DURHAM ACADEMY

Sustainability Action Plan

April 2026 Update:
2 Years of Progress Toward 4-year Sustainability Goals



Student workday in Elder Oak Commons
October 2025



Rooftop solar installation
January 2026

Introduction

Goal #1: Educate for sustainability at every level and in every subject
- Sustainability Transfer Goals
- Establishing a shared understanding
- Curriculum mapping and implementation
- Conclusions about educating for sustainability

Goal #2: Reduce greenhouse gas emissions by 25% from 2022-23 levels
- Electricity: Lighting Efficiency
  - Cost/Investment details of lighting conversion
- Electricity: Solar Panels
  - Cost/Investment details of solar arrays
- Waste Reset
- Carpool Initiative
- Additional Actions
- Summary of actions taken for Goal #2
- Possible Future Actions
- Conclusions about emissions reduction

Goal #3: Increase biodiversity on at least 2 acres
- Tree planting between track and Pickett Road (.5 acre)
- Pocket Prairie on hillside between lacrosse field and practice field (.1 acre, not yet fully planted)
- Elder Oak Commons (.5 acre with outdoor classroom in middle; .4 acre fully planted)
- Invasive species removal on plot on west side of Ridge Road (.75 acre)
- Collateral Benefits
  - Educating for Sustainability
  - Community Building
  - Protection of campus assets
- Future projects
- Conclusions about increasing biodiversity

The role of sustainability in decision making

Unexpected challenge and opportunity on Pickett Road

Beyond the 4-Year Goals

Appendix A: Timeline of Leadership and Financial Commitments
Appendix B: Data Variation
Appendix C: 2024-25 Greenhouse Gas Emissions Assessment

Introduction

This report updates the 2024 Action Plan and includes the 2025 Greenhouse Gas Summary Report by GreenPlaces. The 4-year Sustainability Goals endorsed by the Board of Trustees have provided the framework within which many initiatives have been tried. The most successful ones include an all-school professional development experience, the installation of solar panels on the Gateway and STEM rooftops, and the conversion of half an acre of grass to native plants with an outdoor classroom on the Upper School campus. The Action Plan itself was recognized by the Green Schools Alliance as a "School Success Story." While there is plenty of work yet to be done, achievement of all three goals is within reach by June 2028.

At DA, SUSTAINABILITY means fulfilling the school's mission while safeguarding the natural environment for future generations.

In the 2025-26 Campus Master Planning process, the goals of reducing emissions and increasing biodiversity played a prominent role. The selected firm, Lord Aek Sargent, applied its significant knowledge and experience with sustainability to a plan that focuses attention on outdoor spaces and identifies areas of campus to consider for rewilding.

Leadership of the sustainability program at DA will change with the retirement of Tina Bessias in June 2026. The position has been upgraded to a full time Director of Sustainability starting in July 2026, and a national search resulted in the hiring of Alexandria Creech in that role. She brings a background in theater, English teaching, and communications and is working toward a Master's degree in Sustainability through the Harvard Extension School.

Durham Academy's efforts in sustainability to date have been scattered across a wide range of endeavors. There have been significant challenges in data gathering, waste reduction, and changes to facilities. Much has been learned from these experiences, and sustainability leaders are now in a position to evaluate the efficiency and effectiveness of possible actions. Unexpected challenges and opportunities have also arisen, especially in relation to the Sandy Creek Trail and rezoning of the property across Pickett Rd from the Upper School.

The governmental and cultural context around DA's sustainability efforts has shifted notably during this two-year period, yet administrative support is consistently strong. In faculty and administrative meetings, sustainability is now considered and mentioned regularly, and it has been an important factor in the 2025-26 Master Planning process. Many but not all events throughout the school are now planned with sustainability in mind.

