



TVA VALLEY SUSTAINABLE COMMUNITY PROGRAM
CITY OF HUNTSVILLE
SUSTAINABLE INVENTORY AND MARKETING MESSAGES
SEPTEMBER 2016





Program Overview

The Valley Sustainable Communities Program initiated by TVA Economic Development provides a framework and structure to assist communities in making the commitment necessary to demonstrate the role sustainability plays in their areas as they work with existing and new companies. The program offers communities assistance in developing and implementing sustainability initiatives that not only serve to make the community more competitive, but also support TVA's environmental policy. Boyette Strategic Advisors (BSA) was engaged by TVA Economic Development to develop and assist in the management of the program.

The program's components allow communities to meet environmental, economic and social goals and be more competitive for investment. Components of the program address the following topics:

Preparation

- Sustainability Planning
- Community Participation and Education

Economic

- Business Competitiveness
- Land Use and Zoning
- Local Economies

Environmental

- Energy Efficiency
- Transportation
- Natural Resources
- Waste Management
- Water Conservation

Societal

- Climate Protection/Air Quality
- Green Design and Construction
- Health and Wellness
- Education, Culture and Historic Preservation

To provide flexibility for communities, the program offers three levels of qualification based on a points system that allows participating communities to choose the portions of the program they believe will be most beneficial to their efforts. Communities will earn points in 15 categories by implementing specific policies and practices that contribute to overall sustainability, with an emphasis on those components that directly impact economic development efforts and/or the success of existing businesses in the community. Qualification levels are Platinum, Gold and Silver. Communities can also earn points in the Innovation category for activities that do not fall under the 15 other categories.



For communities with populations of 50,000 or less, the requirements would be to complete fewer required components at each level to qualify. In addition, the opportunity for qualification is also available to communities that already have sustainability programs in place by simply conducting an inventory of those programs.

Measures are worth 5, 10 or 15 points, depending on their difficulty and overall impact to economic development, and the maximum number of points that can be earned is 790, not including additional points for the Innovation category.

In addition to earning the required points to achieve recognition in the program, communities must also meet some mandatory baseline criteria for each level within the program. Following is the baseline criteria for recognition:

Silver Level

- Establish a Sustainability Team
- Develop (or have in place) a Community Outreach Program related to Sustainability

Gold Level

All Silver Level requirements, plus the following additional criteria:

- Develop (or have in place) a Greenspace Plan
- Address Sustainability in Community Land Use Plan
- Complete a Natural Resources Inventory
- Provide recycling options for residents (i.e. drop-off recycling)

Platinum Level

All Gold and Silver Level requirements, plus the following additional criteria:

- Develop (or have in place) Water Conservation and Protection Policies
- Complete a Carbon Footprint and Develop Greenhouse Gas Emission Goals
- Offer Residential Curbside Recycling
- Develop (or have in place) a Sustainability Plan

Qualification Level

Based on all of the activities and initiatives outlined below, Huntsville qualifies at the Platinum Level.





Inventory

An inventory of all current sustainable activities occurring in the community has been completed. The information below related to Huntsville was gathered through in-person discussions with members of the community's Sustainability Team, information provided by the primary community contact and online research conducted by BSA. Please note that although BSA believes this is a very comprehensive inventory of all sustainable activities/initiatives occurring in Huntsville, there may be some activities that were not captured.

Preparation

Initial Qualification

Before applying and being selected to participate in the Valley Sustainable Communities Program, the community must obtain Mayor support and form a Sustainability Team. Huntsville accomplished both of these tasks as follows:

- In 2012, at the request of the Mayor and City Administrator, Operation Green Team was formed, which includes 22 city employees from 15 departments. The Operation Green Team Director formed the Sustainability Team with a focus on energy and energy planning in 2012.
- The Huntsville Sustainability Team includes:

Name	Organization
John Hamilton	City Administrator
Michelle Jordan	City of Huntsville, Planning Director
Joy McKee	City of Huntsville Landscape Management Director/Operation Green Team
Jeff Easter	City of Huntsville, General Services Director
Danny Shea	City of Huntsville, Natural Resources Director
Tommy Brown	City of Huntsville, Transportation Director
Bill Steiner	City of Huntsville, Information Technology Director
Greg Patterson	City of Huntsville, Parks and Recreation Director
Shane Davis	City of Huntsville, Director of Urban Development and Engineering
Shane Cook	City of Huntsville, Water Pollution Control Director
Dennis Madsen	City of Huntsville, Urban and Long-Range Planning Director
Kenny Anderson	City of Huntsville, Office of Multicultural Affairs Director
Randy Cunningham	City of Huntsville, Inspections Director
Ashley Nichols	City of Huntsville, Planning Department
Jeff Taylor	City of Huntsville, General Services Department
Mike Blankenship	City of Huntsville, Fleet Manager
Karen Brown	City of Huntsville, Traffic Operations Manager
Robin Cox	City of Huntsville, Projects Specialist



Denise Taylor	City of Huntsville, Operation Green Team Assistant Director
Harrison Diamond	City of Huntsville, Business Relations
Jeffrey Birdwell	Emergency Management Agency Director
Doc Holladay	Solid Waste Disposal Authority
Haley Hix	University of Alabama at Huntsville, Sustainability Office
Vanessa Ennis	University of Alabama at Huntsville, Energy Manager
Jeffery Wilson	Huntsville City Schools, Operations Director
Andy Bernard	Huntsville City Schools, Program Manager
Joe Gurhdes	Huntsville Utilities
John Olshefski	Huntsville Utilities
Rudy Hornsby	Huntsville Hospital System
Jay Newkirk	Energy Huntsville
Steve Reed	Geo Huntsville/Energy Huntsville Board of Directors
Joe Cooper	US Green Building Council, Alabama Chapter Board of Directors
Kathryn Strickland	North Alabama Food Bank

Sustainability Planning

A community must first make a commitment to a sustainability program and develop a plan to ensure that program is effective. Huntsville has completed the activities listed below to help ensure that a solid foundation is in place as the community further expands its sustainability initiatives.

Inventory and Marketing Messages

- Working with BSA as part of this program, Huntsville has received this Sustainable Inventory of its current sustainability programs/initiatives.
- Working with BSA as part of this program, Huntsville has received Sustainability Marketing Messages focused on current sustainability programs/initiatives that would be most important to business/industry considering locating or expanding in Huntsville.

Sustainable Plan

- In May 2009, the Green 13 Council was commissioned to develop a sustainability plan for the City of Huntsville.¹
- In May 2014, Huntsville began the planning process for a comprehensive plan. It was anticipated that sustainability would be an integral component to all of the plan.



- In 2016 the Big Picture developed an exhibition to report back to the community on its engagement inputs. Sustainable topics of community food security, energy efficiency, energy surety and growing an advanced energy economy are highlighted in the plan. Coordination of expanding greenways, connecting parks and green spaces and maintaining the tree canopy are vital to infrastructure development. ²

Sustainability Director/Officer

Joy McKee is the Director of Operation Green Team, which is a city department. ³

Community Preparation and Education

Educating the public and making resources available to assist residents helps to ensure that the community embraces sustainable activities and programs. Huntsville has completed the activities below, providing a framework for engaging the community in sustainability initiatives.

