

April 2025

Sustainability Recommendations

Advisory Committee on District Sustainability



Clarke County
School District

Better Together

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Introduction

The Clarke County School District Advisory Committee on District Sustainability (“the Committee”) produced this set of recommendations to enhance the sustainability efforts of Clarke County School District (CCSD). The suggestions focus on improving environmental impact, resource efficiency, and overall sustainability in alignment with industry best practices and fiscal responsibility.

Working Definition

All Committee members contributed to and agreed upon the following definition of sustainability: Sustainability is the practice of using resources wisely and implementing green practices to minimize environmental impact while ensuring the long-term health, equity, and wellbeing of communities and the environment. It involves balancing environmental stewardship, social responsibility, and economic viability to meet current needs without compromising the ability of future generations to thrive.

Background

Responding to community support for greater sustainability in local schools, the Clarke County School District Superintendent and Board of Education appointed an Advisory Committee on District Sustainability in January 2024.

Committee membership consisted of three Board of Education members, seven CCSD staff members, three CCSD teachers, eight CCSD students, two Athens-Clarke County sustainability experts, three University of Georgia sustainability experts, one member of the SPLOST Community Oversight Committee, and six community members.

During its first meeting on Jan. 9, 2024, the committee was given the following charge:

Need and Purpose: Given the evolving state of our climate and the energy transition underway, the purpose of the committee is to develop a District plan to minimize our risk and maximize opportunities for our students related to climate resilience.

Scope: The scope of the committee will include examination, prioritization, and recommendation of opportunities for the District to increase health and safety, equity, financial health, waste management, and curriculum and career readiness related to climate resilience and sustainability. Early work should include considerations of an energy audit.

Timeline: The committee will be assembled during Fall 2023, with its first meeting held during January 2024 and proceeding at least monthly after that.

All meetings of this committee will be open to the public. Subcommittees created to focus on key topics are encouraged. The committee chair(s) will present quarterly written or oral reports to the Board of Education with majority and minority opinions welcomed.

The committee efforts will proceed for one year, with a final report due in January 2025. The option to renew committee work for another year will be assessed by the board following a review of the first-year report.

Motivating themes: The committee was encouraged to focus their work through the following lenses:

- Health and safety
- Equity
- Fiscal responsibility
- Waste management
- Career readiness

Leadership structure: Erwin Greene and Ramsey Nix were nominated and elected co-chairs during the first meeting.

Subcommittees: Subcommittee priorities were discussed. Following the discussion, we identified the initial subcommittees and membership as follows:

HVAC: Mark Bailey, CCSD director of plant services; Erwin Greene, SPLOST Community Oversight Committee

Energy: Tawana Mattox, Athens Land Trust; Troy Bassett, CCSD SPLOST project manager; Audrey Hughes, CMS teacher; Arrow Callahan, CMS student; Justin Ellis, UGA sustainability program manager; Tommy Nix, CMS student; Mike Wharton, ACC sustainability officer; Mark Bailey, CCSD director of plant services

Transportation: Ramsey Nix, parent; Tylasha Mumford, CCHS student; Tim Denson, BOE member; Shurod Swift, CCSD director of transportation; Nicole Hull, BOE member

Green Infrastructure: Alfie Vick, UGA professor of environment and design; Christina Hylton, Career Academy teacher; Paula Farmer, CCSD executive director of school nutrition; Garrick Askew, CCSD assistant superintendent of operations; Jennifer Dunlop,

parent; Kyah Campbell, CMS student; Kevin Kirsche, UGA director of sustainability; Hiram Floyd, parent; Zebulon Santos, CSHS student;

Extramural funding and cost sharing: Halo Smart, CCSD workforce development coordinator; Donna Elder, CCSD executive director of federal programs; Patricia Yager, BOE member; Cary Ritzler, parent

Every subcommittee was charged with identifying priorities for improving District sustainability, making short- and long-term recommendations, and organizing the work through the motivating themes and connecting them to education and outreach.

Early Actions

The Energy and HVAC subcommittees combined by March 2024, and several other community members expressed interest in joining the Committee. The BOE voted in March to approve new members Abigail Sawyer, ACC compost education specialist; Randy Priest, community member; Jennifer Dunlop, parent; and Hiram Floyd, parent.

The Committee unanimously voted in April 2024 to create a waste minimization subcommittee chaired by Sawyer. The realignment resulted in the following subcommittees (**chairs indicated**):

Energy and HVAC: Tawana Mattox, Troy Bassett, **Audrey Hughes**, Arrow Callahan, Justin Ellis, Tommy Nix, Mike Wharton, Mark Bailey, Erwin Greene, John Gilbreath

Green Infrastructure: **Alfie Vick**, Christina Hylton, Garrick Askew, Kyah Campbell, Kevin Kirsche, Zebulon Santos; and member at large Stacy Smith, Keep Athens–Clarke County Beautiful program education specialist

Transportation: Ramsey Nix, Tylasha Mumford, **Tim Denson**, Shurod Swift

Waste Reduction: Paula Farmer, Jennifer Dunlop, Kelli Floyd, Hiram Floyd, **Abbie Sawyer**

Extramural funding and cost sharing: Halo Smart, Donna Elder, Patricia Yager, **Cary Ritzler**



The first several meetings allowed for information sharing, and CCSD staff members educated the Committee about any sustainability efforts already underway in the District. We learned that:

- Funding for outdoor LED lighting replacements had been approved.
- CCSD works with architects on sustainable building processes like window placement and efficiency, recyclable flooring, durable and recycled construction materials, heat pumps, LED lighting, low-flow plumbing fixtures, and covered outdoor living spaces as facilities are built or renovated.
- CCSD will consider an LED lighting package upgrade during the next SPLOST.
- The CCSD Transportation Department is exploring electric buses. They already have a site plan.
- CCSD already primarily uses electric appliances in school kitchens.

CCHS student Tylasha Mumford presented findings from her survey of high school students regarding school green spaces: According to her survey, 63.6% of CCHS students said that they spent no time in outdoor spaces at school. And additionally, 81.8% rated the natural environment of their schools as a 3 or below. However, all students surveyed expressed the desire for gardens and outdoor seating areas, as well as more outdoor activities. And 90.9% of students said that incorporating outdoor learning spaces would enhance the learning experience.

Challenges

The Committee recommended an energy audit early in the process, and the Board of Education voted to approve such an audit in April 2024. RFP #24-0521, a Facility Energy Audit Services request was issued by the district in May 2024. Nine firms submitted proposals ranging in price from \$78,082 to \$631,899. The audit scope was for 22 Level 1 facility audits and three Level 3 facility audits.

Given the overall pricing and lack of funding, it was determined that the scope for the audits needs to be condensed and an RFP re-issued to gather the appropriate data and information from three facilities in order to make appropriate recommendations for district HVAC systems. Also, a system needs to be created to better track the district's energy usage, water usage or waste output.

With no baseline data available, subcommittees were unable to generate data-driven recommendations.

The subcommittees drafted preliminary goals before the summer break forced a pause in Committee work. We requested a timeline extension on these recommendations as a result of the unforeseen break. The BOE voted to extend our recommendations deadline from January to April 2025.

When we resumed meeting in August 2024, several Committee members, the students in particular, were unable to attend meetings regularly because their schedules had changed. In the future, such Committee work should probably be scheduled for a solid academic year in order to minimize such disruptions.

Recent Actions

The CCSD teachers on the Committee planned an interactive microgrid field trip for CCSD students to put together a solar array, plug into a trailer and see real-time solar energy data. That field trip took place at the ACC Baxter Street Library in October 2024. The Career Academy and Clark Middle School sent 400 students to learn from Cherry Street Energy about solar power and ACC sustainability professionals about what's going on within the community regarding sustainability.

Our subcommittee work resumed in earnest during the fall and winter, and we spent most of our meetings developing the following recommendations. Once subcommittees submitted their final recommendations in February 2025, the Committee realized that

several of them overlapped. Therefore, we decided to highlight those overlapping recommendations first in this report.

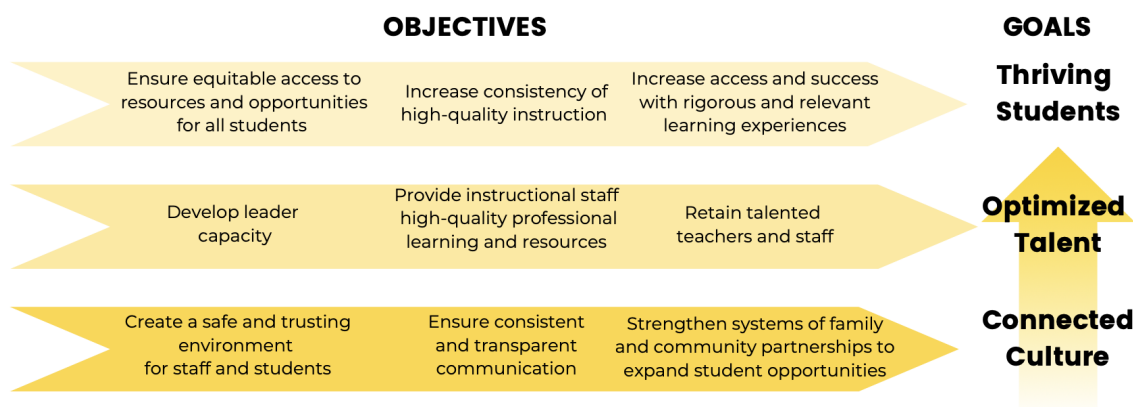
Strategic Goal Priority Connections

The Committee’s work was guided by CCSD’s 2024-2029 Strategic Plan, in particular the strategic goals of "Connected Culture"; "Optimized Talent"; and "Thriving Students." According to the plan, if successful,

Our connected culture will reflect the beliefs we espouse and all staff will understand their role in the success of each student. The community will describe their relationships with CCSD as collaborative and responsive to the evolving needs of learners. Our students and staff will describe CCSD as a place of belonging, safety, support, and mutual accountability.

Our talent will be energized and empowered to create educational journeys for all CCSD students to learn, discover, grow, and ultimately fulfill their potential. All staff will embrace innovative ideas and technologies for the benefit of our students and families.