Three groups lead the effort to make DA more sustainable:

- The Upper School Student Government Sustainability Committee, chaired by Merritt Schulz in 2024-25 and Shriya Dharmapurkar in 2025-26 and is advised by Environmental Science teacher Andrea Caruso and Sustainability Coordinator Tina Bessias. These students help manage weekly recycling and compost logistics, plan an annual Sustain-in to educate the community, provide occasional programming for all divisions, and hold workdays to cultivate native plants and remove invasive species.
- The Sustainability Leadership Team (SLT), consisting of representatives from the faculty in each division and from the Family Association. It is led by the Sustainability Coordinator. This body sets priorities for the school's sustainability work and leads implementation throughout the school.
- The Board of Trustees committee on Buildings, Grounds, and Sustainability serves as a steering committee. It provides high level guidance and ensures consistency with Board priorities.

Goal #1: Educate for sustainability at every level and in every subject



Jaimie Cloud, the consultant we worked with in 2023 and 2024, introduced the premise that educating *for* sustainability does not mean educating *about* unsustainability. In other words, it is not about all the harm being done to the natural environment. Instead, it is about developing knowledge and mindsets for humans to live sustainably in their natural context.

Sustainability Transfer Goals

Though the PreK-12 curriculum should and does include content about climate change, biodiversity loss, and solutions to those problems, the emphasis in sustainability education is on transfer goals. Drawing from Jaimie Cloud's materials and the school's previously established goals for Diversity, Equity, and Engagement, Durham Academy drafted and refined a set of six transfer goals for sustainability. They identify understandings, knowledge, and skills that students develop in their journey through the school's curriculum and apply throughout their lives.

These goals are:

1. **Connection to place:** Students develop a connection to the place where they live and learn.
2. **Membership in the natural community**: Students see themselves as members of the natural community.
3. **Common resources:** Students recognize common resources, understand their histories, and protect their futures.
4. **Diversity and cooperation:** Students foster diversity and cooperation in ecosystems and human organizations.
5. **Problem solving:** Students investigate root causes of problems. They use imagination, determination, and empathy to seek solutions.
6. **Rights and responsibilities:** Students integrate individual rights and collective responsibilities.

Establishing a shared understanding

It was recognized early in the process of developing curriculum and culture for sustainability that faculty and staff need a shared understanding of the problems and the solutions that are being attempted both near and far. We also need to understand the connections between individual actions, institutional practices, and the future world that our students will navigate. *The Week*, a three-part documentary film and discussion series, has been key to developing this shared understanding. Uniquely among such resources, it balances information and emotional impact, inviting reflection on both. As groups experience this journey together, they form relationships and create a foundation for interacting with curious, often fearful, young people on these topics.

Starting in the summer of 2023, pilot groups did *The Week,* including a class of Upper School students, the full Leadership Team, and a group of students and Trustees. In August 2024, the school's Professional Development framework was modified to allow the full faculty and staff to do this three-part journey before the opening of school.

To build on this foundation, the Sustainability Coordinator met with every division and administrative unit to explain the Sustainability Action Plan and answer questions about it. It was emphasized that everyone–Facilities, Business, Athletics, Philanthropy, Marketing and Communications, Extended Day, Tech Support as well as faculty and support staff–has a role to play. In the next few years, *The Week* and this kind of orientation to the Action Plan should be offered to incoming faculty and staff.

Curriculum mapping and implementation

The transfer goals were introduced to the faculty in a spring 2025 Professional Development day devoted to curriculum mapping. Mapping for Diversity, Equity, and Engagement goals was already under way, and those teachers and departments who finished them began work on the sustainability goals. For teachers, the temporal proximity of the DEE and sustainability curriculum initiatives has been both a challenge (easy to feel overwhelmed) and an advantage (applying the same analytical

skills). The mapping process was continued on April 22, 2026, when a half day of professional development time was devoted to it.

Less formally, the Divisional Sustainability Leaders and the Coordinator seek out faculty members who want to develop the sustainability element in their teaching. They provide encouragement and support to help teachers implement their vision for their classes. The Coordinator also meets with division directors and makes occasional presentations at divisional faculty meetings. Over the two-year period covered in this report, administrators and faculty members have begun to make requests for this kind of support. It is hoped that sustainability leaders will increasingly be seen as trusted and valuable supporters in the effort to meet curricular goals.