Sustainability Resources Online

Operation Green Team offers significant sustainability resources online. ⁴ A new Huntsville city website went live in August 2016 and is still being populated. ⁵ Green Team has multiple pages on programs, resources and a Sustainability & Initiatives link that includes this program.

School-based Sustainability

- Huntsville City Schools have established many ways to be sustainable. In an effort to create a sustainable, efficient culture, they have launched an initiative that includes digital curriculum; schools have curriculum focused on sustainability; schools offer administrator and educator awareness programs; extracurricular programs include sustainability initiatives; and schools have recycling.
 - Sustainable Curriculum
 - Mission: Connecting students to the natural world through purposeful field-work and problem-based learning that empowers them to become responsible stewards of the planet.
 - Over 12,000 students, representing every elementary and pre-K through 8th grade school in the district participated in sustainability focused field trips during the 2012-2013 school year.
 - There are outdoor classrooms and outdoor learning areas, such as the award-winning Turtle Habitat at Weatherly Heights Elementary School; a back gate to the Huntsville Botanical Gardens from Morris Elementary School; and community vegetable gardens and seed-to-plate curriculums. There are also multiple outdoor classrooms at the Academy for Science and Foreign Language (ASFL).



- In Huntsville's secondary schools, the sustainability curriculum encompasses the following: AP Environmental Science classes offered in the high schools; Project Lead the Way classes in engineering and health sciences throughout middle and high schools; biogenetics research and field trips to HudsonAlpha; water quality studies at ASFL; participation in the Greenpower Car Competition held in England; and research at Huntsville High School that converts human hair and goat litter to fertilizer.⁶
- Sustainability focused extracurricular programs include a Green Team at University Place Elementary School that is responsible for the upkeep of school plants; an Eco Club at Jones Valley Elementary School; a Bio-environmental Club at Huntsville High School; a Mileage (Running) Club at Whitesburg P-8 School; Key Club at Butler High School, which manages school recycling and sponsors Campus Cleanup Days; research rangers, garden club, green club; and many more.⁷
- Special Events related to sustainability include Green Fling, "Walk to School" Day, Jump Rope for the Heart, Earth Day, Bicycle Rodeo and a Biathlon.⁸
- In 2010, Huntsville's Operation Green Team started challenging schools to save the twist-off caps plastic caps. The collected caps are sold to a recycling plant, KW Plastics, since Huntsville's recycling does not accept the twist off caps. In 2015 41 schools participated and together collected over 8 million of the twist-off caps. All schools won cash prizes ranging from \$250 to \$1,500, totaling \$22,500 in prize money that was donated by Boeing Corp. This bottle cap recycling program recently won a national "Innovation Award" from Keep America Beautiful.⁹
- In 2014 Huntsville became home of Greenpower™ USA, the first international spinoff of the Greenpower™ UK Education Trust. This design-build-race competition for students is an electric car challenge. Each team is given a standard motor, set of batteries, and regulations to follow. Students must use their science, technology, engineering, and math skills to build a vehicle for competition. Huntsville City Schools launched of the Greenpower™ Challenge with the completion of regulation compliant race tracks at three Huntsville schools.¹⁰
- Huntsville's Schools have many community partnerships that help support its sustainability programs, including Operation Green Team, 4-H Club, Girl Scouts, County Commission, and Rotary Club.¹¹
- Keeping Huntsville Beautiful and Operation Green Team received one of the two First Place awards for Cigarette Litter Prevention awarded by Keep America Beautiful.¹²



- In addition, Operation Green Team will work with city schools to organize:
 - Art Contests
 - Campus Clean-ups
 - Landscape Beautification Projects
 - Field Trips to Disposal Facilities ¹³

- Huntsville Utilities participates yearly in Education Days at the Madison County Drinking Water Festival to educate children about water conservation and pollution. ¹⁴ They offer a field trip related to water and energy conservation and have a classroom curriculum.

Community Outreach/Sustainability

- Operation Green Team continues to host an Earth Day festival. In 2016, the event attracted more than 12,000 attendees and 90 vendors. The four-hour event gives residents an opportunity to learn more about the environment, specifically wildlife in North Alabama. ¹⁵

- Keep America Beautiful and Operation Green Team celebrate National Planting Day/Arbor Day twice a year with a plant giveaway. Operation Green Team provides 6,000 to 8,000 native and edible plants and native trees to area residents at each event. ¹⁶

- Huntsville Utilities offers a variety of educational programs for audiences of every age.
 - Civic Group Presentations include:
 - Energy Conservation
 - Green Power ¹⁷

- Huntsville Utilities, Operation Green Team and Huntsville City Schools launched a Take5 campaign to promote and educate the community about the Georgetown University Energy Prize Competition to reduce municipal and residential energy waste. ¹⁸

Economic

Business Competitiveness

Many companies today have indicated and shown a strong commitment to sustainability. Activities in this category should be focused on increasing a location's economic development competitiveness by offering programs of importance to current and potential new businesses. Below is information about sustainable business developments in Huntsville.



Incentives

- The State of Alabama offers sales and use tax abatements and exemptions for any process or treatment facility which recycles or reclaims material, renewable energy facilities or projects owned by utilities that produce electricity from alternative energy sources. Additionally, pollution control equipment is exempt from sales and use as well as property taxes.¹⁹
- AlabamaSAVES™ is a state program that provides financing as low as a 1 percent fixed rate, to commercial, industrial and non-profit businesses in Alabama for installation of energy-efficient fixtures and retrofits, installation of renewable-energy systems, and for efficiency improvements for vehicles and transportation equipment. The minimum loan size is \$50,000 and the maximum loan size is \$4,000,000.²⁰
- The Energy Division of the Alabama Department of Economic and Community Affairs has established a revolving, low-cost energy loan program that is available to local government entities, K-12 public school systems, and public colleges and universities that want to make energy efficiency improvements and retrofits and/or fleet vehicle conversions.²¹

Sustainable Business Park

- The Redstone Gateway implements the following sustainable practices: requires all buildings be built to LEED® Silver certification or higher; pedestrian friendly design; LED lighting; walking trails; and greenspace.²²
- North Huntsville Industrial Park was developed in phases with an environmental focus on preserving sensitive attributes of the property. Built on a farm, the park used a Sustainable Development Guide along with an assessment model. The plan maintained 50 percent of the farmland and addressed drainage and stormwater management. There is also a walking trail in the park.²³
- Cummings Research Park (CRP) also includes conservation easements, electric vehicle charging stations and walking trails.²⁴ In 2016, CRP updated its master plan and is marketing its interests around more sustainable live/work/play strategies in the park.²⁵

Networking

- Huntsville Green Drinks is a monthly networking event for Huntsville professionals interested in sustainable living to share their interest and expertise.²⁶



- Another networking opportunity for professionals interested in sustainability includes the Energy Huntsville Summit, an annual conference.²⁷

Workforce Training Programs

- Calhoun Community College, located 22 miles outside of Huntsville in Tanner, Alabama, has a workforce solutions program that provides customized, flexible, cost-effective and convenient training to local businesses and industries throughout North Alabama allowing them to achieve and maintain peak efficiency in the global marketplace. The program works one-on-one with companies to develop solutions to equip their employees with the skills they need.²⁸
- Calhoun Community College recently received \$3.4 million from the U.S. Department of Labor to train students and workers to meet the needs of the rapidly emerging green energy workforce. In addition to the degree program offered, a variety of green technology and renewable energy non-credit and continuing education courses targeting unemployed, incumbent workers, contractors, employees and the general public are offered in the building. Students in the program will learn and train in the brand new LEED Platinum Alabama Center for Excellence in Clean Energy Technology that is located on the Calhoun campus.²⁹

Land Use and Zoning

How a community manages new development and use of existing land is a key component of a sustainability program. Below are land use and zoning activities that positively contribute to sustainability in Huntsville.