And **CCSD students will thrive**, meaning they will be prepared, supported, and challenged through the learning experiences we provide. All students will have access and success with high-quality instruction as well as relevant and real-world experiences. Student success and well-being will be at the forefront of all we do and guide all decisions we make.



Recommendations	Strategic Goal Priority Connections
1.1 Recommendation: Improve Tracking and Reporting of Sustainability Metrics	Connected Culture, Thriving Students
1.2 Recommendation: Hire a District Sustainability Educator/Coordinator	Connected Culture, Optimized Talent, Thriving Students
1.3 Recommendation: Increase Applications for Extramural Funding for Sustainability Initiatives	Connected Culture, Optimized Talent, Thriving Students
1.4 Recommendation: Facilitate and Increase Collaboration with Local Experts	Connected Culture, Optimized Talent
2.1 Recommendation: Conserve Energy	Optimized Talent, Thriving Students
2.2 Recommendation: Research innovations in clean energy and incorporate when financially feasible.	Optimized Talent, Thriving Students
3.1 Recommendation: Protect and restore habitat on school grounds	Connected Culture, Thriving Students
3.2 Recommendation: Manage (i.e., remove) non-native invasive plant species present on site	Connected Culture, Thriving Students
3.3 Recommendation: Provide safe, functional outdoor spaces that encourage interaction with the environment, recreation and teaching	Connected Culture, Optimized Talent, Thriving Students
3.4 Recommendation: Manage stormwater using green infrastructure in accordance with recommendations in the Georgia Stormwater Management Manual	Connected Culture, Thriving Students
3.5 Recommendation: Ensure ongoing performance of green infrastructure by implementing annual inspection and repair protocol work with the county	Connected Culture, Thriving Students
3.6 Recommendation: Reduce heat stress by mitigating heat island impacts on school grounds	Connected Culture, Optimized Talent, Thriving Students
3.7 Recommendation: Maximize shading	Connected Culture, Optimized Talent,

of paved surfaces (sidewalks, plazas, parking lots, etc.) to minimize heat gain by using tree canopy, shade sails, pavilions, etc.	Thriving Students
3.9 Recommendation: Reduce nighttime light pollution by adhering to Dark Sky recommendations	Connected Culture
3.10 Recommendation: Reduce outdoor water consumption through efficient irrigation, drought-tolerant landscaping, and water reuse	Connected Culture
3.11 Recommendation: Reduce outdoor water consumption through rainwater collection and reuse	Connected Culture
3.12 Recommendation: Reduce negative impacts of landscape maintenance	Connected Culture, Thriving Students
3.13 Recommendation: Minimize the use of herbicides/pesticides & chemical fertilizers	Connected Culture, Thriving Students
3.14 Recommendation: Minimize erosion	Connected Culture
4.1 Recommendation: Transition the CCSD service fleet to non-fossil fuel vehicles	Connected Culture
4.2 Recommendation: Continue to transition to a non-fossil fuel burning bus fleet	Connected Culture, Thriving Students
4.3 Recommendation: Educate the CCSD community about reducing the overall transportation carbon footprint of CCSD	Connected Culture, Optimized Talent, Thriving Students
5.1 Recommendation: Maximize existing avenues for waste management	Connected Culture, Optimized Talent, Thriving Students
5.2 Recommendation: Implement Environmentally Preferable Purchasing (EPP) procurement practices into CCSD Policy	Connected Culture
5.3 Recommendation: Waste Minimization Training & Annual	Optimized Talent, Thriving Students

Refreshers	
6.1 Recommendation: Improve Tracking and Reporting of Sustainability Metrics (see Recommendation 1.1)	Connected Culture, Thriving Students
6.2 Recommendation: Increase Applications for Extramural Funding and Sustainability Initiatives (see Recommendation 1.3)	Connected Culture, Optimized Talent, Thriving Students
6.3 Recommendation: Create a Clean Energy Career Path	Connected Culture, Optimized Talent, Thriving Students
6.4 Recommendation: Incorporate Sustainability into Project Planning	Connected Culture, Optimized Talent, Thriving Students



High Priority General Recommendations

Subcommittees generated several overlapping recommendations, which became overarching areas of consensus among the entire Committee.

Metrics and Reporting

1.1 Recommendation: Improve Tracking and Reporting of Sustainability Metrics

Current Situation: There is no organized process for looking at energy efficiency, carbon footprint, or environmental impact of the District. This makes it difficult to access data that could help the District set goals and pursue grant funding. This means there is not a baseline to measure progress. A tracking process could help the District establish baseline metrics, set measurable goals, and collect measurable data to include in grant proposals.

Proposed Solutions:

- Complete an energy audit by the end of the 2024-2025 school year with detailed information provided for baseline data.
- Continue to have energy audits completed at least every five years.
- Adopt a sustainability reporting framework to track and communicate cost and energy savings, carbon footprint decreases, and student engagement with sustainability initiatives, plus STEM field workforce development opportunities.
 - Consider Denver Public School's [sustainability dashboard](#). It tracks the district's average annual avoided costs due to sustainability measures, which currently stands at more than \$5 million.

Proposed Implementation Plan:

- 1: Identify and employ a Sustainability Tracker position within CCSD to quantify CCSD's sustainability performance. This position could be combined with the grant administrator position (Recommendation 1.2) since showing impact (or potential impact) through data is usually a part of the application as well as the annual or final reports for grants. OR

- 2: Partner with UGA Sustainability or an outside partner to track sustainability metrics across institutions. This approach could save the District from establishing its own tracking system.
 - For example, HI Solutions, which presented to the Energy subcommittee, works with Georgia Power to help schools and businesses reduce energy use and improve energy conservation. They install equipment to continuously monitor meters for energy and water usage. HI Solutions currently works with Gwinnett County Schools, which now use 30% below the national average for school energy use.
 - Either proposed solution could also help the school pursue opportunities that could help with tracking sustainability goals and receiving technical assistance. Examples include:
 - [Georgia Environmental Finance Authority](#) provides training and technical assistance through the Technical Assistance Program for Schools. This program could allow the District to self-regulate sustainability practices.
 - The position could lead the District to pursue a [Green School Certification](#), which would help organize and motivate the data collection, as well as opening up funding opportunities.
 - [The Association for the Advancement of Sustainability in Higher Education includes a K-12 membership opportunity.](#)

Benefits:

- Greater transparency and accountability.
- Decreased District expenditures on energy.
- Improved decision-making through data-driven insights.
- Improve CCSD's visibility as a sustainability and STEM leader in the community, region, state, and beyond.

Leadership

1.2 Recommendation: Hire a District Sustainability Educator/Coordinator

Current Situation: CCSD does not currently offer academic or operations support for innovative sustainability initiatives. STEM for students and other stakeholders is supported through curriculum coordinators in Science and Math, with no one coordinating shared goals for the Science, Math, CTAE, and the Career Academy departments.

Proposed Solutions:

- Create a CCSD Sustainability Coordinator position to educate and support CCSD teachers, staff, students, while working collaboratively with ACC Green Schools, community professionals, and CTAE educators to enhance and ensure best sustainability practices are implemented.
- Develop an Energy Conservation Campaign directed at people using CCSD buildings by working with CCSD Public Relations and the Sustainability Coordinator to highlight initiatives and goals regularly with a section in the weekly newsletter.
- CCSD Sustainability Coordinator, CTAE Director, Science Coordinator work with local professionals to focus on workforce development and career readiness for STEM jobs now and into the future.
- Produce a regular sustainability segment in the “Better Together” newsletter that informs stakeholders about the District’s sustainability initiatives, successes and milestones.

Benefits:

- Foster a culture of sustainability and innovation.
- Expand CCSD’s stakeholder engagement in sustainability programs.
- Improve CCSD’s visibility as a sustainability and STEM leader in the community, region, state, and beyond.
- Provide CCSD students with more real-world STEM connections and opportunities for career readiness and workforce skills development.

- Decrease energy consumption in CCSD buildings.
- Increase opportunities for grants, rebates and other incentives for sustainability initiatives and practices.

Extramural Funding

1.3 Recommendation: Increase Applications for Extramural Funding for Sustainability Initiatives

Current Situation: In the 2024-25 school year, CCSD received \$11,360,646 in grant funding, including \$686,512 in competitive 5-year 21st Century Community Learning Center funds. The remaining federal dollars are allocated to Clarke County (non-competitively) through the Georgia Department of Education. Competitive grants are written by the 21st Century and Federal Program Coordinators and managed by the Office of Federal Programs. A grant administrator could seek public and private funding to support CCSD's sustainability initiatives. A grant administrator can include personnel costs in some grant applications, so a grant management position can recover indirect costs such as salary and fringe once grants are awarded.

There are numerous examples of funds available to schools for broad sustainability measures. Currently, the school District is missing out on opportunities to apply for grants from agencies and organizations outside of the Department of Education. While political uncertainty may impact some funds for the short term, a mix of public and private funding will likely remain available for school District.s Examples of current funding opportunities include:

- The Walmart Foundation supports community grants around both racial equity and sustainability: <https://www.walmart.org/how-we-give>
- The Department of Energy Office of State and Community Energy Programs Renew America's Schools: <https://grants.gov/search-results-detail/358139>
- [Georgia Environmental Finance Authority](#) provides financial assistance and technical support to Georgia's energy efficiency and renewable energy programs.

Proposed Solution:

- Hire a grant administrator for the District who can write and manage competitive grants in the area of sustainability. If the right person is found, this position could be part of the job description of the sustainability coordinator.

Benefits:

- A grant administrator could secure funding that would support the position and bring in funds to help the District achieve the sustainability recommendations set forth in this document. The grant writer position would cost approximately \$100,000 per year. The position would be self-sustaining by securing >\$1,000,000 per year in additional funding, assuming a 10-15% de minimis indirect cost rate.
 - [Clayton County School System](#) is an example of a District that has hired a grant writer resulting in \$20 million in rounds one and two of the EPA Clean School Bus Rebate Program. Clayton County employs a grant writer and has set District-wide sustainability goals. Clayton County was able to secure approximately 50 new buses in early rounds of the Clean School Bus program because they had staff in place to lead the pursuit.