Conclusions about educating for sustainability

The process of identifying sustainability content and transfer goals in existing curriculum is largely complete. Next steps include

- Strengthening connections between different units, grade levels, and courses
- Filling gaps where they appear
- Highlighting overlaps with DEE and other curricular goals

Associate Head of School Kristen Klein and incoming Sustainability Director Alex Creech will share responsibility for ensuring progress toward the four-year goal to educate for sustainability. There is significant work yet to be done, but the goal is within reach and there is momentum to achieve it.

Goal #2: Reduce greenhouse gas emissions by 25% from 2022-23 levels

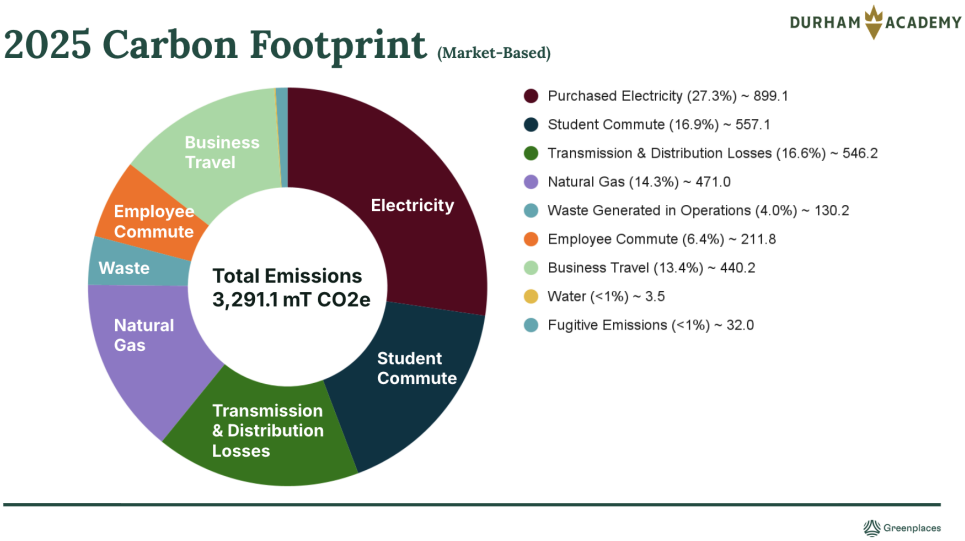
Since August 2022, Durham Academy has contracted annually with GreenPlaces to assess its greenhouse gas (GHG) emissions. Each fall the Sustainability Coordinator gathers data for the previous fiscal year (July 1-June 30) and shares it with the GreenPlaces team for analysis according to the global Greenhouse Gas Protocol. The 2022-23 baseline report found that DA generated 3,123 mT of GHG emissions. The 2024-25 report found 3,291 mT, a .5% increase since 2023. Given that the Gateway Center represents a significant increase in building space on the Middle School campus, this result is not surprising.

Below is an account of wide ranging efforts to reduce emissions. The most impactful measure, by far, has been the installation of solar panels on the Gateway and STEM buildings in early 2026. The effect of that installation on emissions will be minimally evident in the 2025-26 report but fully evident in 2026-27. A 7% reduction is expected.

With a 1% reduction in emissions from converting to LED lights in the Lower School classroom and gym buildings, DA has achieved an 8% reduction from 2023 levels so far. Additional measures are in

progress but their impacts so far are marginal. A further 17% reduction, or 531 mT, can be achieved. The question is how much of it will be achieved through changes in equipment and operations and how much will be done through Renewable Energy Credits and offsets.