Conservation Easements

- The City of Huntsville has one conservation easement totaling 106.5 acres of conserved land.
- Setback regulations were established in 1991 under the Subdivision Zoning Ordinance. Setbacks are restricted use areas for certain environmental or man-made features. A minimum of 25 or 50 feet of space is required for features such as sinkholes, springs, streams (always require 50 feet setback), bluffs, and archeological and historical features. Setbacks have also been created to protect endangered/threatened species, valuable natural environments such as perched wetlands and extraordinarily large trees.
- Huntsville also has Slope Development Regulations that maintain that slopes that are 35 percent or greater cannot be developed. The setback regulations and slope regulations contribute to land in Huntsville that is preserved in a way that is not a conservation



easement, but has the same purpose of preserving the land in its natural state in perpetuity. Huntsville has eight categories for preserved land:

- Natural state by plat (land preserved via subdivision plat). An example would be the preserved perched wetland in a certain Huntsville subdivision, which represents 619 acres.
 - Passive city (land preserved by the City of Huntsville): 2,859.5 acres
 - Common areas: 1,807 acres
 - Land Trust: 4,232.4 acres
 - Deeded Conservation Easements: 106.5 acres
 - Nature Conservancy: 396 acres
 - Other: 2,812 acres
 - Forever Wild: 806.13 acres
 - Total: 13,639 acres³⁰
- The Huntsville Zoning Ordinance requires businesses to plant trees and shrubs. The Zoning Ordinance does have many varying requirements for business and industrial districts landscaping. Trees are required in almost every built environment situation. The ordinance does not require native species to be planted, but it has designations of what type of tree may be planted so that it does not grow very large and interfere with power lines.³¹

Brownfield/Grayfield Redevelopment

Following is a summary of major redevelopment initiatives in Huntsville:

- The Huntsville/Madison County Chamber of Commerce supports efforts to fill empty, abandoned retail space.
- Later this year Huntsville expects to announce that a new retailer to the Alabama market will be locating in a grayfield in one of the more challenged areas of the city.³²
- Lowe Mill, formerly a cotton mill and before that a shoe factory, has been transformed into the largest arts and entertainment district in the Southeast.³³
- Lincoln Mill, an 83 year-old building, is the largest of Huntsville's four retired textile mills and provides about 800,000 square feet of production space. The mill is now a federal historic site and has many renovations occurring in various sites on the property. Many of the mill houses are owned by the nonprofit Lincoln Village Preservation Corp., which provides affordable rental housing to needy families. Lincoln Mills LLC envisions transforming part of the mill into apartments, studios, and a restaurant that uses sustainably and locally grown food. The mill currently has a vegetable garden that uses roof rainwater for irrigation and Lincoln Mills LLC hopes to renovate the rest of the mill



in a sustainable way.³⁴ One 200,000 square foot building has been renovated into Class B office spaces.³⁵

- Madison Square Mall is currently being re-developed for mixed use with a minimum of 150,000 square feet of commercial and office space, 350,000 square feet of retail, a hotel with at least 100 rooms and 560 multi-family units.³⁶
- The Avenue is a \$35 million redevelopment of downtown property that will include 197 residential loft units above first floor retail space.³⁷
- City Centre at Big Spring, a \$100 million mixed use project on the site of a former Holiday Inn, will feature 50,000 square feet of retail and restaurant space, more than 270 apartments, parking garages, office lofts and two hotels.³⁸
- Remington Outdoor Company is locating a new manufacturing facility in a former Chrysler building on Electronics Boulevard. The company expects to eventually employ 2,000 workers at the site.³⁹
- At Home, a décor superstore, recently renovated and located in a former Kmart facility in Huntsville.⁴⁰
- A Walmart Neighborhood Market located on a formerly abandoned retail site on Bailey Cove Road.⁴¹

Local Economies

Encouraging residents to support local businesses and buy locally not only boosts the success of the businesses, but also reduces travel and the overall impact on the environment. Huntsville has the following programs in place to support local businesses.

Farm to Table

The Madison County Farmer's Market provides space for commercial vendors and produce farmers to sell a variety of fruits and vegetables.⁴²

"Buy Local" Program

- In 2014, the "I Shop Local" campaign was launched in conjunction with Small Business Week. The Huntsville/Madison County Chamber of Commerce also utilizes social media to promote Small Business Saturday.⁴³
- The Huntsville/Madison County Chamber of Commerce holds an annual business expo designed for Chamber members to showcase their products and services both locally



and regionally to other businesses as well as customers. This event showcases hundreds of businesses and attracts thousands of people annually.⁴⁴

- The Chamber uses its social media platforms to promote small businesses during the “Small Business Saturday” national effort to get residents to shop local for the holidays. The Chamber visits small businesses to deliver media kits and special “Small Business Saturday” doormats for marketing.⁴⁵
- The Food Bank of North Alabama has a Fresh Food Initiative that helps family’s access fresh foods from local farmers by promoting the use of SNAP at farmers markets. For every dollar spent at a participating farmers market the Food Bank doubles the value up to \$20. Partners include Greene Street Market at Nativity, Farmer’s Market at Latham United Methodist, Terry Heights Farmers Market, and Bailey Cove Farmer’s Market at St. Thomas.⁴⁶
- The Food Bank of North Alabama also helps family farmers sell local food to schools, hospitals, workplace cafeterias and grocery stores. Partners include the Alabama Department of Agriculture, Alabama Cooperative Extension, local farmers, local buyers and more.⁴⁷
- The Food Bank of North Alabama in partnership with Neighborhood Concepts has a Hiatt Loan Fund that provides micro-loans to family farmers and entrepreneurs who create jobs and greater access to healthy food choices in underserved communities. Loans have helped expand food truck businesses, healthy corner stores, and local restaurants.⁴⁸
- Energy Huntsville and the business community are developing a “buy local” approach to Advanced Energy Technology Services.⁴⁹

Green Business Recognition

- In 2009, Huntsville Botanical Garden was host to recognizing businesses, projects and people with exemplary sustainable efforts with “Green U” awards and the Green U Festival. The festival included vendors and workshops on sustainability related topics. The awards included:
 - Tennessee Valley Green U Projects for owners, designers and contractors of built projects
 - Tennessee Valley Green U Non-Profit Award for non-profit organizations
 - Tennessee Valley Green U Business Award for small, medium or large companies
 - Tennessee Valley Green U Citizen/Family Award for citizens⁵⁰



The Gardens opted not to hold the festival after 2013 but Nexus Energy Center reintroduced the awards component in 2014 with the its annual “Champions of Energy” Green Tie Bash.⁵¹

- The Beautification Board of Huntsville sponsors the Beautification Awards in partnership with the City of Huntsville's Green Team. The recognition is awarded annually following a rigorous judging of nominated properties. Award winners are honored at an awards ceremony and a Beautification Award sign is placed on winning properties near the curb at the front entrance. Any commercial or public business property is eligible.⁵²
- Huntsville’s Department of Natural Resources has been incentivizing businesses with Air Pollution Prevention Awards since 1997. In 2011, the City of Huntsville’s Air Pollution Control Board presented Air Pollution Control Awards to six local companies to recognize the companies’ efforts to reduce air pollution emissions and/or to recognize outstanding efforts in environmental education. The six honorees were ADTRAN, Inc., The Boeing Company, Huntsville Hospital, National Copper and Smelting Company, Northrop Grumman and Toyota Motor Manufacturing Alabama. In 2015, the program continues to reward excellence in industry for clean air processes.⁵³

Local Business Exchange Program

The Huntsville/Madison County Chamber of Commerce offers member-to-member discounts.⁵⁴

Environmental

Energy Efficiency

Energy efficiency initiatives are often among the first to be addressed by community sustainability programs. The activities below outline opportunities to assist both residents and businesses, which seek to be more energy efficient that have been implemented by Huntsville.

