan is also meant to be a working document and kept updated as priorities, funding, and technologies change.

The City of Hendersonville has come a long way in advancing sustainability efforts with a few highlights including: approving a biosolids thermal dryer for wastewater treatment, installing a building automation system at City Hall, and the City's first on-site solar array. Multiple studies and test pilots were also completed to better analyze potential cost benefit and assist in implementation. A few examples include analyzing City building energy intensity and completing a propane vehicle test pilot.

What follows throughout this report is an account of what actions were taken to progress towards the City's greenhouse gas reduction goal while showing what to anticipate - and get excited for in the coming year.

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Energy



Goal: Reduce energy demand from municipal buildings & increase the amount of renewable energy utilized

Highlights:

\$27,600

In Duke Energy rebates for energy efficiency projects



Solar projects: 1 installed and 1 approved

500 kW

Energy saved through new automation system at City hall

Actions

Progress

Achieve 10% Energy Savings from Efficiency Upgrades

Building automation system at City Hall

Initial cost: \$18,876

Rebate: \$11,176

Initial savings: \$8,771 (first 7 months of system)

Insulation at fleet washbay

Initial cost: \$10,740

Rebate: \$2,301.20

Initial savings: None thus far

LED lighting at Whitmire Building

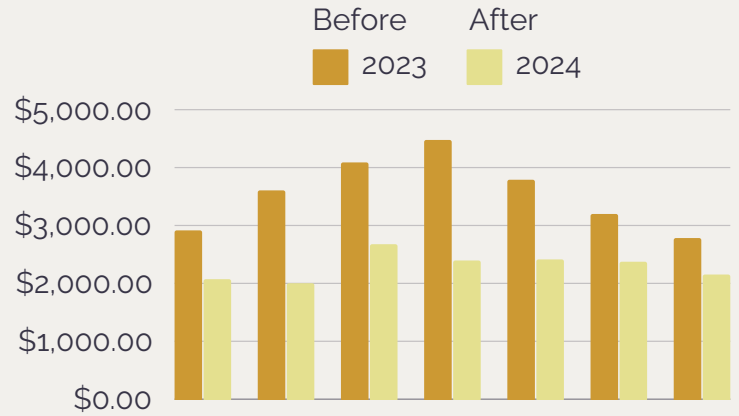
Initial cost: \$4,720

Rebate: \$3,520

Initial savings: None thus far (During the first year after install, the building used \$118 more than the previous year before install).

City Hall Building Automation System

Within the first 7 months, compared to the same months a year prior before the system was installed, total electricity costs dropped by 36%.



City Building Energy Use Intensity Benchmark

As part of strategizing what energy efficiency projects to implement, the City had an energy benchmark report completed to show how our buildings rank in terms of Energy Use Intensity (EUI). EUI is calculated by dividing the total energy consumed by a building by the total square feet of floor area per year. This shows how efficiently a building is using energy. The lower the EUI, the more energy efficient the building is. The chart below shows how each building ranks from highest to lowest EUI. Overall, City buildings absorb less energy than the national average with the exception of City Hall and the Police Department. These are two buildings that future funds should be devoted towards for energy efficiency improvements.