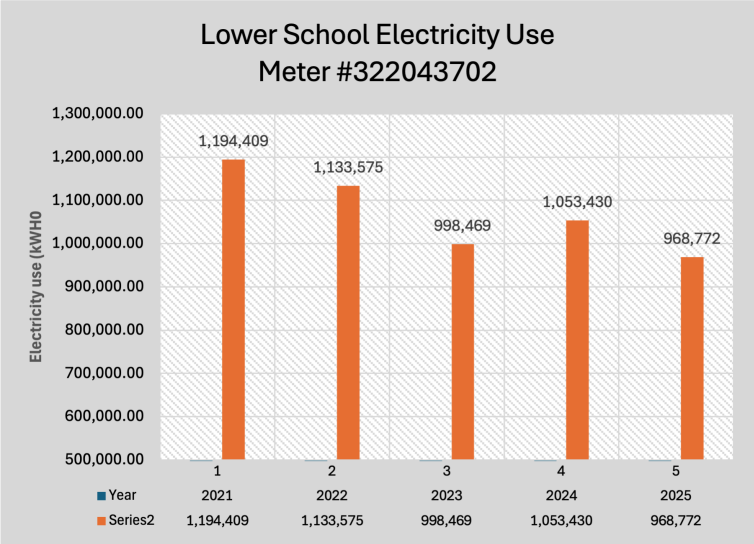
Here is a visual summary of the 2024-25 report:



Efforts to reduce emissions have so far focused on electricity, waste reduction, and the commute to school.

Electricity: Lighting Efficiency

The Lower School classroom and gym buildings, built in 2002, were identified as opportunities to reduce electricity use by improving the efficiency of lighting. High Intensity Discharge lamps in the gym were converted to LEDs in spring 2024, and compact fluorescent lamps in the classrooms were converted to LEDs that fall. It was estimated that these changes would reduce annual electricity use by 92,000 kWh. This estimate cannot be easily verified because lighting usage is metered along with every other use of electricity in a building, including weather-dependent HVAC. An examination of annual electricity use in the Lower School reveals significant variation, but the 85,400 kWh decrease from calendar year 2024 to 2025 is close to what was expected.



Cost/Investment details of lighting conversion

Total cost of lighting conversion	$64,394
Duke Energy rebates	$9,050
DA cost	$55,344
Anticipated 5-year savings[1]	$48,951
Payback period	5.5 years

Lights in the Brumley Performing Arts Building and the Extended Day offices are the last ones at DA that are not LED[2]. They will be evaluated for conversion in summer 2026.

Electricity: Solar Panels

In summer 2025, DA contracted with Southern Energy Management to install rooftop solar arrays on the Middle School Gateway Center and the Upper School STEM & Humanities Building. The Gateway array will tie into the existing panels on the entrance canopy and add 221 panels for a total generation of 130 kW-DC. The array on the STEM and Humanities building will consist of 241 panels for a generating capacity of 142 kW-DC. Inverters at each site will convert DC current to AC for a total of 366,308 kWh of electricity in their first year, or 10% of the school's total electricity use. The amount generated will decline slightly over the 30+ year life of the panels

[1] Includes 3% annual increase in kWh cost
[2] Excluding Kenan Auditorium, which is slated for replacement within a few years.

(about .5% per year) but is guaranteed not to dip below 293,000 kWh. Installation of the arrays was completed in March 2026.

Cost/Investment details of solar arrays

Total cost of 2 solar arrays	$536,900
Federal reimbursement under Inflation Reduction Act[3] (30%)	$161,070
Net cost	$375,830
Anticipated 30-year savings[4]	$1,200,000
Payback period (depending on future cost of electricity)	12-14 years

Waste Reset

Waste, as a category of emissions, is challenging to measure. It combines landfill waste, recycling, compost, and drinking water. The landfill subcategory generates 76% of overall waste emissions according to the GreenPlaces analysis of bills from Meridian Waste Management. The company empties dumpsters on a regular schedule and bills the school "per tip." No information on weight or volume of waste is provided. For the purposes of emissions calculation, the dumpsters are assumed to be full every time they're emptied. The Director of Facilities has asked repeatedly that Meridian do a special run to pick up DA landfill waste and weigh it to give a more precise data point. The company has expressed willingness to provide this service but has not done so.

Before May 2024, the school contracted with Republic for waste management services. Though the two companies transport waste to the same facilities, Republic was more forthcoming about its recycling practices. It also charged significant contamination fees that Meridian does not. It is unknown whether those fees represented a profit stream or a greater commitment to actually recycling the material picked up.