TVA Green Power Providers

Huntsville Utilities participates in the TVA Green Power Providers program.⁵⁵

Energy Audits –Residential and Business

- TVA provides EnergyRight® Home eEvaluation Self Survey at no cost to customers and services to support businesses in energy efficiency.⁵⁶
- Huntsville Utilities also offers a Home Energy Survey Program which provides a comprehensive assessment of heating and cooling equipment, insulation levels, and the



building envelope. It also includes opportunities for rebates toward the cost of implementing recommendations.⁵⁷

- Nexus Energy is a non-profit organization that provides energy audits for businesses and also provides information on incentives for recommended upgrades.⁵⁸
- Huntsville Utilities began its Huntsville Energy Extreme Makeover Project in 2015. The goal is deep energy retrofits to 1,100 low-wealth homes for families in the HU territory. The program is on target to complete its upgrades by 2017.⁵⁹

Energy Audits of Government Facilities

- As of May 2014, more than 250 city buildings have had energy assessments and work performed. The work that has been performed is as follows:⁶⁰
 - In 2009, the city converted four building heaters to (waste) oil from its fleet and heavy equipment scheduled for maintenance. In 2012, 100 percent of the city's supply was used for heating.
 - The city installed a smaller chiller in the Administration Building to run at low capacity times.
 - All T-12 lighting fixtures were de-lamped and replaced with T8 ballast and bulbs.
- In late 2013 the city entered into a \$750,000 contract to replace some existing lighting with LED in 37 buildings, saving over 1M Kwh's..⁶¹ In August 2016, two additional buildings— one a parking garage and another large office building – have been approved for retrofits at a cost of \$273,539. The City is receiving a \$45,000 TVA incentive, which will bring the payback period to .7 years.⁶²
- A third party has completed energy assessments of ten buildings, which represents the footprint in which 60 percent of city's employees' work. About 20 percent of the recommendations have been completed to date, using existing staff and resources.⁶³
- A 1961 fleet building was retrofitted for \$750,000 with a cool roof, resulting in a 40 percent reduction in gas heating costs for that building and 30,600 KVA saved per year.⁶⁴
- Six HVAC units were replaced with higher, more efficient SEER ratings units, gaining a 7 to 10 percent improvement in building heating/cooling performance.⁶⁵
- A WEBEX monitoring system with alarms was installed for real time monitoring of the 10 buildings assessed.⁶⁶



- In 2011, the City of Huntsville General Services took pro-active steps to begin the process of upgrading its Construction Standards Minimum Specifications Manual via an architectural report outlining 27 recommendations intended to reduce energy consumption and conserve natural resources in its new construction projects.⁶⁷
- Recent efforts have been directed towards right-sizing the building inventory for municipal services so that deeper energy retrofits can be made to the most appropriate and applicable sites going forward.⁶⁸
- The City Department of Information Technology Services has adopted policies to increase the department's energy efficiency. Improvements include a virtualized server that decreases the electrical equipment needed for server racks and decreases the requirement for data center cooling; replacing a 20-year-old Uninterruptible Power Supply (UPS) with a much more power efficient UPS to support the data center; and regular updates of hardware to improve power efficiency.⁶⁹
- Huntsville has been participating in the Georgetown University Energy Prize. The goal is to reduce municipal and resident energy waste during the 2015/2016 competition period from the city's own baseline years of 2013/2014.⁷⁰
 - The application required an Energy Efficiency and Retrofit Plan. Huntsville has ranked in the top position leading the prize competition since Q1 data was submitted in 2015.
 - The anticipated \$5 million prize money will be reinvested into Huntsville's energy efficiency programming.
 - During 2015/2016, Huntsville's residential customers have saved more than \$8.3 million in electricity and gas compared to the 2013/2014 baseline years.

Energy Efficient Lighting

- Traffic engineering replaced all traffic signals with LED lights, realizing a 46 percent reduction in its utility costs while at the same time adding an additional 14 meters.⁷¹
- The Huntsville Hospital has implemented many energy efficiency projects, including LED lighting and controls; solar/electric cars; solar water heating and power; energy efficient and impact resistant windows; chilled beams (for heating and cooling); building automation control systems; LP gas fueling systems; two wire irrigation system (baseline) savings on water consumption; ultraviolet lights installed in air handling units; energy efficient air handling units; boiler stack economizers; tower free cooling with cooling tower and heat exchanger; air side economizers on air handling units; kitchen hood economizers; and monthly sewer credits.⁷²



Alternative Energy Installations

- Residential solar energy generation for the past 24 months as of June 2014 is 463,772 kWh from 28 customers with solar generation. Commercial solar energy generation for the past 24 months as of June 2014 is 1,575,306 kWh from 17 customers with solar generation.⁷³
 - One 50Kwh power system is located on South Parkway and another is located just north of Charlotte Drive.
 - Green roof and water conservations at the Hays Nature Center.
- The first of two micro-turbines for methane capture is being installed at the Water Pollution Control (WPC) site. WPC is also planning a water reuse project after they have added another filter to their current system in response to the recently released Alabama Drought Management Plan.⁷⁴

Transportation

Limiting the number of cars on the road and ensuring that those vehicles are as efficient as possible can significantly reduce environmental impact. Huntsville has implemented the following transportation initiatives to reduce environmental impact.

Bicycle and Pedestrian Friendly Policies

- The City of Huntsville Bikeway Plan was updated and approved by the Huntsville Planning Commission on February 21, 2006. The plan identifies 39 different bike routes to be constructed throughout the city. The total bicycle network identified in the plan will include approximately 160 miles of bikeway facilities in addition to the 10 existing transit routes, which will encourage and promote bicycling and increase transit ridership.⁷⁵ Currently there are 55 miles of bike routes and shared pathways in Huntsville.⁷⁶
- Huntsville has bicycle parking requirements under article 76 in its' Zoning Ordinance. Bicycle parking facilities must be provided in every new car parking lot or garage at one bicycle parking space to every 20-car parking spaces, with a minimum of two bicycle parking spaces for every parking lot or garage. Multi-family residences must provide one bicycle parking spot for every five dwelling units.⁷⁷
- Huntsville has also completed various Safe Routes to School projects.⁷⁸
- Regions Bank has donated 10 bikes to Huntsville for Thursday Night Bikes, a free bike borrowing program. A person must be 18 years of age to rent a bike and Trailhead, Inc. will maintain the bikes.⁷⁹