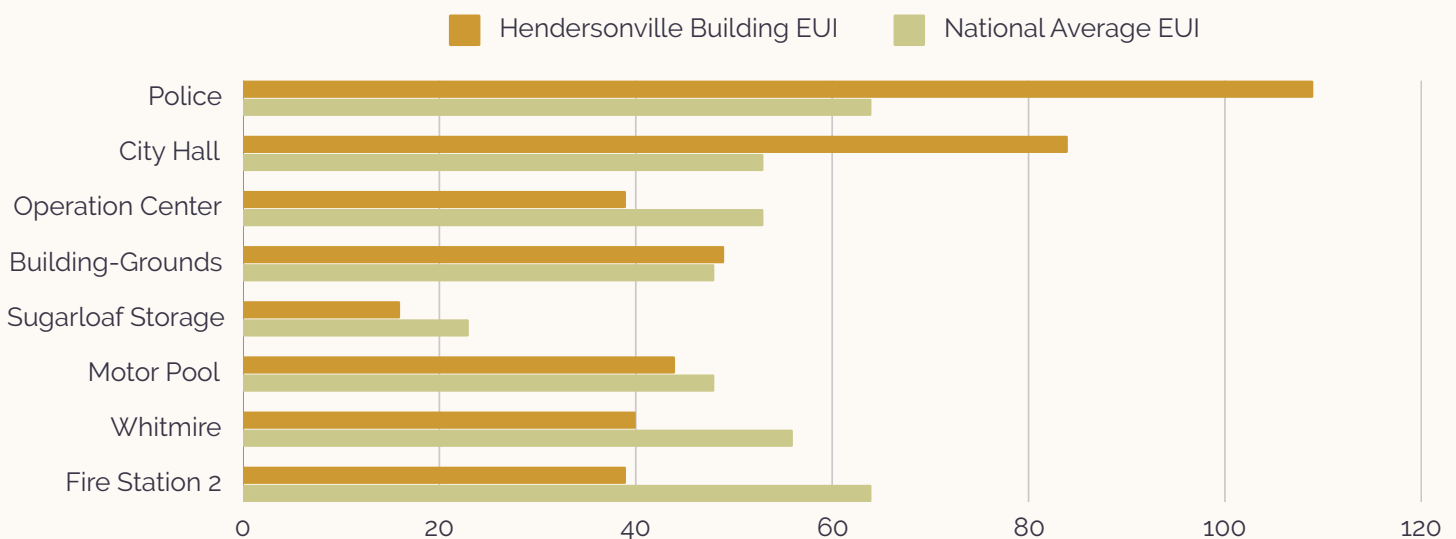


Figure 1: EUI of City of Hendersonville buildings against natural average EUI. Note: due to the complexity of water and wastewater facilities and the variation in nationwide averages, the City's Wastewater Treatment and Water Treatment Facilities were not included in the EUI.

Actions

Progress

Establish sustainable building policy

Policy adopted

Hendersonville's first Sustainable Facilities Policy, R-24-31 was approved by City Council May 2, 2024. The policy includes requirements for all new construction and renovation ranging from electric vehicle ready parking lots and solar capabilities to permeable pavement, LED lighting, HVAC equipment, and more.

To view a full copy of the Sustainable Facilities Policy, visit hendersonvillenc.gov/sustainability



Receive 30% of electricity from renewable energy sources.

Rooftop solar installations

The City's first solar installment was completed in July 2024 which will create an estimated 48,000kWh of renewable energy each year.

A second rooftop solar installation was approved for the new Water & Sewer biosolids dryer facility slated for completion in 2025 which will create an estimated 285,479 kWh of renewable energy each year.

For more information on current and past energy efforts, please visit hendersonvillenc.gov/sustainability/energy.



Energy Efficiency Rebates

The City received \$10,586 in rebates for LED lighting, mini-split systems, and fans installed in the new Firestation 1.

Transportation



Goal: Transition to electric and low emission vehicles and fuel while ensuring there is a robust and safe walkable and bikeable city.

Highlights:

8 Metric tons of greenhouse gas emissions reduced from the 3 City owned public electric vehicle parking spaces

32% Average cost savings from switching to hybrid or propane for City vehicles

Actions

Progress

Increase amount of Level 2 EV charging stations both for public & municipal operations

Existing Infrastructure

Existing charging infrastructure includes 5 electric vehicle charging stations which provide 8 parking spaces available for public use to charge. The City owns 3 of the charging stations which used 10,736 kWh in 2024 resulting in 8,117 kg of greenhouse gas savings.

Future opportunities

Currently, grant opportunities are being pursued to provide more charging stations for the community.

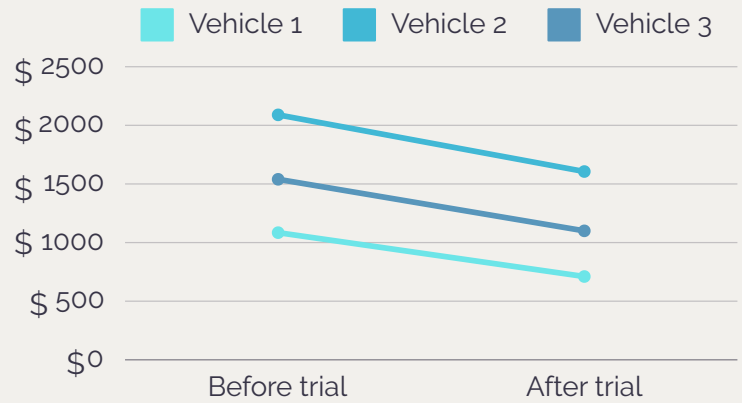
Reduce City fleet fuel usage by 40%

Test pilots and long range planning

The City has tested alternative vehicles including hybrid, electric, and propane fueled which have shown significant cost savings ranging from 39-50% for police pursuit and Water & Sewer vehicles. Currently, the City is focusing on incorporating more energy efficient vehicles for administrative uses while considering a formal sustainable fleet transition policy.

Propane Vehicle Pilot

This year, the City participated in a propane vehicle pilot program. Three vehicles, two from our Water & Sewer Department and one from our Police Department participated with vehicles upfitted with a propane tank. This resulted in a decrease in fuel cost ranging from 29%-34% resulting in significant savings.