Collaboration

1.4 Recommendation: Facilitate and Increase Collaboration with Local Experts

Current Situation: Clarke County School District could benefit from collaboration with community professionals and expert partners, such as the Athens-Clarke County Government and the University of Georgia.

Proposed Solutions:

- Establish quarterly to semi-annual meetings for ACC, CCSD, and UGA sustainability leaders to communicate and share information, discoveries, and experiential knowledge.
- Share the District's energy audit results and review with ACC, CCSD, and UGA sustainability leaders.
- ACC, CCSD, and UGA explore and evaluate renewable energy sources for CCSD properties.

Benefits:

- Access to diverse expertise and resources, enhanced creativity and problem-solving, improved communication, accelerated pace of discovery, and the potential for greater impact and funding opportunities.
- Enhanced brand image for community partnerships and sustainability efforts.



Energy & HVAC Recommendations

Energy Conservation

2.1 Recommendation: Conserve Energy

Current Situation: Energy consumption for lighting, heating, ventilation, and air conditioning (HVAC) systems is a major expense for the District.

Proposed Solutions:

- 100% LED lighting throughout CCSD by the end of 2025-2026 school year.
- Maximize efficiency with HVAC, hot water, lighting equipment and appliance life cycle replacements. Ex: When a system needs to be replaced, purchase the most energy efficient and cost effective system possible.
- Maximize passive opportunities to heat, cool, and light CCSD buildings and adopt a sustainable building policy. Ex: Use natural lighting and build classrooms so that they are not facing the afternoon sun to reduce air conditioning demand.
- Set parameters, such as a 3 degree window for temperature changes/adjustments, for HVAC and use motion sensor lighting inside and outside of CCSD buildings. (this is available in some buildings, but not all at this time)
- Implement a district-wide, real-time energy monitoring system to set reduction goals and identify when and where energy use is highest. This will help target inefficient systems, guide upgrades, and inform budget and planning decisions. The data can also be used in classrooms to engage students in learning about energy use, conservation, and sustainability—building awareness and responsibility across the district.

Benefits:

- Decrease energy consumption by up to 15%.
- Long-term cost savings on utility bills.
- Enhanced learning and working environment due to more consistent climate control.

Energy Innovation

2.2 Recommendation: Research innovations in clean energy and incorporate when financially feasible.

Current Situation: There are currently no clean energy programs on any of CCSD campuses. Georgia has significant potential for solar energy, with an average of 218 sunny days per year. Several K-12 campuses are embracing clean energy, like Liberty and Richmond Counties installing solar panels.

Proposed Solutions:

- Use the new solar array at Clarke Middle School as a pilot to test the impact of solar energy on the school's energy consumption and power bills.
 - In December, we learned that four dual-tracking systems that hold 42 solar panels each would be installed at Clarke Middle School. These solar panels are expected to produce 164,000 kilowatts of energy annually.
- Continue to explore solar energy options.
 - Our subcommittee heard from one solar company that built the solar array on the Classic Center in Athens. [Cherry Street Energy](#) presented an initial CCSD energy analysis. Here is a brief synopsis of their findings: The 12 solar sites the company identified on CCSD properties would generate a total utility offset of 27.1%. Cherry Street's model is a fixed rate model with no installation or maintenance fees. They provided the following estimated savings in energy costs: \$358,954 in 20 years; \$1,781,251 in 25 years; \$3,345,840 in 30 years.
 - We also learned about a similar leasing program that is federally funded called [Georgia BRIGHT](#).

Benefits:

- Reduced electricity bills
- A solar power and storage system can provide a self-sustaining energy solution, reducing reliance on the grid and providing a reliable energy source even during outages.

- Clean and renewable energy sources produce electricity without the harmful carbon emissions that contribute to climate change.

Energy & HVAC Appendices

- [US Department of Energy: Better Buildings](#)
- [Energy Star: K-12 Schools](#)
- [Energy Management for Schools](#)
- [Cherry Street Energy](#)
- [HI Solutions Energy Management](#)
- [Georgia Power Resources](#)
- [Georgia Technical Assistance Program](#)
- [Costs & Benefits of Solar for Schools](#)
- [Schools Going Solar](#)



Green Infrastructure Recommendations

Summary:

This report provides a set of recommendations to increase the sustainability of all schools in the Clarke County School District by implementing and enhancing green infrastructure. The [Whole School Sustainability](#) framework explains that, in green schools, the educational program, physical place and organizational culture all support sustainability, and that each aspect of the school plays an important part in making the whole picture work. The three pillars were first introduced in 2011 when the U.S. Department of Education launched the [ED-Green Ribbon Schools](#) award program.

Reduce environmental impacts and costs. Green schools reduce their environmental impact and fight climate change by reducing energy and water use, cutting back on fossil fuel used in transportation, reducing waste headed to landfill, and protecting natural habitats.

Improve occupants' health and performance. Green schools protect student and teacher health by ensuring a clean and healthy indoor environment in the school, as well as providing programs and services for good nutrition and physical activity.

Effective sustainability education. Green schools teach students about sustainability and the environment, providing tools to solve global challenges and using the school as a teaching tool. Green schools support sustainability literacy through curriculum and instructional practices.

These pillars support the District's strategic goals to have a connected culture that provides a safe and trusting environment for staff and students and to ensure that CCSD's staff, faculty, students and facilities are equipped to thrive in the coming years. The following set of infrastructure recommendations are provided to reach these goals.

Protect and Restore Habitat

3.1 Recommendation: [Protect and restore habitat on school grounds](#)

Current Situation: Landscaping throughout the CCSD school District is a mosaic of planting types. Schools have been built, rebuilt and renovated over a long time period with different contractors and planting plans. Campuses range from small intown schoolyards (Barrow, Holston, and Burks) to large properties with tracts of forested area

(Timothy, Oglethorpe, and Cleveland Road). These large tracts have huge ecological value and also have instructional/educational value for students.

There has been no policy for new landscaping to ensure the use of sustainable native species or to consider the usage of greenspace outside the buildings and their plantings beyond base plantings, playground equipment, and sports fields. Throughout the life of each school, teachers, staff, and neighborhood partners have taken it upon themselves to install native plantings such as trees, pollinator gardens, walking trails, native gardens, etc. to enhance school grounds and provide areas of instruction. (Appendix H) These projects have been supported by small grants and community and school volunteer power. We would like the District to support these efforts by committing to include the planting of natives and avoiding invasive landscape species in the construction of new schools and the maintenance of existing landscaping.

Proposed Solutions:

- Protect existing natural areas and native vegetation from disturbance, increase biodiversity, and support native wildlife by planting native species appropriate for the site conditions.
- Within 3 years, conduct landscape typology audits at each of the 21 CCSD schools and identify priority areas for improvement with a goal of 30% of landscaped area at each school site dedicated to increasing biodiversity, native vegetation, human safety, and wildlife habitat in the form of native landscaped areas and areas available for outdoor instruction and play.
 - Examples of funding -
 - Wild ones grant
 - Georgia Forestry Commission [Made in the Shade](#)
 - [GA DNR Wildlife Viewing Grants](#)
- Adopt a policy that all new and replacement landscape and tree plantings will be species that are non-invasive and native whenever possible. (Appendix A)

Benefits:

- Plants grown in appropriate conditions will thrive with minimal care. By choosing plants well adapted to each landscape site situation, you reduce the need

for water, fertilizers and pesticides, reduce water pollution, save time and money while providing habitat for wildlife.

- [Research](#) has shown that outdoor learning can have huge benefits on student mental health and academic performance. Students are often calmer and better able to focus when learning in nature, and teachers have reported better behavior and social interactions with fewer disciplinary issues.
- It's a flexible alternative. With the [CDC once again recommending](#) as much fresh air as possible for students and educators, outdoor classrooms can be an easy and cheaper way to offer better air quality, as well as a way to increase school capacity.

3.2 Recommendation: Manage (i.e., remove) non-native invasive plant species present on site

Current Situation: CCSD Schools have a variety of landscape plantings installed during construction and renovation. Some plantings of standard landscaping varieties have included plants on the Georgia Invasives list such as Bradford/Callary pear, Nandina, vinca, and privet species. An invasive plant is not native to our ecological region AND causes harm ([Executive Order 13112 - Invasive Species \(1999\)](#)).

Many schools also have areas of unmanaged forest that have been overrun with aggressive invasives from nearby landscaping, including Bradford/Callery pear, Oriental Bittersweet, Microstegium, Perilla Mint, etc. Schools have been individually collaborating with community volunteers to remove species and reclaim instruction space for trails, play, and gardens, but the responsibility has rested on individual teachers to lead volunteers on their weekend time and for community service events such as the MLK Day of Service, Rivers Alive, the Dawg Days of Service, the UGA PSO Day of Service, and individual community events. Support of the District and landscaping services in removing these species would take the burden from teachers and make sure all schools were able to work towards the eradication of invasives to increase outdoor classroom space and improve the landscape.

Proposed Solutions:

- Adopt a policy that prohibits the planting of species on the GA invasives list. (Appendix B)
- Continue invasive plant removal work sessions at schools organized by the District in collaboration with community partners on community-wide volunteer

days (i.e. Martin Luther King day of service, Dawg day of service) and increase workdays to include schools with invasive species issues that have not had workdays.

Benefits:

- Increase usable schoolyard areas. Aggressive invasive shrubs and vines can limit use of and access to school property.
- Stay ahead of state and Federal Legislation regarding invasives.
 - Notably, sale and planting of Bradford pear and its cultivars are now illegal in South Carolina, Ohio and Pennsylvania.
- Decrease facilities cost and negative impact of areas impacted by the spread of aggressive invasive species.
 - Invasive vines can weaken or kill large trees, creating treefall hazard
 - Dense stands of invasive shrubs limit line-of-sight, thus enabling intruders a place to hide
 - Large thorns on invasive species such as Bradford/Callery Pear and Thorny Olive can cause injury
- Increase “ethical” responsibility and benefit to surrounding communities by reducing off-campus spread by invasive plant seeds and spores.
- Increase landscape health, biodiversity, and safety.