- Huntsville has a Bicycle Advisory and Safety Committee that meets on the second Tuesday of every month. The Committee provides knowledge about cycling to advance education, enable planning, encourage cycling, and develop safe transportation facilities in the Huntsville area. ⁸⁰
- See and Be Seen is a new campaign in Huntsville that focuses on awareness, safety, and mutual respect of motor vehicle drivers and bicyclists. ⁸¹

Commuting

CommuteSmart Huntsville is an online ridesharing service for commuters. CommuteSmart offers free ride matching, vanpool services, and employer and commuter services. ⁸²

Fuel Efficient Vehicle Stations

Nissan Corp. donated a DC Fast Charger for Electric Vehicle charging for the public. It is installed on Fountain Circle directly across from Huntsville City Hall. ⁸³ Huntsville Utilities applied for and received a grant from TVA to install two Level 2 chargers in the Bridge Street parking lot managed by City of Huntsville Transportation. ⁸⁴

Car Sharing

Huntsville residents now participate in Zipcar. ⁸⁵ and in 2016, Uber also opened in Huntsville. ⁸⁶

Local Airport

- The Huntsville-Madison County Airport has adopted a Sustainability Management Plan and expects to begin implementation in late 2014. The following initiatives are proposed in the plan and still underway, subject to funding:
 - Lighting upgrades have been completed with average monthly savings of \$12,000
 - BMS controls upgrade for lighting and HVAC
 - Geothermal opportunities with an airport-owned well
 - Golf course and airport landscaping irrigation after geothermal opportunities take the energy out of the water
 - Grey water use for public toilets to flush the toilets with rain water and/or used geothermal water opportunities
 - Solar farm
 - Parking deck solar power car chargers
 - Parking deck roof top solar arrays to provide vehicle coverage and generate power opportunities



- Load shedding with link to peak demand charges
- Real-time equipment KW usage with visual capabilities via iPhone/iPad
- CNG vehicles used for airline equipment and baggage services
- Chiller replacement to newer technology
- High temp chiller to provide higher condenser temperatures to accommodate non-peak heating and hot water heat exchanger while providing chilled water to areas that need chilled water year round such as IT/communications rooms
- A CHP Turbine for the Airport Authority and Industrial Park
- Boiler automation/transfer from steam producing boilers to hot water boilers to eliminate chemicals while eliminating the steam trap and chemical issues with steam systems

Natural Resources

Protection of natural resources is a key component of any sustainability initiative. Huntsville has implemented the following programs to enhance natural spaces and protect existing resources.

Natural Resources Inventory

Huntsville's natural resources inventory includes the following: animals, differentiated by genus with the designations of wetland species, protected species, and invasive species; and plants, also differentiated by genus and having the same designations of wetland species, protected species, and invasive species.⁸⁷ The City Planning Department is expected to incorporate the mapping and integration of a comprehensive natural resource inventory into its long-term urban master plan process.⁸⁸

Tree Preservation and Planting

- The City of Huntsville has a Tree Commission.⁸⁹
- The Tree Commission, Huntsville Utilities and Landscape Management will, on request, provide information about tree trimming and why not to plant trees around power lines.⁹⁰
- Operation Green Team and Landscape Management operate several tree planting programs regularly.⁹¹
 - In 2014 OGT planted a small orchard that serves as an outdoor classroom where residents can learn the ins and outs of growing fruit trees. The 58 apple and peach trees will also provide free food for area nonprofit agencies.⁹²
- Huntsville has been recognized as Tree City for 25 years.⁹³ and the University of Alabama at Huntsville is now a Tree Campus.⁹⁴



- Operation Green Team hosts annual tree planting festivals and plants 150 trees to develop the tree canopy at the former airport now slated to be John Hunt Park.⁹⁵
- Since 2009, Goldsmith Schiffman Wildlife Sanctuary has operated as a tree mitigation bank, averaging 150 trees per year.
- Landscape Management is responsible for the planting of an additional 500 trees per year in cemeteries, parks, right of ways, streetscapes and other properties maintained by its crews.

Pet Waste Program

Dog Spots, Huntsville's network of dog parks, require owners to pick up their animals' solid waste, provides receptacles made from reused wood, and includes re-used grocery bags brought by dog owners to fill bag dispensers for the waste.⁹⁶

Community Gardens

Huntsville has more than 20 community gardens across the city, 12 of which are sponsored by Operation Green Team. Many of these gardens participate in the Tennessee Valley Community Garden Association that Operation Green Team supports via coordinated annual plant buys.⁹⁷ The city sponsored gardens support 350 gardeners annually and coordinated the purchase of 5,000 plants in 2015.

Landscape Practices

- Huntsville offers education about drought tolerant plants and invasive species outreach to all licensed landscapers in the city.
- Huntsville Botanical Garden offers classes about garden planting during the various seasons, soil types, water usage, bird pollination, geothermal heating, cooling and hot water for residences, plant identification, and Japanese garden design.⁹⁸
- National Invasive Species Awareness Week was celebrated by Huntsville citizens at Monte Sano State Park in March.⁹⁹

Waste Management

Managing and reducing waste that goes into landfills is often a centerpiece of sustainability programs. Huntsville has the following waste management initiatives in place.



Recycling Services Offered to Residents and Businesses

- Huntsville residents are offered weekly pick-up of single stream curbside recycling.¹⁰⁰
- Businesses located in the City of Huntsville can obtain recycling services through area contractors.
- Recycling is also offered at most parks in the city via community Green Team volunteers. Brad Grishom, the organizer of the volunteer Huntsville Park Team, collects recycling from parks and sorts through trash to remove recyclables. He takes the bags full of recycling to his residence to be picked up with residential recycling. In four months he collected 111 bags of recyclables from city parks.¹⁰¹
- Operation Green Team lends out recycling racks to community events held at Huntsville sporting facilities. Plastic bottles, aluminum cans, and bottle caps are the most commonly recycled materials.¹⁰²
- Operation Green Team collects recycling at two annual events held in Huntsville parks: Panoply and Whistlespop.¹⁰³

Recycling Drop Off Locations

- Electronics can be taken to the Solid Waste Disposal Authority's Household Hazardous Waste Collection facility for recycling on the first Saturday of every month.¹⁰⁴
- Plastic bottle caps can be dropped off at any Huntsville Fire Station for recycling.¹⁰⁵ This model program has led to the recycling of more than 21 million caps since 2014.
- The city and county also provide drop-off recycling locations for inkjet cartridges, automobile license plates and clothing/rags.¹⁰⁶

Composting

Huntsville Botanical Garden has a leaf mulch pile located in their garden that is available for free pick up by community members. In May through October, on the first and third Saturday of each month a front-end loader is provided.¹⁰⁷

Materials Reuse

- Huntsville's Fleet Services Department recycles its waste oil. In 2012, 42,750 pounds of oil was recycled, which is equivalent to 5,700 gallons.¹⁰⁸



- Free 2 Teach is an organization that provides teaching resources and supplies that have been donated by the community for free to Huntsville teachers.¹⁰⁹

Water Conservation

In addition to other natural resources protection, water conservation should specifically be addressed in sustainability programs. Huntsville has implemented the following initiatives related to water management issues.