Actions

Progress

Implement alternative transportation plans

Bicycle & Pedestrian Infrastructure Staff Committee assembled

This year, the City formed a Bicycle and Pedestrian Infrastructure Staff Committee with a goal to advance the implementation of Bicycle & Pedestrian Infrastructure in the City of Hendersonville.

7th Ave Streetscape Project

The Seventh Avenue Streetscape Project, completed in December of this year, invested in pedestrian, water, sewer and stormwater infrastructure, lighting and landscaping in the business district. It aims to improve walkability and connections to the Main Street Municipal Service District, and highlight the character of the historic district.

Sidewalk improvements

As of August 2023 (most recent sidewalk inventory), the City of Hendersonville has installed approximately 340,000 linear feet or 64 miles of sidewalk within City limits.

For more information on current and past energy efforts, please visit hendersonvillenc.gov/sustainability/transportation

Waste Management



Goal:

Reduce the amount of solid waste sent to the landfill through recycling, composting, and other waste reduction efforts

Highlights:

\$40,000

Waste reduction grant awarded

1st

Compost demonstration station and pilot drop off location created



Actions

Progress

Decrease City-wide Solid Waste by 15%

Waste reduction grant

Delayed - Earlier this year, the City received a grant from the N.C. Department of Environmental Quality to install RFID tags to improve data collection on recycling and contamination rates so that the City is able to improve educational efforts to curtail waste. Due to Hurricane Helene, this grant is postponed until spring/summer 2025.

Establish City compost initiatives

Compost demonstration site and pilot drop-off

The City's Environmental Sustainability Board spearheaded the creation of the first Sustainability Demonstration Station located on Maple St. The station hosts multiple different compost bin systems and is a small-scale compost drop-off location.

Stream debris collection

Two stream debris pickup events were hosted by the City's Stormwater Division which resulted in 3,000 pounds of trash removed from our waterways.



Actions

Progress

Reduce biosolids landfill waste by 67%

Ongoing - City Council approved construction of the biosolids thermal dryer system for wastewater treatment in November of this year with an estimated construction to start in FY 2025.

Total solid waste tonnage per year has remained fairly consistent for the last 4 years with 2024 solid waste disposal coming to 5,845 tons.

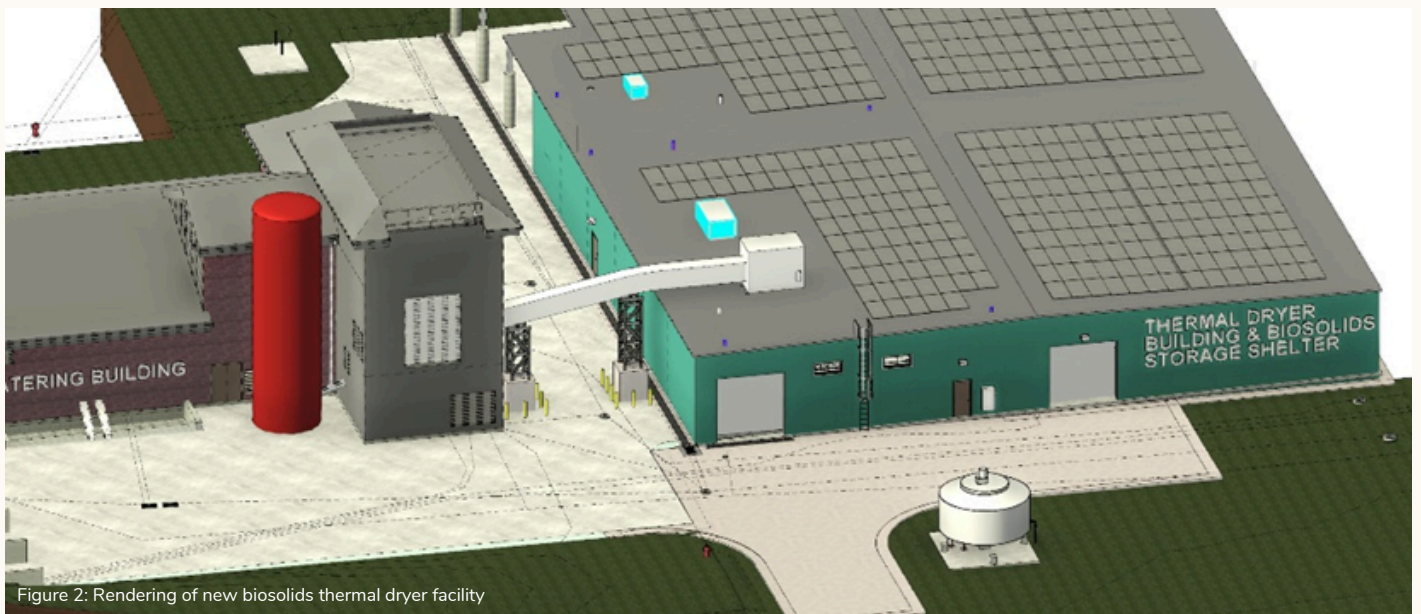


Figure 2: Rendering of new biosolids thermal dryer facility

For more information on current and past energy efforts, please visit hendersonvillenc.gov/sustainability/waste-management