Outdoor Education

3.3 Recommendation: Provide safe, functional outdoor spaces that encourage interaction with the environment, recreation and teaching

Current Situation: All CCSD schools have students and staff involved in outdoor classrooms and environmental education (EE) ([National Environmental Education act of 1990](#)). EE encourages inquiry and investigation and enables the learner to develop critical-thinking, problem-solving and effective decision-making skills. EE enables individuals to weigh various sides of an environmental issue. It does not advocate a particular viewpoint or course of action.

A few of the programs are supported through the CTAE program and feature agricultural education and very active FFA (Future Farmers of America) Programs. Others are teacher and PTO led and many feature partnerships with UGA and local environmental education organizations. This active interest in utilizing the school yard and the environment as classrooms has resulted in a wide range of outdoor classroom types that are teacher and community installed and maintained. We have pollinator gardens, herb gardens, native habitat gardens, arboretums, nature trails, raised beds, greenhouses, math gardens, storybook gardens, rain barrels, composting programs, pavilions, fruiting trees and shrubs, etc. These are maintained through community partnerships, grants, and volunteer labor. (Appendix H).

CCSD also has a strong ten plus year partnership with the [ACC Green School Program](#). This program is a county government partnership designed to assist schools with environmental education and improvement efforts that focus on conservation, preservation, and beautification of our environment. Annually, the program recognizes participating schools and teachers that implement exceptional environmental education and improvement programs. Green School lessons can cover a wide variety of topics including: water conservation, storm water, recycling, volunteer service, and beautification. These lessons address the skills and knowledge necessary to build environmental literacy. During the 2023-24 school year, 283 teachers from 22 schools taught and participated in 734 Green School lessons and activities.

The Athens-Clarke County and UGA Departments that make up the Green School Committee (Waste Reduction, Keep Athens-Clarke County Beautiful, Stormwater, Water Conservation, Sandy Creek Nature Center, the UGArdens, the State Botanical Garden of Georgia, the Cooperative Extension Office, and the Planning Department) are available throughout the year to assist with environmental education at all of our county's public and private schools. KACCB provides resources and support for Outdoor Learning Spaces and teaching by assisting with garden maintenance, the loan of tools, planting assistance and materials, classroom visits, and communication with teachers about Outdoor Learning Space opportunities.

Although there is a robust interest in using the schoolyard for instruction, there has been limited support from the District level and teachers and volunteers maintain these spaces and seek professional development for teaching in these areas on their own. Support from the District for teachers and students using these areas would increase the use and success of these areas and take the burden from individual teachers. We have

also seen outdoor classrooms act as a great way to increase parental and community involvement in the District.

Proposed Solutions:

- Work with school faculty and staff to create and maintain programmed outdoor learning spaces
- Create an environmental education working group at each school, facilitated at the District level.
 - to assess teacher use and needs of these areas and to support maintenance of these areas.
 - These groups should provide facilities management with care plans (what can be mowed, what should not be sprayed or mowed.)
 - These groups should also recommend what they want added to the grounds.
- Create District policy that landscaping contractors and District facilities have a map of these areas and will follow EE working group care guidelines for these outdoor learning spaces. AND/OR making sure these areas are clearly marked in some way. (Barriers/signage)
- Have an instructional specialist at the District level to ensure that training and programming exists for teachers and students to use these areas. Incorporate [Environmental Literacy Guidelines in Georgia](#) (Appendix C)
- Inventory, assess, and preserve existing spaces, and provide support for these spaces, by noting what works best for the space as well as how to ensure the space continues to be utilized.
- Work with District curriculum teams to incorporate Environmental Education and Sustainability to the curriculum where appropriate.

Benefits:

- According to [Closing the Achievement Gap \(Lieberman and Hoody, 1998\)](#), studies indicate that students learn more effectively within an environment-based context than within a traditional educational framework. This evidence comes from site visits, interviews, survey results, and gains in both standardized test

scores and grade point averages. The [9th annual National Report Card, Lessons from the Environment, \(issued in May 2001\)](#) shows that 95% of American adults endorse environmental education in schools.

- Environmental Education:
 - Encompasses multiple disciplines by connecting fields of knowledge
 - Promotes higher-order thinking skills: critical thinking, problem-solving, and decision making
 - Develops motivation by offering a real world context for learning and providing service-learning opportunities
 - Engages students in investigative, hands-on/minds-on, student-centered, and cooperative learning processes
 - Advances educational reform goals
 - Correlates to state and national academic standards
 - Considers the environment in its totality
 - Promotes lifelong learning

Stormwater Management

3.4 Recommendation: [Manage stormwater using green infrastructure in accordance with recommendations in the Georgia Stormwater Management Manual \(GSWMM\)](#)

Current Situation: The school campuses throughout the District are all of varying ages and were built to meet the stormwater and erosion control standards at the time of construction. A number of the older buildings have since had changes in the landscape around them and with aging have developed some erosion issues.

The District has a well-established relationship with the stormwater department. ACC Stormwater provides education and collects the annual stormwater fee. Through this partnership, the District has received stormwater education, some rain gardens, and installation of rain barrels. However, larger erosion issues still remain that need to be

addressed at the District level and some schools are without up-to-date stormwater remediation.

Extreme rainfall events are occurring with increasing frequency and are expected to continue to impact our campuses. We can partner with UGA experts on nature-based solutions to increase resilience.

Stormwater fees are likely to increase as stormwater systems face heavier rain events and aging infrastructure. Investing in stormwater management that reduces the utility fee now may reduce costs in the future.

Proposed Solutions:

- Retain on-site the 1.8" rainfall event (or less, if 1.8" is not feasible) on-site using green infrastructure (rain gardens, bioretention, porous pavement, rainwater harvesting and reuse, etc.)
- Within 3 years, assess stormwater green infrastructure at each of the 21 CCSD schools in accordance with the Georgia Stormwater Manual (Appendix D) and other reference school Districts. Develop cost-benefit recommendations for enhancement of flood control, water infiltration, and water quality, as well as human resources and operational infrastructure as needed to maintain these systems overtime. Work directly with the county.
- New Schools: Incorporate Green Infrastructure into the design phase (e.g., rooftop rainwater harvesting, bioretention landscaping, porous pavements).
- Existing Schools: Retrofitting options include planting native vegetation, installing rain barrels and rain gardens, and converting impervious areas to permeable surfaces.

Benefits:

- Flood Control: Reduces stormwater runoff volume and rate, minimizing localized flood damage (also aids in erosion control)
- Water Quality Improvement: Filters pollutants before they reach waterways.
- Cost Savings: Long-term reduction in stormwater management costs – possible reduction on stormwater utility fee.

- Educational Opportunities: Green stormwater infrastructure can serve as hands-on learning tools for students.
- Climate Resilience: Enhances urban heat mitigation and water infiltration.

Green Infrastructure Maintenance

3.5 Recommendation: Ensure ongoing performance of green infrastructure by implementing annual inspection and repair protocol work with the county

Current Situation: The District regularly inspects school grounds. However, there is not enough attention to regularly assessing green infrastructure to ensure ongoing performance.

Proposed Solution:

- Coordinate with ACC Government or engage an experienced contractor to regularly inspect green infrastructure practices to maintain efficacy.

Benefits:

- Green infrastructure practices will remain effective with regular inspection and maintenance.
- Up to date green infrastructure can reduce operational costs and reduce damage to the school grounds from precipitation events.

Heat Mitigation

3.6 Recommendation: Reduce heat stress by mitigating heat island impacts on school grounds

Current Situation: While canopy trees are present on most CCSD properties, there are opportunities to enhance the health and wellbeing benefits provided by shading outdoor areas utilized by students and District employees. Many areas without adequate shade exist, especially at older schools.

Proposed Solutions:

- Provide adequate shade in outdoor spaces using tree canopy, shade sails, and other shade solutions such as solar arrays.

- Within one year, coordinate with ACC or contracted arborists to verify existing tree canopy coverage and health, develop a tree coverage target for each CCSD school, and create a phased action plan to plant appropriate native trees to reach [45% canopy coverage](#) within 15 years.
- Adopt the [Athens-Clarke County Tree Ordinance Plan](#) for CCSD grounds (Appendix E)
 - Athens-Clarke County Tree Species List
 - Best Management Practices for Community Trees
 - Forest Regeneration Areas
 - Future Forest Areas
 - Tree Management Plan Requirements
 - Tree Removal Standards
- Include required standards for mulching, establishment, and tree conservation in ACC Landscaping Contracts.
 - Mulching
 - New Tree Establishment
 - Parking Lot Tree Standards
 - Tree Conservation Standards

Benefits:

- Reduce the risk of heat stress for students and employees
- Decreased schoolyard temperature and reduced heating/cooling costs
- Increased landscape health and biodiversity
- Increased usable outdoor instruction space
- Decreased cost to facilities through use of hardy, region adapted native species

3.7 Recommendation: Maximize shading of paved surfaces (sidewalks, plazas, parking lots, etc.) to minimize heat gain by using tree canopy, shade sails, pavilions, etc.

Current Situation: Various school designs and buildings of various ages have differing amounts of unshaded paved, playground, and school ground areas. A few schools have installed trees through partnerships with various agencies or had trees planted as a part of the original landscaping. The same is true of shade structures on campuses.

The “normal” average annual temperature in Athens is 62.6 degrees, according to a database built by the High Plains Regional Climate Center at the University of Nebraska. [That’s nearly a full degree hotter than the 2010 normal in Athens and 1.4 degrees hotter than the 1990 normal.](#) Temperatures have continued to trend up, making passive cooling solutions necessary for the health and safety of staff and students.

Proposed Solution:

- Within one year, assess all paved surfaces at each CCSD school site and identify strategies to shade 50% or more of paved surfaces.
- Consider solar shading structures.

Benefits:

- Reduce the risk of heat stress for students and District employees
- Decreased schoolyard temperature and reduced heating/cooling costs.

3.8 Recommendation: Incorporate white roofing, vegetated roofs, or rooftop photovoltaics to reduce rooftop temperatures

Current Situation: Most CCSD property roofs are already using white roofs.