Water Conservation Plan

- Huntsville Utilities has an Ordinance for Water Conservation Plan. The ordinance/plan has four stages:¹¹⁰
 1. Voluntary Conservation by Citizens: Citizens are requested to limit the amount of water used to that amount that is absolutely necessary for health, business and outdoor water use.
 2. Mandatory Compliance – Water Alert: Irrigation methods that utilize sprinklers for landscaping purposes are prohibited except on a designated water use day. Odd street addresses will water on odd days of the month and even street addresses will water on even days of the month.
 3. Mandatory Compliance
 - a. Water Alert: Irrigation methods that utilize sprinklers for landscaping purposes are prohibited except on a designated water use day. There are only four designated outdoor watering days per week: Saturday/Sunday and Wednesday/Thursday. Odd and even addresses can water either Saturday or Sunday depending on the calendar date being odd or even. The same applies to Wednesday/Thursday, giving each address the opportunity to water twice a week.
 - b. Water Warning: Additional Restrictions
 - i. On the Saturday/Sunday and Wednesday/Thursday watering days, no watering may be done between the hours of 6 p.m. and 9 p.m.
 - ii. Washing of private vehicles is prohibited except on the Saturday/Sunday and Wednesday/Thursday odd/even basis, but not during the time of 6 p.m. to 9 p.m.
 - iii. Swimming pools should be filled only on the Saturday/Sunday and Wednesday/Thursday odd/even basis. No filling between 6 p.m. and 9 p.m.
 - iv. Washing of sidewalks, streets, driveways, parking areas, tennis courts, patios, and other paved areas is absolutely prohibited except by the Department of Public Works and the Fire Department to alleviate health or fire hazards.



- v. Placing sprinklers, which spray a significant amount of water in the street is prohibited.
 - vi. Taking water from a fire hydrant is prohibited without a permit from the Fire Department.
4. Mandatory Compliance - Water Emergency: During the water emergency no irrigation methods are permitted. Also prohibited are the following:
- a. The washing of private vehicles.
 - b. The use of water from a fire hydrant.
 - c. Washing of sidewalks, streets, driveways, parking areas, tennis courts, patios and other paved areas.
 - d. The filling of swimming pools.
- Huntsville Utilities' Water Treatment Facilities are continually recognized for their excellence in water treatment. Their facilities have received multiple Best Operated Plant awards, an Award of Excellence, and a Three Year Award. ¹¹¹
 - Huntsville Utilities employs a full-time leak detection crew to survey the water system for leaks. In FY2013 the crew identified leaks totaling 33 million gallons per month. ¹¹²
 - A water audit of the entire Huntsville Utilities system was conducted in 2013 that has led to reductions in unauthorized consumption and increases in meter accuracy. Interval consumption recording meters will soon be installed to allow customers to identify leaks on their systems. ¹¹³

Wastewater and Stormwater Management

- Water Pollution Control (WPC) implemented the following pro-active efforts to eliminate sewer system failure: ¹¹⁴
 - Flow Monitoring
 - Smoke Testing
 - Video Inspection
 - Root Control
 - Sewer Rehabilitation
 - Variable Frequency Drives for Pump Houses
- The engineering office at Huntsville's Water Pollution Control has a design manual for sanitary sewer infrastructure, a collection system master plan and a design manual for pump stations. In 2012, all pump stations were highly efficient except for the blowers, which have since then been updated. ¹¹⁵



Watershed Protection

- The Goose Creek Sub-Watershed of the Flint River has, with a cooperative effort, advanced public knowledge of nonpoint source pollution best management practices for water conservation measures. Many events took place at the Watershed and Wetland Center. The Watershed and Wetland Center's roof was built as a green roof; green roofs have unique water quality protection design features and this specific roof was planted with succulents. Water quality testing also occurred. ¹¹⁶
- Huntsville has applied for a Phased Hazard Mitigation Grant through the Alabama Emergency Management Agency and FEMA. The phased approach provides for a one-year planning/design period during which the city will work closely with local, state, and federal agencies to identify and resolve the issues that have contributed to the excessive flooding of residential and commercial properties within the Lower Pinhook Creek watershed. Phase One will be followed by a three-year construction period to improve the conveyance system, provide water detention areas, and implement stringent development ordinances that minimize impacts from future development. ¹¹⁷
- Huntsville Utilities has a Wellhead Protection Plan that includes geologic and hydrologic evaluation, delineation of Wellhead Protection area boundaries, a potential contaminant source inventory, and development of a management program. ¹¹⁸

Water Audits

Water audits have been conducted in 10 Huntsville city facilities. While retrofits have not been completed, all new construction of city facilities includes low flow toilets and water efficient fixtures. ¹¹⁹

Societal

Climate Protection/Air Quality

The activities in this section of the program are designed to reduce greenhouse gas emissions and the community's carbon footprint. Huntsville has done the following.

Climate Action Plan

- Huntsville has gathered information on the city's emissions for 2000, 2005, and 2010. The information is recorded in four categories: Electricity Consumption, Natural Gas Combustion, Transportation Fuel Consumption, and Solid Waste Management. Huntsville has decreased its tons of CO2 equivalent emissions in 2010 by 3.3 percent



from 2000 emissions. Huntsville emitted 46,062 tons of CO₂ equivalent in 2000 and 44,545 tons of CO₂ equivalent in 2010.¹²⁰

- The Huntsville Mayor has signed the Kyoto Protocol, which is an international agreement linked to the United Nations Framework Convention on Climate Change and commits its parties by setting internationally binding emission reduction targets.¹²¹
- In 2014 the City of Huntsville entered into the Georgetown University Energy Prize (GUEP) to reduce energy waste in municipal and residential buildings.
- While in preparation for and participating in the Georgetown University Energy Prize Competition, the city's multi-departmental team outlined its plan for designing a City-Scale Energy Efficiency and Retrofit Plan. In 2016, the team completed a Huntsville Energy and Greenhouse Gas Reduction Plan that seeks to integrate energy and greenhouse gas reduction goals and metrics into the Long Range Urban Plan and process.¹²²
- The GHG reductions accomplished to date for Huntsville and its Georgetown project are 3,913,898 tons. That is equivalent to the CO₂ emissions from one coal fired power plant for one year, the greenhouse gas emissions from 750,012 passenger vehicles being driven for one year, and equals the carbon sequestered by 28,301 acres of U.S. forests preserved from conversion to cropland in one year.
- The plan sets forth goals, action steps and metrics in three areas: Buildings and Efficiency; Renewables; and Transportation and Land Use. The anticipated GHG reduction based on action items in the GUEP plan is 25 percent.¹²³
- Additionally, Huntsville has committed to adopt established goals based on TVA's projected reduction targets as follows:¹²⁴
 - 50 percent reduction in GHG emissions by 2033 (from 2005)
 - 20 percent renewables in the generation mix by 2020
 - an energy efficiency portfolio that achieves savings approaching 1 percent of annual sales

Community Carbon Footprint

The City of Huntsville completes a Greenhouse Gas Emission and Carbon Footprint Inventory every five years. The results of this report are posted on the city's website.¹²⁵



Green Design and Construction

Both commercial and residential construction activities are moving toward green design initiatives, which impact a variety of sustainable areas. Below are activities by Huntsville or its partners that support and encourage green design and construction.