Theresa Shebalin, Preschool Science Teacher and SLT member, leads the effort to reduce emissions from waste. She and other SLT members have sought clarity about Meridian's recycling services without success. The company's website and the written contract with DA list only Old Corrugated Cardboard (OCC) under recyclable materials. Each campus, however, has a dumpster for cardboard and a set of six to ten blue, 98 gallon recycling totes that Meridian empties into a crusher truck weekly. If the items are crushed, however, they cannot be recycled because the processes in Mixed Recycling Facilities (MRFs) do not work for crushed material. Meanwhile, DA students and adults have long

[3] Though many parts of the Inflation Reduction Act have been repealed, the provisions that we'll be using remain valid for projects that start before July 4, 2026 and are completed by the end of 2027.
[4] Includes 3% annual increase in kWh cost

devoted weekly effort to picking unrecyclable material (chip bags, food, etc.) out of small bins in classrooms and common areas and transferring the recyclable material to the 98 gallon totes.

By spring 2025, concern was rising that the school's considerable recycling efforts, especially in relation to plastics[5], were going to waste(!). Middle School sustainability leaders Alex Eren and Karen Richardson initiated a pilot program to eliminate plastic recycling on campus and separate paper from aluminum cans and glass. The Pre-, Lower, and Upper Schools adopted this practice in August 2025.

In support of this change, school store manager Kelly Jernigan ended the sale of single use plastic water bottles at the Upper School and switched to aluminum cans for as many drinks as possible. All plastic bottles are being thrown in the trash as we continue to seek ways to reduce or eliminate their use.

Carpool Initiative

The student and employee commute, taken together, produces 23% of the school's emissions. These emissions reflect many individual decisions that, in turn, reflect local geography, limited public transit, and the broader cultural context.

In an annual transportation survey, students and employees are asked about changes that would prompt them to consider a lower emission form of transportation. Many responses include a private bus, better public transit, sidewalks and bike lanes. The private bus option has been investigated by parents and the school from time to time, but bus drivers are in very short supply and the cost is higher than anyone has so far wanted to pay. The public solutions are mostly beyond the reach of the school.

About a fourth of survey respondents mention carpooling, and that seems to be the most practical way to reduce emissions from the commute. To find out more about the experience of carpooling to DA, Victoria Muradi, as administrative liaison to the Family Association, and Tina Bessias, Sustainability Coordinator, interviewed ten parents who currently participate in carpools. They were positive about the environmental impact and social connections, but their primary motivation was time savings. (A thorough description of findings can be found in this post on the *Living Sustainably* blog). A practice that has such an immediate personal benefit and a long term environmental benefit seems very promising. Widespread carpooling would also have institutional benefits: fewer cars coming to campus would mean shorter wait times, less need for traffic management, and perhaps less need for parking. There is, however, a widespread reluctance for families to reach out to other households on this topic. An exploration of the reasons will be key to changing that dynamic.

There are multiple apps designed to ease the logistics of coordinating carpools. A task team evaluated them and chose Carpool.School as the most appropriate for DA, and the school purchased a

[5] Knowing that plastic is minimally recycled even under the best of circumstances [source],

subscription for up to 200 families. A Veracross page was set up to introduce families to that resource and the “nearby households” feature in the school directory. Carpooling was included in the 2025-26 Back-to-School materials, reinforced in late October, and emphasized during “Crane Week” in January. (A crane was parked in the Middle and Upper School lots for several days to lift solar panels up to the rooftops. It ended up having minimal impact on traffic, but it did offer an opportunity to communicate with parents about carpooling). A car magnet was offered to anyone driving a carpool; it was intended to raise awareness and serve as a small accolade.



The fall 2026 transportation survey will offer the best opportunity to measure the effect of these actions. It is expected to take several years of effort to produce the change in culture that would yield a significant increase in carpooling.

Additional Actions

Electric hand dryers were installed in 6 restrooms in the STEM building and Kirby Gym to reduce the use of paper towels. There has been widespread acceptance of them, and it is hoped that they can be installed in more restrooms, at least in the Upper and Middle Schools. It is felt that the noise would be problematic in the Pre- and Lower Schools.