Proposed Solution:

- Within one year, assess all rooftops at each CCSD school site and identify appropriate strategies to minimize heat gain on 75% or more of roof area. Recommended strategies include: highly reflective white roofing, vegetated roofs, and roof-mounted photovoltaics.

Benefits:

- Decreased schoolyard temperature and reduced heating/cooling costs.

Light Pollution Mitigation

3.9 Recommendation: Reduce nighttime light pollution by adhering to Dark Sky recommendations

Current Situation: New construction already utilizes full-cutoff fixtures. CCSD adheres to ACC county ordinance Dark Sky recommendations. The District does not utilize uplighting. There is an exception for sports venues.

Proposed Solutions:

- Use full-cutoff exterior light fixtures to minimize uplight and associated light pollution.
- Within 1 year, assess outdoor lighting at each of the 21 CCSD schools and develop a plan to replace all non- dark sky-compliant outdoor fixtures with dark sky-compliant alternatives.
- Within 5 years, replace all non-compliant fixtures with compliant alternatives at all CCSD schools. (Appendix F)

Benefits:

- Reduce power consumption.
- Reduce light pollution.
- Support wildlife

Water Conservation

3.10 Recommendation: Reduce outdoor water consumption through efficient irrigation, drought-tolerant landscaping, and water reuse

Current Situation:

Schools have a variety of landscaped conditions and currently no District guidelines exist to ensure the adoption of drought tolerant landscaping or the use of water efficient irrigation practices.

Proposed Solution:

- Within 3 years, assess [water-wise landscaping](#) at each of the 21 CCSD schools and identify priority management actions such as proper mulching, replacement of invasive and non-native plants, and installation of water-efficient irrigation systems.
- Incorporate the use of compost in landscaping to increase soil water absorption and retention.
- Incorporate water-wise landscaping practices into landscape design, installation, and ongoing maintenance. (Appendix G)
- Consider incorporating [ACC Public Utilities H2Gr0w](#) designs when possible
- Utilize WaterSense Labeled Irrigation Controllers where outdoor irrigation is used (<https://www.epa.gov/watersense/watersense-labeled-controllers>)
- Register all schools for [WaterSmart Customer Portal](#) as a way to track outdoor water use and be alerted for potential leaks.

Benefits:

- Reduced water costs
- Reduced maintenance costs through adoption of region adapted, site hardy species.

3.11 Recommendation: Reduce outdoor water consumption through rainwater collection and reuse

Current Situation: There are currently no managed large-scale water reuse initiatives. Rainfall collected from rooftops and condensation from HVAC are both suitable for non-potable uses such as landscape irrigation. Some schools have installed and maintained their own rain barrels, but opportunities exist to expand and provide District support for these water reuse initiatives.

Proposed Solution:

- Within 3 years, assess opportunities for rain and condensate water harvesting and reuse.

Benefits:

- Reduced water costs
- Reduced stormwater runoff and reduced stormwater fees

Healthy Landscaping

3.12 Recommendation: Reduce negative impacts of landscape maintenance

Current Situation: CCSD schools contract out landscape maintenance at each school. Most equipment traditionally used by contract landscaping crews is gas-powered. By releasing proportionally large amounts of toxic pollutants, these devices, sometimes referred to as Small Off-Road Engines (SORE) directly contribute to climate change; during the summer, gasoline-powered landscape maintenance equipment (leaf blowers, trimmers, edgers, and brush cutters) [account for a majority of SORE emissions](#). These emissions are made of volatile organic compounds and fine particulate matter; exposure to these can contribute to both short-term adverse health effects as well as long-term reverberations including [cardiovascular diseases and cancer](#). Those who are immunocompromised, including children and older adults, are particularly susceptible. Moreover, workers regularly using gas-powered equipment face these potential health risks compounded by the threat of hearing damage. There has not been a requirement to choose companies that use electric tools when sourcing CCSD landscape maintenance contracts. [The ACC Government has been piloting a shift from gas powered equipment to electric and has seen some successful results](#).

Proposed Solutions:

- Minimize carbon emissions from operating landscape equipment.
- Within 1 year, assess existing landscape contracts at each of the 21 CCSD schools, including uses and costs of fuel. Identify strategies to minimize carbon emissions and reduce costs, such as using electric equipment.
- Prioritize awarding landscape companies that offer services with equipment and methods that minimize the release of pollutants and noise.

Benefits:

- Improved student and staff health
- Increased air quality
- Decreased fuel costs

3.13 Recommendation: Minimize the use of herbicides/pesticides & chemical fertilizers

Current Situation: Pest management is currently contracted out. The District has no guidelines on garden herbicide/pesticide use.

Proposed Solutions:

- Within 1 year, assess existing landscape maintenance practices at each of the 21 CCSD schools, including uses and costs and fertilizer.
- Use integrated pest management (IPM) to control unwanted plants and animals on site.
- Increase compost use and production at schools to boost plant health and reduce the need for chemical fertilizers.
- Increase the use of mulching and native plantings to reduce the need for chemical use to maintain grounds.
- Develop guidelines to minimize use of herbicides/pesticides in school gardens and outdoor spaces.

Benefits:

- Improved student health
- Reduced maintenance costs

Erosion Mitigation

3.14 Recommendation: Minimize erosion

Current Situation: All CCSD schools have varying forms of stormwater Best Management Practices (BMPs) (retention ponds, swales, etc.) since they are required in permitting and construction. However, ACC Stormwater does not have a list of those that are in place. The [Erosion and Sedimentation Act of 1975](#) requires that, at a minimum, protections at least as stringent as the state general permit; and best management practices, including sound conservation and engineering practices to prevent and minimize erosion and resultant sedimentation, must be consistent with, and no less stringent than, those practices contained in the Manual for Erosion and Sediment Control In Georgia published by the State Soil and Water Conservation Commission as of January 1 of the year in which the land-disturbing activity was permitted.

Proposed Solutions:

- Partner with ACC Stormwater to identify stormwater BMPs that are in place at schools and develop recommendations for possible maintenance, addition, and improvement of stormwater infrastructure at schools with the goal of complying with the [Georgia Soil and Water Commission's Manual for Erosion and Sediment Control \(Green Book\)](#) recommendations.
- Identify areas of erosion at all CCSD schools and identify possible solutions (enhanced plantings, mulch, stormwater management) and create a plan to implement erosion remediation at all sites within three years.

Benefits:

- Decreased repair cost to facilities.
- Decreased loss landscaping and functional outdoor instructional and recreational areas.
- Decrease in ACC stormwater fees.

Green Infrastructure Appendices

- Appendix A: List for District to refer to or provide to contractors and schools, UGA Extension
 - [Native Plant Search Engine](#), UGA
 - [Native Plants for Georgia Part I: Trees, Shrubs and Woody Vines](#)
 - [Native Plants for Georgia Part III: Wildflowers](#)
- Appendix B: List of GA invasives: <https://www.gainvasives.org/>
- Appendix C: [Environmental Literacy Guidelines in Georgia](#)
- Appendix D: [Georgia Stormwater Management Manual](#)
- Appendix E: [Athens Clarke County Community Tree Ordinance](#)
- Appendix F: [Dark Sky Guidelines](#)
- Appendix G: [Water-Wise Landscaping for the Georgia Piedmont](#)
- Appendix H: [Outdoor Classroom areas in CCSD](#)



Transportation Recommendations

Cleaner Modes of Transportation

4.1 Recommendation: Transition the CCSD service fleet to non-fossil fuel vehicles

Current Situation: The District currently owns and maintains 76 service vehicles, three of which run on diesel and 73 on gasoline. Primarily maintenance and security vehicles, they range in age from 49 years to 1 year old and in miles traveled.

Transportation is considered the primary contributor to Georgia's greenhouse gas emissions, representing around 40% of the total emissions. Gasoline-powered cars, SUVs, and pickup trucks are the main contributors to transportation emissions, though emissions from diesel-fueled heavy-duty vehicles are also significant.

Carbon dioxide is the main greenhouse gas emitted by cars, making up the vast majority of their emissions. Carbon dioxide is the most significant contributor to climate change.

Fossil fuel air pollution is responsible for 1 in 5 deaths worldwide, according to [Harvard University](#). Vehicle emissions significantly impact human health, primarily causing respiratory issues like asthma aggravation, bronchitis, and lung cancer, as well as cardiovascular problems like heart attacks and strokes due to exposure to fine particulate matter; additionally, long-term exposure to certain pollutants in vehicle emissions, like benzene, is linked to an increased risk of cancer; people most vulnerable include children, the elderly, and those with pre-existing health conditions.

Proposed Solutions:

- When replacements are necessary, transition the District's service fleet of vehicles from fossil fuel-powered to non-fossil fuel alternatives (such as electric, plug-in hybrid electric vehicle (PHEV), hybrid or hydrogen vehicles).
- Partner with the ACC government to improve infrastructure for electric vehicles, including charging stations and grid upgrades.
- Collaborate with Georgia Power and the [Georgia Network for Electric Mobility](#) (GNEM) at UGA to secure funding and technical support for the transition.

Proposed Implementation Plan:

- Conduct a Fleet Assessment
 - Evaluate the current fleet's usage patterns, mileage and replacement cycles to identify the best candidates for replacement with non-fossil fuel vehicles.
 - Prioritize vehicles with high mileage or those used in stop-and-go operations, as these are ideal for electrification.
 - The Department of Energy has created an [online calculator](#) that makes it easy to compare the total cost of operating vehicles of different fuel types.
 - The International Energy Agency has a [useful tool](#) for comparing the life-cycle emissions of petrol, plug-in hybrid, and fully electric cars under various scenarios. You can change many inputs, including the daily mileage, the electricity mix, and the share of the time drivers spend in “electric mode.”
- Develop a Transition Timeline
 - Set clear goals and timelines for the transition, such as replacing 25% of the fleet with non-fossil fuel burning vehicles by 2030 and 50% by 2035, or as vehicles are retired.
 - Invest in non-fossil fuel vehicles for any new purchases and begin with a pilot program of vehicles to evaluate performance, cost savings and operational impact.
 - ACC created a SPLOST project with the goal that SPLOST would pay for the difference between the cost of a fossil fuel vehicle and an EV/PHEV + charging infrastructure. This accelerated adoption and ensured higher rates of return on investment.
 - CCSD could consider doing the same with the next eSPLOST.
- Invest in Infrastructure
 - Install charging stations at key District locations, such as transportation hubs and maintenance facilities.