Land Management



Goal:

Increase and enhance Hendersonville's green spaces while improving tree canopy cover, protecting biodiversity, promoting outdoor recreation, and improving the overall health and character of our City.

Highlights:

- 10** Years as a Tree City USA member
- 6** Years as a Bee City USA member
- 1** Years as a Caregivers of Mother Earth member

\$50,000

In grant and City funds devoted to the Brooklyn Community Garden

Actions

Progress

Increase tree canopy on City property to 50%

Maintain and expand Citywide tree canopy

Adopted earlier this year, the amended Tree Canopy Ordinance establishes additional requirements for the protection of street trees within the City limits. In addition, the City's Tree Board donated 62 trees to various residential properties in an effort to increase the City's tree canopy community-wide.

Build on existing efforts to reduce pesticide & herbicide use

At this time, the City remains diligent in utilizing pesticides and herbicides only when necessary and primarily for sidewalks and invasive species. Natural methods of weed maintenance include mulching and hand weeding. The City also continues to encourage reducing herbicide use by offering free mulch pickup in the spring for residential use.

Actions

Progress

Enhance & restore
City-owned natural
areas and parks

Pollinator planting, wildlife habitat improvements & invasive species removal

- Approximately 100,000 square feet of invasive species removal including a project on Ridgeview Drive and Patton Park
- ¼ acre pollinator garden created on Four Seasons Boulevard
- Continuation of garden maintenance for Bearcat Loop, downtown pollinator beds, and Oklawaha Greenway pollinator beds
- Sponsored creation of Brooklyn Creek Bird Sanctuary

Brooklyn Community Garden

Initially started as a small community garden in 2011, the Brooklyn Community Garden has gained more than \$50,000 in City and grant funds for an expansion and revitalization. Progress this year included grading, fencing, installing garden beds, including ADA beds, landscaping, and more. Groundbreaking is planned for spring 2025.



Note: Reports are available for more details on Tree City, Bee City, and Caregivers of Mother Earth commitments. For more information, please visit hendersonvillenc.gov/sustainability/land-management



Goal: Ensure a safe and reliable drinking water supply for all citizens while preserving and protecting natural aquatic resources.

Highlights:

18,761

Gallons of water/year saved in water conservation rebates

\$1.4 million

In stream restoration grant funds awarded

Actions

Progress

Increase water efficiency in all buildings and infrastructure

Water conservation rebate program

The City rolled out a new water conservation rebate program to offset the cost to our customers for choosing more energy efficient toilets, dishwashers, washing machines, and customer side shut off valves. As a result of 36 rebates, our community is saving an estimated 13,601 gallons of water/year in washing machine rebates and 5,160 gallons of water/year in dishwasher rebates.

Protect and enhance the water quality of the City's streams and wetlands

Green infrastructure on 7th Ave

- Bioswales constructed which are shallow ditches that collect, filter, and direct stormwater for reduced erosion
- Soil cells included which are systems that provide space for tree roots to allow proper water filtration

Outreach efforts

- 330 students participated in educational programs
- 8 new educational signs installed throughout the City
- 30 stream cleanups
- 73 staff members trained on stormwater management

For more information on current and past energy efforts, please visit hendersonvillenc.gov/sustainability/water

What's next?

2025 projects

Transportation

Upcoming projects include:

- Formalizing a sustainable fleet transition policy
- Expanding electric vehicle charging infrastructure

Energy

Upcoming projects include:

- Investigating additional building automation systems at City buildings
- Making headway on biosolids dryer solar installation
- Other energy efficiency projects.

Land Management

Upcoming projects include:

- Expansion and revitalization efforts for Brooklyn Community Garden
- Expand pollinator landscaping and tree plantings

Waste Management

Upcoming projects include:

- Waste reduction grant implementation analyzing recycling rates and curtailing contamination rates
- Expansion of composting programs and opportunities

Water

Upcoming projects include:

- Rainwater harvesting system at fleet maintenance
- Lower Mud Creek Floodplain restoration
- Continuation of water conservation rebate program and educational programs



Want to learn more? Visit us online at
hvlnc.gov/sustainability



Energy



Transportation



Waste Management



Land Management



Water