Green Development Checklist

- Huntsville's local Homebuilders Association is in the process of developing a Green Building Checklist.
- TVA issues an award to the builder with the largest volume of energy right certified new homes each year. The award is typically presented at a Huntsville Utilities luncheon. Additionally, the Huntsville Utilities office issues an award for the HVAC contractor with the highest number of inspected homes through the "Efficiency Program."
- Since 2011, Earth Advantage Institute of Nexus Energy has trained 170 Alabama real estate agents and brokers and 93 appraisers in Green Appraisal and Real Estate. Three of the ten statewide trainings occurred in Huntsville. ¹²⁶

Sustainable Government Buildings

- In 2014, the Huntsville Housing Authority created a Sustainability Baseline that states all new construction and any major renovations must meet US Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) standards or equivalent. ¹²⁷
- Huntsville City Schools have reevaluated their building processes, and a "SMART achievable approach with the right tools toward sustainability and efficiency" has been developed to ensure that future buildings and renovations are environmentally friendly. This building design has many of the components required of LEED building design. SMART = Sustainable, Measurable, Achievable, Realistic, Timely. ¹²⁸

Green Building Training

- Green Building Training is provided through USGBC monthly "lunch & learn" meetings.
- The Home Builders Association also provides Green Building Training. ¹²⁹
- Association of Energy Engineers offers Certified Energy Management classes once or twice year. ¹³⁰



- In 2015 the Local Chapter of the Association of Engineers won significant national awards for its energy efficiency and technology programs and projects.

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Policies to Encourage Green Construction

The Huntsville Inspection Department has a policy that allows for expedited projects based upon specific needs or advanced technologies. A prime example is the Redstone Gateway and its three LEED certified office buildings that were turned around in half the time of normal project submittals. These types of projects can also benefit from the department's web based electronic plans review technology that allows paperless submittals.¹³²

LEED Certified or Other Equivalent Buildings

- There are 27 LEED-certified commercial buildings in Huntsville.¹³³
- The following table outlines the total square footage and the square footage per capita for the city.¹³⁴

Building	Square Footage
UA Huntsville Charger Village	167,000
Kohl's SE Huntsville	63,798
NASA - MSFC - Building 4494	10,712
Redstone Gateway - Building 1000	120,688
Huntsville IRS	14,500
Defense Acquisition University	52,947
NASA 4602	88,500
NASA Building 4600	138,918
Raytheon Company Huntsville	141,000
UAH Severe Weather Institute Radar Lab	17,000
UAH Student Center	101,033
7200 Redstone Gateway Expansion	69,209
1200 Redstone Gateway	121,276
HAIB Building 3	88,468
6100 Redstone Gateway	96,800
7200 Redstone Gateway (Flex Office)	63,400
1600 Rideout Road (Redstone Gateway)	46,000
VA Outpatient Clinic	60,334
Belk at Bridge Street Town Centre	167,190



Building	Square Footage
Towneplace Suites – Huntsville West	75,830
UAH College of Nursing	99,730
Hays Preserve Interpretive Center	1,533
UAH Center for Systems Study	77,446
Pulaski Pike Market	6,000
Resonant Pointe	79,200
TOTAL SQUARE FOOTAGE	1,968,512
PER CAPITA SQUARE FOOTAGE	10.33

- Huntsville also has five Energy Star rated buildings. 1 multi-family apartment complex, one grocery, and three retail businesses. Their combined square footage is 802,582 square feet.¹³⁵

Health and Wellness

The overall health of a community's residents is an important part of a commitment to sustainability. The activities below address green space, workplace wellness and other programs implemented by Huntsville and its partners that contribute to a healthy community.

Community Wellness Program

- Healthy Huntsville has the goal of reducing obesity by promoting healthy eating and active lifestyles."¹³⁶
- Healthy Huntsville offers two exercise classes free to the public every Saturday from May to October. Classes offered include: Zumba, yoga, turbokick, boot camp, boxing, Pilates, Piloxing, TRX, Insanity, interval workouts and Piyo.¹³⁷ The Mayor's 100-mile Walking Challenge encourages Huntsville residents to talk at least 100 miles between September 1 and November 30.¹³⁸
- Huntsville City Council has hired CareHere! To conduct health risk assessments and biometric screenings on as many as 1,800 active and retired municipal employees. A little over 70 percent of people covered by the city's health insurance plan have signed up for the wellness program.¹³⁹
- The City of Huntsville has an employee wellness center. The center is currently relocating and considering hiring a private company to take over the center's operation in an effort to save costs on employee health services.¹⁴⁰



Greenspace

- There are a total of 9,632 acres of parks and greenspace in Huntsville. With a population of 183,739, there is slightly more than 50 acres of greenspace per Huntsville resident.
- Huntsville has been ranked #18 in a list of the top Fifty “Green Cities” in the U.S.¹⁴¹ and currently ranks 4th in the U.S. and 9th in the world as a Smart (and Green) City.¹⁴²
- Huntsville has aggressively been developing additional green space and a park in south Huntsville along the Tennessee River as part of the Big Picture Master Plan.¹⁴³

Community Trails Program

- Huntsville adopted a Greenways Plan in 2006.¹⁴⁴
- The Land Trust of North Alabama is currently working on trail connectivity. The Land Trust of North Alabama, maintains five trusts located in Huntsville, totaling 5,983 acres.¹⁴⁵

Education, Culture and Historic Preservation

Involving educational and cultural institutions in sustainability initiatives provides mechanisms for involving more people from across the community. Huntsville is engaged in the following educational, cultural and historic preservation activities.

School Gardening Projects

There are outdoor classrooms and outdoor learning areas, such as the award-winning Turtle Habitat at Weatherly Heights Elementary School; a back gate to the Huntsville Botanical Gardens from Morris Elementary School; and community vegetable gardens and seed-to-plate curriculums. There are also multiple outdoor classrooms at the Academy for Science and Foreign Language (ASFL).

Downtown Revitalization

- Downtown Huntsville, Inc. focuses on revitalization of Downtown Huntsville through events, promotions and redeveloped sites.¹⁴⁶
- Downtown North Neighborhood District has seen significant street improvements along Meridian Street and Church Street. The updates include making the area pedestrian and



bike friendly and enhanced landscaping to create more of a live-work-play environment in the downtown area.¹⁴⁷

Sustainability Curriculum and Research in Higher Education

- The University of Alabama Huntsville (UAH) has an Earth System and Science Center, which was created to encourage interdisciplinary study of the Earth. Research in this center focuses on climate models, atmosphere/ocean/ice systems, and measuring the global impact of pollutants.¹⁴⁸
- UAH created MobileAQI™ (Mobile Air Quality Index), an app that uses data from instruments on board NASA and NOAA satellites to supplement pollution estimates available from other sources. This provides a more accurate and reliable report on fine particulates in the air.¹⁴⁹
- UAH offers a Master's of Science in Earth Science System as part of the Department of Atmospheric Science. Students gain an understanding of the physics of the climate system and the environment.¹⁵⁰
- The Department of Civil and Environmental Engineering at the University of Alabama in Huntsville offers an environmental and water resource engineering major.¹⁵¹¹⁵²
- Alabama A&M University offers a bachelor's degree in Environmental Science, which includes concentrations in Soil Science, Environmental Science, and Environmental Health Science, and a minor in Remote Sensing and Geographical Information Systems.