- Explore partnerships with local utilities, ACC government, UGA or private companies to share the cost of infrastructure development.
- Secure Funding and Incentives
 - Apply for federal and state grants, tax credits and rebates available for electric vehicle initiatives. For EV initiatives in Georgia, [federal tax credits of up to \\$7,500 for new EVs and \\$4,000 for used EVs](#) are available.
 - Elective Pay allows tax-exempt entities like schools to receive direct payments from the IRS for certain clean energy tax credits, even though they don't owe taxes.
 - Explore financing options, such as green bonds or energy savings performance contracts, to offset upfront costs.
- Monitor and Evaluate Progress
 - Track the environmental and financial impact of the transition, including reductions in carbon emissions, fuel savings and maintenance costs.
 - Report progress annually to the community, aligning with the District's commitment to transparency and accountability.

Benefits:

- Non-fossil fuel burning vehicles improve fuel economy and lower fuel costs.
- Emissions reductions will lead to cleaner air and better public health outcomes.
- Enhanced brand image for reducing air pollution.

4.2 Recommendation: Continue to transition to a non-fossil fuel burning bus fleet

Current Situation: The District currently owns and maintains a fleet of approximately 150 buses, three of which run on gasoline, 37 on propane and 108 on diesel. The oldest buses were purchased in 2007, the newest in 2024. CCSD follows a 20-year replacement cycle for its buses. The District has purchased buses primarily from Blue Bird and secondarily from Thomas.

CCSD began replacing diesel buses in 2018. The transportation department began

purchasing propane buses using grant funds, bond funds, SPLOST funds, general funds and alternative fuel funds. Because propane burns cleaner than diesel, the EPA encouraged Districts to adopt propane buses through tax credits.

In 2024, CCSD purchased two electric buses. With a Georgia Power Make Ready Grant, the District is currently installing the transformer and chargers necessary to power those buses.

The CCSD fleet traveled 1.9 million miles during the 23-24 school year. The fleet averaged 70 miles a day last year. The fleet carried 9,800 students to and from school.

Diesel exhaust contains more than 40 toxic air contaminants—including arsenic, benzene and formaldehyde—and it has been classified as a known carcinogen by the [International Agency for Research on Cancer](#).

Children riding on diesel buses are exposed to 4 times more air pollutants than the general population. Diesel exhaust can cause respiratory illness, chronic respiratory inflammation and trigger asthma attacks. Children are especially vulnerable to any air pollution because their lungs are still growing and they breathe more air for their body size than adults.

School buses contribute an outsized amount to Georgia's emissions. Nearly one million children attend K-12 public schools in Georgia, and 55% of those children ride buses to school. Replacing one diesel school bus with an electric bus is estimated to eliminate 54,000 pounds of carbon dioxide annually, according to [Drawdown Georgia](#).

Greenhouse gas emissions directly contribute to climate change by trapping heat in the Earth's atmosphere, leading to a warming effect and altering global climate patterns. Increased greenhouse gas emissions result in rising global temperatures, leading to changes in weather patterns, rising sea levels, extreme weather events and disruptions to ecosystems.

Locally, ACC Transit runs hybrid buses, and UGA began adopting electric buses in 2019. After winning a \$7.46 million grant from the Federal Transit Administration, UGA purchased 33 Proterra Catalyst electric buses. Unfortunately, the Chinese company went out of business, leaving UGA with no way to service and maintain those buses. Despite the problems, UGA is not abandoning electric buses. UGA is scheduled to receive eight

new EV buses, built by [New Flyer](#).

Proposed Solutions:

- Transition the District's bus fleet to non-fossil fuel alternatives (such as EV, PHEV, hybrid or hydrogen buses).
- Meet with the ACC and UGA transportation departments on a regular basis to share information and consider cost sharing opportunities for infrastructure.
- Continue to share information with other similar school Districts regarding their transitions to non-fossil fuel buses.
- Collaborate with government, non-profit organizations and Georgia Power to secure funding and technical support for the transition. Non-profit organizations operating in Georgia include:
 - [Moms Clean Air Force](#)
 - [Electrification Coalition](#)
 - [Electric School Bus Initiative](#)
 - [Mothers and Others for Clean Air](#)
 - [Center for Transportation and the Environment](#)

Proposed Implementation Plan:

- Pilot Program (Years 1-2): Begin the transition with a pilot program to test the two new electric buses on select routes. Monitor their performance, including range, charging times and maintenance needs. Use that data to inform future bus purchases.
- Expansion (Years 3-15): Replace retiring diesel buses with cleaner buses. Consider adopting clean fuel technologies as they evolve.
 - Apply for any federal and state grants and rebates.
 - The EPA [Diesel Emission Reduction Act \(DERA\) grant](#) program provides rebates ranging from \$20,000 to \$65,000 per bus for public and private fleet owners who replace old diesel school buses with new, cleaner-emission certified buses.

- The EPA's Clean Bus Program offers a [grant program](#) and a [rebate program](#) to offset upfront costs.
 - High-priority school Districts can receive up to \$325,000 per electric school bus through the Clean School Bus Program Grant, including funding for both the bus and charging infrastructure.
 - Rebate applicants can receive up to \$345,000 per electric school bus for priority school Districts. Athens is on the [list](#) as a priority District.
- Apply for state and federal tax credits.
 - The [Qualified Commercial Clean Vehicle Credit](#) (45W): a federal tax credit that provides up to \$40,000 for each delivered electric school bus.
 - The [Alternative Fuel Vehicle Refueling Property Credit](#) (30C): a federal tax credit that allows tax-exempt entities to claim a credit for up to 30% of the cost of qualified property, such as electric school bus charging infrastructure. This 30% federal tax credit calculation is subject to a few requirements, including prevailing wage and apprenticeship employment, the qualified property being installed within eligible low-income or non-urban communities, and a cap on the value of the credit at \$100,000 per item of property.
 - Install charging infrastructure at key locations, leveraging [Georgia Power's EV Make Ready Program](#) and IRA tax credits, such as Elective Pay which allows tax-exempt entities like schools to receive direct payments from the IRS for certain clean energy tax credits, even though they don't owe taxes..
 - Consider subscription services, such as [Highland Fleets](#), which covers a financing and incentive strategy, site design, vehicle and charger procurement, working with Georgia Power, training CCSD's workforce and ground support.
 - Partner with local utilities and government agencies to upgrade the electrical grid and support increased charging demands.
 - Continue to monitor and optimize fleet performance, leveraging advancements in battery technology and charging infrastructure.

- Consider vehicle conversions. [ABC Companies](#) is a new and used bus dealer. They sell battery electric and hydrogen buses as well as assist with vehicle conversions. ABC Companies has experience with converting buses from diesel to electric and could provide an interesting solution for the CCSD fleet.
- Full Transition (Years 16-20): Complete the transition to a fully non-fossil fuel burning bus fleet by 2045.

Benefits:

- Non-fossil fuel burning buses offer significant health benefits by reducing air pollution, which is linked to asthma and other respiratory issues.
 - For example, replacing diesel school buses with electric ones can yield up to \$247,600 in health and climate benefits per bus, including reduced rates of asthma and other respiratory issues, and fewer greenhouse gas emissions, according to [Harvard University](#):

“The study found that replacing an average diesel school bus in the U.S. fleet in 2017 with an electric one resulted in \$84,200 in total benefits per individual bus. Each electric school bus emitted 181 fewer metric tons of carbon dioxide than its diesel counterpart, amounting to \$40,400 worth of climate benefits. Meanwhile, each electric school bus was associated with \$43,800 in health savings, from less air pollution and reduced rates of mortality and childhood asthma.”
- The transition can be integrated into the curriculum, providing students with opportunities to learn about sustainability, renewable energy and environmental science.
 - CCSD currently uses two buses as mobile learning labs.
 - These buses are prime candidates for clean fuel technologies because students spend time on them while they are idling.
- Non-fossil fuel burning vehicles improve fuel economy and lower fuel costs.
- Emissions reductions will lead to cleaner air and better public health outcomes.
- Enhanced brand image for reducing air pollution.

- Electric buses, especially when equipped with vehicle-to-grid (V2G) technology, can act as [mobile, transportable electricity backup systems](#) for communities and Districts, providing power during outages and supporting grid stability.

Understanding and Access to Cleaner Modes of Transportation

4.3 Recommendation: Educate the CCSD community about reducing the overall transportation carbon footprint of CCSD

Current Situation: More than 12,000 students are enrolled in CCSD. We don't know how many students ride the buses regularly. Many families drive their own vehicles to and from school, contributing to the overall carbon footprint of the CCSD community.

Those vehicles often get stuck in long carpool lines, where idling is common. [The Department of Energy](#) estimates that eliminating unnecessary idling of personal vehicles would be the same as taking 5 million vehicles off the road.

The most sustainable ways to get to/from school are walking, biking, or riding the bus. While CCSD cannot control how families choose to get their students to and from school, it can educate the community about the health and environmental benefits of more sustainable choices.

Proposed Solutions:

- Launch a District-wide education campaign about the environmental and health benefits of walking, biking, or riding the bus.
 - Engage the [Georgia Department of Transportation's Safe Routes to School \(SRTS\)](#) program. Georgia's SRTS Resource Center assists schools and communities with education, encouragement, engagement, evaluation, planning and other related SRTS strategies to improve conditions, equitable access, behaviors, and attitudes about biking, rolling, and walking.
 - Engage the [Athens in Motion Commission](#), which is responsible for development, implementation, and modification of the [Athens in Motion Bike and Pedestrian Master Plan](#), which prioritizes pedestrian and bicycle infrastructure, including well-maintained sidewalks, bike lanes, and crosswalks, especially around schools.

- Consider engaging the UGA public relations department or Talking Dog agency because these entities create free public relations campaigns for non-profit clients.
- Encourage CCSD students to participate in this public information campaign by hosting competitions for the best public service announcements.
- Create an education and signage campaign for parents and students to better understand why it is important to cease idling in school lines with their engines on.