At the initiative of the Maintenance Department, a **solar powered light** was installed to replace a non-functioning outdoor light between the Hock building and the Learning Commons.

A large capacity **electric mower** was purchased in October 2025 to replace an aging gas powered mower of similar size. The cost was significantly higher than a new gas mower, but a year-end discount and cost sharing between sustainability and facilities budgets made this purchase possible. The reduction in emissions is small, but reduction in noise is significant and benefits both the operator and those working and learning nearby.

A **cargo style e-bike** was purchased in June 2025 and added to the Veracross resource reservation system for DA employees. It can be used to ride between campuses, between school and Sandy Creek Park, and for pleasure rides. Though emissions savings will be minimal, it is hoped that riding the bike will help people think differently about accomplishing the tasks of everyday life. The bike also provides a visible cue to keep sustainability at the forefront of our thinking.

Five Upper School students began participating in the **Unplastify Challenge** in October 2025. Their idea was to work with Kelly Jernigan to reduce plastic in the school store, but they couldn’t keep up with the contest schedule. If another attempt is to be made in 2025-26, it should be planned by mid-September.

Summary of actions taken for Goal #2

Action	*Status as of 4/1/26*	*Estimated Reduction in Emissions (mT)*	*% Reduction in Emissions (CO_2e)*	*Notes*
Convert lighting in LS classrooms and gym to LEDs	Complete	24	.7%	
Solar panel arrays on STEM and Gateway	Complete	229	7%	
Compost paper towels and food scraps	Never complete, but getting well established	7	.2%	Compost generates 1 mT of emissions but avoids 8mT
Waste reset: eliminate plastic recycling, seek alternatives to Meridian for aluminum, glass, and paper; seek more detailed data	In progress	Not yet measurable	Not yet measurable	
Carpool initiative: raising awareness of value, subscription to Carpool.School app, car counting	Initial phase of expected 3-year project	Not yet measurable	Not yet measurable	Fall 2026 transportation survey may reveal whether any change has been accomplished.

Possible Future Actions

- Publicize components of the annual GHG emissions assessment to relevant groups in the school community.
- Analyze all actions taken so far according to factors such as
    - costs or savings (initial, ongoing, and long term)
    - current and future impact on emissions
    - value for education, wellness, and community engagement

    - amount of labor involved and who provides it
    - challenges and obstacles encountered
- Sell scrap and discarded metal (aluminum cans, foil, serving containers, screws and bolts, etc.) to make sure it gets recycled. This would generate a small income stream.
- Create a system for measuring landfill waste by volume or weight. Track and publicize it by division.
- Continue to develop the carpool program, first by raising awareness and eventually by other means: assigning students to neighborhood groups, incentivizing carpools, creating requirements or fees for entry to campus, etc.
- Estimate total amount of emissions generated by idling engines in car lines at dropoff and pickup. Develop alternatives such as waiting areas outside of vehicles or ban idling in lines that are not yet moving.
- Encourage families living relatively close to school to develop Bike Trains as an alternative to commuting by car
- Put a cap on carbon emissions from business travel, i.e. Capstones, debate, World Language trips, etc.
- Conduct an energy audit of school buildings
- Put solar panels on new and/or existing buildings. Arrays completed before the end of 2027 will be eligible for the 30% federal contribution under the Inflation Reduction Act
- Purchase Renewable Energy Credits and/or offsets
- Explore the options to bring carbon accounting in house, possibly with an audit process for accountability.

Conclusions about emissions reduction

1. There are only a few sustainability measures that move the needle significantly toward the goal of 25% emissions reduction. Achieving that goal will rely on some combination of these:

    - **Adding Solar Arrays.** Once installed, they generate emission-free electricity. The amount depends on the size of array that a given building can support. A building such as the 16,000 square foot gym currently being designed for the Middle School would cut DA carbon emissions by perhaps 3%. An array on the AWL building would cut 5%. A new Upper School auditorium would be more efficient than Kenan, and with a solar array it might cut the school's emissions by 7% (even with an increase in square footage).