Sustainable Initiatives in Higher Education

- UAH has many sustainability initiatives including:
 - Recycling of aluminum, paper and laser toner cartridges.¹⁵³
 - UAH Tree Planting Program currently has more than 300 trees with plans to plant an additional 500.
 - PowerSave Campus is a student-led program that provides information on energy efficiency through a monthly email newsletter, energy awareness in the classroom and other projects.¹⁵⁴
 - Facilities and Operations recognize staff and faculty who minimize waste with a "Green Office Certification."
 - Annual Earth Week events.
 - As a part of the Office for Operational Excellence, UAH has an Energy Efficiency and Environmental Sustainability program. It provides training in energy



- efficiency, and assist organizations in applying sustainable practices and energy efficiency through practical energy assessments.¹⁵⁵
- UAH has an Energy Huntsville Initiative. Already active projects include fuel-efficient energy systems, a student competition to build better wind generators, student interns and DHS infrastructure resiliency proposal.
 - UAH introduced a free campus bike share program in the fall of 2013. The program is called ChargerCylce and provides 50 bikes and bike locks to students. This program was developed by students in an effort to reduce car congestion in between class times.¹⁵⁶
- Oakwood University suspends classes for an entire day in September to focus on community service. University students team up with Operation Green Team members to help at various schools and local venues to repair, clean up, paint, rake leaves, weed, and provide other necessary services to aid in keeping Huntsville looking beautiful.¹⁵⁷
 - The Alabama Agriculture and Mechanical University is installing a solar system on one of the campus gazebos.¹⁵⁸

Innovation

- Waste-To-Energy Facility
 - The waste-to-energy facility processes up to 690 tons per day of municipal solid waste, commercial waste and limited amounts of dried sewage sludge. The pollution control technology used at the facility complies with all presently applicable federal, state and local environmental requirements. This facility has reduced waste volume to the landfill by 90 percent.
 - Steam produced at the facility is shipped via seven miles of pipeline to the U.S. Army's Redstone Arsenal. The Arsenal uses the steam for heating as well as running other equipment.¹⁵⁹
- Redstone Arsenal has comprehensive sustainability initiatives in place, which includes the following:
 - The Army has awarded a contract for Alabama's largest solar array, which will generate 18,000 megawatt-hours of on-site renewable electricity at the Redstone Arsenal.¹⁶⁰
 - The Arsenal has a Sustainability Officer.
 - The Arsenal has worked for several years to improve the efficiency of the heating and cooling loads in the building.
 - The Arsenal is considering the possibility of converting waste to electrical energy for use at the Arsenal.



- There is a program being heralded by the public affairs office to increase the amount of van pooling being used on the Arsenal.
 - The Arsenal has a strong environmental ethic to help counter the inappropriate treatment of nature at the Arsenal that occurred during World War II and the Cold War time. Major steps are being taken to remove the contamination from the land area and restore it back to a usable state.
 - The Arsenal's compliance program has been improved to ensure that chemical contamination will not occur again.
 - The Arsenal works with a biologist to protect the numerous endangered and threatened species on its' land. ¹⁶¹
-
- Huntsville has a new mobile app called Huntsville Connect. The app allows citizens to report a problem or submit a non-emergency service request to the city. Examples of uses include reporting illegal dumping, potholes, broken parking meters, or found pets. Confidential reports can be made and pictures can be posted. ¹⁶²
 - In June 2014 City Council members affirmed acceptance of all prayers after community members lashed back at the decision of a Wiccan high priest offer invocation on June 26, 2014. The council members decided to continue with the path of inclusion rather than doing away with invocations altogether. ¹⁶³
 - Huntsville has applied to become the first city in Alabama and the 25th city worldwide to be celebrated for its compassion towards people of all races, religions, and economic circumstances. City council members voted in September 2013 to begin working with the International Campaign for Compassionate Cities. This organization's goal is to make human kindness a clear, luminous force in this polarized world. ¹⁶⁴
 - In the wake of 2016 current events, a public group called ReachHsv (Racial Equity Action Committee Hsv) has formed to create a stronger community through conversations and community events that encourage social responsibility, sustainable living, and creating one Huntsville. ¹⁶⁵



Sustainability Marketing Messages

Following are recommended economic development key messages related to sustainability for Huntsville:

- Huntsville offers businesses a variety of potential locations with significant sustainability features in place. Redstone Gateway requires all building to be built to LEED Silver standards or higher and include a pedestrian-friendly design, LED lighting, walking trails and greenspace. The North Huntsville Industrial Park, which was formerly a farm, was designed to maintain 50 percent of the farm land and includes drainage and stormwater management initiatives and walking trails. Cummins Research Park features conservation easements, electric vehicle charging stations, and walking trails.
- Both businesses and residents in Huntsville have access to energy audits to improve the overall energy efficiency of buildings in the city.
- Huntsville has completed a Greenhouse Gas emissions inventory, which is updated every five years. In 2014 the City of Huntsville entered into the Georgetown University Energy Prize (GUEP) to reduce energy waste in municipal and residential buildings, which led to completion of a Huntsville Energy and Greenhouse Gas Reduction Plan in 2016 that seeks to integrate energy and greenhouse gas reduction goals and metrics into the Long Range Urban Plan and process.
- Three universities in the Huntsville area offer curriculum related to sustainability. The University of Alabama at Huntsville (UAH) has a Master's degree program in Earth Science Systems, through which students gain an understanding of the physics of the climate system and the environment. In addition, the UAH Department of Civil and Environmental Engineering offers an Environmental and Water Resource Engineering major. Alabama A&M University has a Bachelor's degree program in Environmental Science, with concentrations in Soil Science, Environmental Science and Environmental Health Science, while Oakwood University offers undergraduate course work in Principles of Environmental Science and General Ecology.
- Huntsville has more than 9,600 acres of parks and greenspace in the city, along with miles of walking and biking trails.
- Redstone Arsenal has comprehensive sustainability initiatives in place to address energy efficiency, waste reduction and natural resources protection. Significant efforts are being made to remediate old chemical contamination and ensure no new contamination occurs, as well as protecting numerous endangered and threatened species found on Arsenal land.



Observations

The Valley Sustainable Communities Program is designed to recognize communities for their sustainability initiatives, with a particular focus on programs that impact economic development and business success. The following observations are designed to enhance Huntsville's initiatives in these key areas.

- Huntsville should consider enhancing its existing local incentives to encourage sustainability. This might include expanding its tax abatement and financing programs to award additional points and extend terms for sustainable initiatives or green construction.
- Both Redstone Gateway and North Huntsville Industrial Park include comprehensive sustainability initiatives. Huntsville should aggressively market these developments as Sustainable Business Parks, which should attract interest from companies with a strong corporate commitment to sustainability.
- Current recycling availability in Huntsville parks is somewhat limited and dependent on volunteer assistance. The city should commit to providing recycling containers in all parks and regularly pick up the recyclable materials.
- Explore the potential of offering recycling services to businesses.
- Huntsville's Energy Efficiency and Upgrade Program Plan developed for the Georgetown University Energy Prize Competition should be fully implemented, with metrics carefully tracked and reported. Additionally, specific Green House Gas reduction goals should be incorporated into the Long-Range Urban Plan currently under development.
- Huntsville has significant park and greenspace, as well as greenways plan. The next step should be to pursue an effort to connect community trails throughout the city, providing access to greenspace for city residents.
- Develop a business wellness program that provides assistance to businesses seeking to offer wellness services and activities to their employees. This program could be an expansion of the Healthy Huntsville program, with specific services and components available to area businesses, along with recognition for participating.



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