Benefits:

- Potentially increase the number of students walking, biking, or riding the bus, reducing wait times in carpool lines and lowering the overall carbon footprint of CCSD.



Waste Minimization Recommendations

Waste Reduction

5.1 Recommendation: Maximize existing avenues for waste management

Current Situation: CCSD lacks an effective, consistent, District-wide recycling collection program leading to increased trash collection costs, decreasing landfill lifespan, loss of financial and natural resources, as well as environmental education shortfalls. No CCSD schools or facilities are compliant with the Athens-Clarke County Commercial Recycling Ordinance. The Athens-Clarke County Landfill only has 35 years remaining capacity. All recycling collected in an opaque bag is sent to the landfill as contamination. Two of the 27 schools, JJ Harris and Burks Elementary, collect food scraps for composting. These two programs are led and established by impassioned teachers.

Proposed Solutions:

- CCSD Sustainability staff in coordination with facilities staff are to establish a District-wide waste reduction program that develops reduction, reuse, recycling, and composting policies with the goal of diverting 70% of CCSD waste from landfills by volume within five years.
- Consistent recycling collection from classrooms, offices, cafeterias, extracurricular events, and common areas. Recycling and waste containers will be standardized and labeled across the District.
- CCSD Sustainability staff are to conduct waste audits at each school every five years to evaluate program efficiency, identify high-waste areas, and implement targeted waste reduction strategies. Athens-Clarke County Staff may assist as needed.
- Establish food scrap collection for composting in remaining cafeteria kitchens and appropriate dining areas.
- Establish a recycling plan to collect nonhazardous hard-to-recycle materials such as Styrofoam and plastic bags for recycling at appropriate recycling facilities.
- Establish a recycling plan with appropriate vendors for hazardous materials such as batteries, electronics, or light bulbs.

- Promote reuse through programs such as uniform donation, teacher resource sharing stations, and the Teacher Reuse Store.

Benefits:

- Save money. The current waste hauler for CCSD, Athens–Clarke County Solid Waste Department, charges for trash collection but not recycling. Increasing the volume of recycling collected will decrease the volume of trash collected, reducing the cost of collection. Correctly sorting all recyclable materials into the recycling dumpster may reduce the volume of trash, and thus the cost of trash, by at least 40%. The price of landfilling material increases each year with the proposed FY2026 rates bringing a 27% rate increase over two years. Reducing the volume of trash hauled away will amplify savings annually.
- Slow warming. Each pound of food thrown away generates 3.8 lbs of greenhouse gasses through the production of methane. Composting reduces greenhouse gasses produced by food waste by over 50%. The resulting soil amendment sequesters carbon and reduces the need for fertilizer in the landscape.

Environmentally Preferable Procurement

5.2 Recommendation: Implement Environmentally Preferable Purchasing (EPP) procurement practices into CCSD Policy

Current Situation: Procurement managers adhere to federal, state, and local school board regulations. There are no parameters for purchasing materials with a smaller environmental impact.

Proposed Solutions:

- Implement comprehensive, cost-effective EPP procurement practices to prioritize products and services with a reduced environmental impact and align with CCSD sustainability goals.
- Integrate environmental factors (waste, energy, water, health) into the District's purchasing decisions.
- Train procurement managers on EPP.
- Procurement managers develop specifications for environmentally preferable products and services. Identify physical and performance features of products

/services that have environmental or human health benefits – or which have reduced negative impacts on human health or the environment when developing department solicitations.

- Ensure contracts issued by departments, offices, and schools include environmentally preferable products and services when available for the intended purpose and meet the performance requirements.

Benefits:

- District EPP procurement will contribute to environmental and economic conservation as well as a sustainable future through the acquisition of goods and services that have a lesser or reduced impact on human health and the environment compared with competing goods or services that serve the same purpose.
- Sound and efficient resource management through EPP can yield long-term cost savings while minimizing the environmental impact associated with the manufacturing, use, and disposal of the products we purchase.

Training and Education

5.3 Recommendation: Waste Minimization Training & Annual Refreshers

Current Situation: New hire orientation does not include waste minimization program training. There are no annual refreshers for employees to train and learn about waste minimization. There is no District-wide waste minimization education program for students.

Proposed Solutions:

- Include waste minimization training in new hire onboarding to provide employees with high-quality professional learning.
- Hold annual courses or updates on waste minimization practices for employees and students. Update employees and students when there are changes in recycling protocols or waste policies.
- Identify and implement opportunities for waste minimization training for students during assemblies, flash, pep rallies, and/or student advisement.

- Provide access to online courses or micro-learning modules that cover waste reduction principles, recycling guidelines, and sustainability practices relevant to employee-specific roles.
- Implement job-specific training tailored to staff roles. e.g. Administrative staff might focus on reducing paper waste, while custodial staff and students could learn about efficient recycling collection and material sorting.

Benefits:

- New hires will gain a baseline knowledge of waste minimization and proper waste and recycling streams. Annual training addresses all staff regularly, reducing contamination in the recycling and compost streams, preventing penalties from waste haulers.
- Onboarding waste reduction and annual refreshers create a culture of efficiency, sustainability, and continuous learning, saving time and resources while equipping employees with the tools and knowledge to contribute effectively to the school District.



Extramural Funding and Cost Sharing Recommendations

6.1 Recommendation: Improve Tracking and Reporting of Sustainability Metrics (see Recommendation 1.1)

6.2 Recommendation: Increase Applications for Extramural Funding and Sustainability Initiatives (see Recommendation 1.3)

Clean Energy Career Paths

6.3 Recommendation: Create a Clean Energy Career Path

Current Situation: Georgia is a leader in solar and clean energy jobs. The clean energy sector in Georgia employs more than nine times as many people as the fossil fuel industry. According to the [Georgia Chamber of Commerce](#):

- 82,163 Georgians were employed in clean energy jobs in 2024
- \$31.3 billion, the total amount of Georgia's nation leading investments in the EV-related industry
- #15, where Georgia ranks nationally for the total number of clean energy jobs

It is estimated that [Georgia will need 10,000 new electricians over the next ten years](#).

Proposed Solutions:

- Add sustainability certification as an area of consideration when developing and evaluating CTAE pathways (ie. high-efficiency HVAC/LEEDS certification, building science, green building certification, green infrastructure, building science, clean energy) training course to meet the new clean energy economy.
- Encourage sustainability experts onto the CTAE Advisory Boards, since they are the ones who make recommendations about the curriculum and pathways.
- The cosmetology pathway could make sure to offer instruction in sustainable/non-toxic products.

Sustainable Project Planning

6.4 Recommendation: Incorporate Sustainability into Project Planning

Current Situation: Clean and/or renewable energy applications are often considered after the fact, rather than being incorporated when projects are being planned. It can be more expensive to do retrofits as separate individual processes, and even compromise previous investments.

Furthermore, while the initial costs of some renewable energy technologies may be higher in some cases than fossil-fuel-based technologies, often savings can be realized over the lifetime of the infrastructure that equalize or reduce costs over the long term, as well as [providing healthier and better prepared students](#).

The District has done a great job incorporating energy efficiency into planning, and has achieved measurable savings this way. Incorporating clean and renewable energy into new construction and major renovations could lead to additional [savings](#), especially as [energy prices rise over time](#).

Proposed Solution:

Provide a cost-benefit analysis for new capital projects that includes projections of lifetime energy costs under a business-as-usual scenario compared with total lifetime costs for clean and renewable energy applications.

Benefits:

By incorporating projections of lifetime energy costs in new capital projects and comparing with clean and renewable energy alternatives, the Board of Education can make informed decisions with long-term impacts. By planning for renewable energy at the outset of a new project, the school board may gain more savings than by pursuing an after-the-fact renovation or application.

Energy costs, as well as the cost of newer clean and renewable technologies, change over time. By providing new projections when planning each new project, the school District will be able to receive market updates rather than rely on potentially outdated perceptions of cost based on historic (but perhaps no longer accurate) evaluations.

Conclusion

By adopting these sustainability initiatives, Clarke County School District can significantly reduce its environmental impact, enhance its reputation, improve long-term financial performance, and cultivate a culture of real-world learning that impacts students, staff, and other stakeholders positively through improved educational experiences and health outcomes.

For our final recommendation, we request that the District reconvene an Advisory Committee on District Sustainability at least every five years to monitor progress, create partnerships, reevaluate these recommendations and explore new advancements in sustainability.



Appendix: Inventory of Local Sustainability Assets

Athens-Clarke County Government Initiatives:

[ACC Community Tree Council](#): Develops and coordinates information and recommendations for all tree resources as decision support for local planning and development guidelines.

[Athens-Clarke County Waste Reduction Division](#): Focused on reducing landfill waste, conserving natural resources, and preventing pollution by promoting recycling and waste reduction practices.

[Environmental Mitigation & Restoration Projects](#): Funded by the county to remediate existing environmental hazards and install preventative measures to mitigate future environmental degradation.

[Keep Athens-Clarke County Beautiful \(KACCB\)](#): A nonprofit 501c3 organization offering community support and education regarding issues that affect the health and appearance of our environment. Housed within the Athens-Clarke County Solid Waste Department/Recycling Division, the mission of KACCB is to educate and empower citizens and businesses with the resources to take action as environmental stewards of litter prevention, waste reduction, and beautification. KACCB also runs the Athens Area Tool Shed program, which offers gardening and renovation tools to assist with community improvement projects. KACCB also offers grants to support Green School activities.

[Oconee Rivers Greenway Network](#): A system of linear parks and trails totaling eight paved miles, providing recreational opportunities and promoting conservation along the Oconee River.

[Sustainability Department](#): This department fosters stewardship of public resources by promoting innovative policies and practices to reduce the county's environmental footprint, grow the local economy, and protect ecosystem services.

[Sustainable Industry Roundtable \(SIR\)](#): A group of business leaders and residents focused on sustainability in the business sector, organized by the ACCGov Solid Waste's Recycling Division.

[Sustainability Plan](#): A long-term, community-wide plan detailing strategies to reduce environmental impact, stimulate economic growth, and improve community living standards.

UGA Initiatives:

[UGA Climate Action Planning Task Force](#): Implements UGA's Climate Action Plan

[Georgia Initiative for Climate and Society](#): A network of UGA scientists and experts who have joined together to understand the changing climate on a global and local scale and to develop strategies, solutions, information, and tools that address the climate. GICS hosts periodic lectures and offers many resources for students, educators, and the general public.

[UGA Sustainability Office](#): Coordinates, communicates, and advances sustainability initiatives in teaching, research, service, student engagement, and campus operations.

Education:

[Athens-Clarke County Library](#): The library has implemented sustainability initiatives, such as installing a solar array on its campus, and hosts events like the annual "Green Life Expo" to educate the community on reducing their carbon footprint.

[Athens-Clarke County Green Schools](#): A program encouraging schools to engage in recycling, beautification, environmental education, and water education to promote sustainability within the educational system.

[Athens Technical College](#): Local college offering programs in engineering and applied technologies, many of which have sustainability applications.

[C-Change Athens](#): A group of local citizens who are concerned about the economic, health, and national security impacts of climate change and hope to build consensus across the political spectrum about the urgent need to address it.

[State Botanical Garden of Georgia](#): Operated by the University of Georgia, this 323-acre botanical garden serves as a center for environmental education, research, and conservation.

[Sandy Creek Nature Center](#): A 225-acre facility with over four miles of trails, offering environmental education programs and exhibits on natural history.

Advocacy:

[Athens Area Community Foundation](#): A non-profit organization that helps donors leave permanent legacies, foster strategic philanthropy, and shape effective responses.

[Athens Citizens Climate Lobby](#): Local citizens who are working together to get climate laws passed.

[Athens Land Trust](#): The mission of this Community Land Trust is to improve quality of life for all by preserving, protecting, and strengthening the fabric of the community through education and the stewardship of land for purposes of affordable housing, conservation, agriculture, and economic development.

[BikeAthens](#): A transportation choices organization promoting alternative transportation options, including cycling, walking, and public transit, to create a more sustainable and equitable transportation network.

[The Economic Justice Coalition](#): A non-profit organization that educates, advocates and organizes for quality jobs with living wages and benefits.

[Environmental Sustainability Rotary Action Group](#): A group founded by the Classic City Rotary that focuses on sustainability and environmental issues, open both to club members and non-Rotarians interested in learning more on these issues.

[Oconee River Land Trust \(ORLT\)](#): Works with private landowners to protect natural forests, wetlands, swamps, and working farms and forests through conservation easements. ORLT now protects 44,074 acres of conservation land through 204 CEs in 51 Georgia counties and in two South Carolina counties.

[Southern Alliance for Clean Energy](#): A nonprofit advocacy group that promotes the use of clean energy in the southeastern United States.

[Southern Sustainability Institute](#): Takes community action on climate change through education, leadership, and local action.

Resources:

[Georgia BRIGHT](#): Residential and commercial solar leasing program

[Infinite Energy Advisors](#): Solar energy consultants

[Solar Knowledge Institute](#): Provides comprehensive professional training, development, and mentorship services for solar energy companies, installers, and salespeople

[U.S. Green Building Council Athens](#): Promotes green building and sustainable design in the Athens community through events like their monthly "Green Scene" and other branch activities, open to all interested individuals



Appendix: Glossary

Athens-Clarke County Commercial Recycling Ordinance Sec. 5-2-14 (i): Ordinance mandating that all businesses and organizations in Athens-Clarke County must recycle and have an approved recycling plan on file with the ACC Solid Waste Department.

Biodiversity: Biological diversity in an environment as indicated by numbers of different species of plants, fungi, and animals. High biodiversity is essential for maintaining environmental resilience and ecosystem services.

Bioretention: The process in which contaminants and sedimentation are removed from stormwater runoff using soil, sand, gravel, and plants.

Carbon Footprint: The amount of carbon dioxide (CO₂) emissions associated with all the activities of a person or other entity (e.g., building, corporation, country, etc.). It includes direct emissions, such as those that result from fossil-fuel combustion in manufacturing, heating, and transportation, as well as emissions required to produce the electricity associated with goods and services consumed. In addition, the carbon footprint concept also often includes the emissions of other greenhouse gases, such as methane, nitrous oxide, or chlorofluorocarbons (CFCs).

Charging stations: A permanent location with a power supply device that supplies electrical power for recharging plug-in electric vehicles (including battery electric vehicles, electric trucks, electric buses, neighborhood electric vehicles, and plug-in hybrid vehicles).

Climate resilience: The ability to prepare for, recover from, and adapt to the impacts of climate change, including but not limited to increased frequency and severity of weather events, extreme heat, drought, and flooding.

Compost: The product manufactured through the controlled decomposition of biodegradable materials including food and landscaping waste. The product significantly reduces the viability of pathogens and weed seeds and stabilizes the carbon such that it is beneficial to plant growth. Compost is typically used as a soil amendment, but may also contribute plant nutrients.

Dark sky-compliant: Objective, third-party certification for lighting products, lighting designs, and installed lighting projects that minimize glare, reduce light trespass, and reduce light pollution. The program is run through the [International Dark-Sky](#)

[Association, Inc.](#) - a 501(c)(3) nonprofit organization, exclusively for educational and scientific purposes.

Drought tolerant landscaping: A type of landscaping utilizing hardscaping techniques that conserve water use and vegetation that thrives with little added irrigation.

Energy audit: A survey conducted to determine how much energy a building uses and identify ways to reduce energy consumption. These are used to improve the energy efficiency of homes, businesses, and other buildings.

Environmental Education: A teaching process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions.

Environmentally Preferable Purchasing: Guidelines set to help purchasers utilize private sector standards and ecolabels to identify and procure environmentally preferable products and services, providing a convenient and streamlined way to make sense of the often complex sustainable products marketplace. [The EPP established by the US EPA is available to the public.](#)

Hard-to-recycle materials: Items that cannot be recycled in traditional recycling or composting facilities due to their shape, size, material, or chemical makeup. These items may be recycled at a special facility such as a Center for Hard-to-Recycle Materials.

Hazardous materials: Solid waste that is harmful to human or environmental health. Such waste includes, but is not limited to, solids, semisolids, liquids, and gases that are or may become toxic, caustic, infectious, contagious, flammable, or explosive and other items described as being hazardous in federal, state, or local government codes and regulations, except radioactive waste materials as provided in the Rules of the Department of Human Resources, Chapter 270-5-20, entitled, "Radioactive Materials."

Heat island: A pocket of heat caused by structures such as buildings, roads, and other infrastructure absorbing and re-emitting the sun's heat. These structures re-emit heat at a higher rate than natural landscapes such as forests and water bodies. These are common in densely developed areas with little vegetation.

Impervious: Not allowing fluid such as stormwater to pass through.

Invasive species: A species that is non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Landscape typology audit: A quantitative evaluation of landscape types assessing land use, surface cover type, and dominant plant species.

Native species: Indigenous species that naturally occur in a given region or ecosystem. These species are better adapted to the region, and thus provide higher ecosystem benefits and fit into an ecological niche.

Permeable surface: Surfaces designed to allow water to pass through it, promoting infiltration into the soil and groundwater recharge, rather than causing runoff.

Photovoltaic: Relating to the production of electric current at the junction of two substances exposed to light.

Recycling: The series of activities including collection, separation, and processing, by which products or other materials are recovered from or otherwise diverted from the solid waste stream (1) for use in the form of raw materials in the manufacture of new products other than fuel and (2) in the case of source-separated wood waste which has no material use, for use as fuel.

Recycling collection program: A system aimed to gather separated recyclable materials from the waste stream and place them in the correct collection container, such as a recycling dumpster, to ensure they are sent to an appropriate facility for sorting and processing. Successful systems require clearly labeled trash and recycling bins to be paired up and accessible to the public. Labels should state what materials go into each bin. Recycling in Athens requires the use of no bags or transparent bags.

Renewable Energy: Energy from a source that is not depleted when used, such as wind or solar power.

Sedimentation: The deposition of rock fragments, soil, organic matter, or dissolved material that has been eroded, that is, has been transported by water, wind, ice, or gravity. Increased sedimentation leads to reduced water quality, habitat degradation, and increased cost of water management.

Stormwater: Rainwater or melted snow that runs off streets, lawns and other sites. Poorly managed stormwater infrastructure leads to high rates of erosion, downstream flooding, habitat destruction, and contamination of waterways.

Stormwater fee: The annual fee charged by the Athens–Clarke County Transportation and Public Works Department to pay for stormwater management infrastructure and practices. Non-residential property rates are calculated using the amount of impervious surfaces on property, base rate, and zoning.

Stormwater green infrastructure: A nature-based solution to water quality issues that urban stormwater runoff causes and provides greater benefits than conventional (or “Gray”) stormwater solutions

Stormwater remediation: The practices and strategies used to manage and improve the quality of runoff water, particularly from urban areas and other developed landscapes. It focuses on reducing the volume of runoff, minimizing pollution, and improving water quality by using a variety of techniques, including both structural and non-structural methods.

Sustainability: The practice of using resources wisely and implementing green practices to minimize environmental impact while ensuring the long-term health, equity, and wellbeing of communities and the environment. It involves balancing environmental stewardship, social responsibility, and economic viability to meet current needs without compromising the ability of future generations to thrive.

Sustainability Literacy: The theoretical knowledge that allows someone to understand the intricate relationship and conflicts between humanity, development, the environment, and natural resources.

Teacher Reuse Store: A program of the Athens–Clarke County Solid Waste Department that provides a variety of school supplies, materials, and other items to local educators free of charge. The store provides an innovative approach to the recovery and reuse of business and industry discards and by-products, as well as community donations.

Waste audit: A formal, structured process used to quantify the amount and types of waste generated by an organization.

Waste reduction program: A coordinated strategy to minimize waste sent to the landfill by prioritizing source reduction and reuse followed by recycling or composting. Tools used to implement a waste reduction program include policy, strategic goal setting, staff and user training, and utilization of all streams of waste infrastructure. Effective programs utilize the EPA Waste Management Hierarchy shown below:

Waste Management Hierarchy