      At current pricing, solar arrays on the new Middle School gym and the Arts and World Languages building could be installed for approximately $425,000, a one-time cost that would generate savings that exceed the cost by $750,000-$1 million over 30 years.

      The community seems to derive a sense of hope from the solar arrays installed so far. Quite a few people have remarked with great enthusiasm, "DA is really doing it!"

- **Purchasing Renewable Energy Credits and Offsets.** The 2026 cost is $16/mT for moderately high quality offsets. Multiplied by 531 mT (17% of 2023 emissions) generates a total annual cost of approximately $8,500 or $250,500 over 30 years.

  The community tends to be skeptical of these instruments. “Is DA just going to pay its way out of this commitment?” is a question that has been asked by students and adults. If the decision is to rely primarily on RECs and offsets, an education campaign should be carefully planned. If these financial instruments are used to supplement physical measures to increase efficiency and reduce emissions directly, they would probably be more easily accepted.

- **Strong measures to induce carpooling.** Efforts to raise awareness have been initiated but are unlikely to generate significant change by themselves. They could be useful, however, in preparing the community for more stringent measures including incentives, requirements, and fees. Commuting data suggest that most cars coming to campus have space for 2-4 passengers in addition to the ones they currently carry. Increasing car occupancy could decrease the number of trips to campus by half, presumably decreasing emissions by half. That would amount to a reduction of 385 mT or 12%. A further reduction could be accomplished by restricting student parking privileges to Juniors and Seniors.

  Measures such as these would likely be opposed by some in the school community, but an education campaign could be helpful. Private bus service and/or organized group bike rides from nearby neighborhoods could also be explored.

2. Reducing emissions assumes the ability to measure change from the baseline year of 2022-23. That is easily done in the categories of electricity, gas, and water but not in some other categories. Variation has proved to be significant in
    1. the data collection process
    2. changes in school activities and operations
    3. weather and other external factors
    4. the assessment protocol

   Appendix B examines each of these factors and provides examples. While it may be necessary to accept a greater-than-desirable degree of noise in the system, the experience of previous years can be applied to minimize it. The data collection process can be improved by detailed documentation of the process, which will be developed in spring 2026. Changes in school activities and operations such as new landscaping equipment or team travel can be documented and sometimes accounted for. Average daily temperature can be used to improve year-over-year comparison of electricity costs. And new data can always be analyzed according to the 2023 assessment protocol to generate a clearer picture of change.

Goal #3: Increase biodiversity on at least 2 acres

This goal is interpreted to mean increasing the quality of habitat and diversity of native species on land that DA owns. Plants are the foundation of the natural community and the most controllable element of it. They are therefore the primary focus. Much of the school's property is committed to buildings, parking lots, gathering spaces, playgrounds and playing fields, but there are open areas that could be converted to native species, including areas owned by the school beyond the bounds of the campuses. While the biodiversity goal was initially conceived for its environmental value alone, it has proven to have collateral benefits for sustainability education (Goal #1 above) and community building.

There have been four significant projects undertaken in pursuit of this goal.

Tree planting between track and Pickett Road (.5 acre)

Students on the first Sustainability Committee, led by Brandon Caveney '20, worked with groundskeeping staff to purchase eighty trees and bushes (Eastern White Pines, Red Maples, Bald Cypress and Wax Myrtles). The planting was intended as a community Earth Day event, but the closing of campus for Covid necessitated a pivot: the Caveney brothers (Brandon '20, Aaron '24 and Mark '24) and their mother Erica did all the planting in April 2020. That effort was supplemented in fall 2021 by participants in a 2-day seminar "Trees in the Forest, City, and Campus" who planted a line of Red Cedar trees.



Pocket Prairie on hillside between lacrosse field and practice field (.1 acre, not yet fully planted)

Landscape cloth was put down to kill existing vegetation. Native plants were planted in patches starting in 2023 by members of the SLT and the Spring 2024 Biodiversity class. Biodiversity students selected a variety of flowering plants, grass and sedge species based on their ability to support specific native pollinators and flowering time (to meet the goal of having blossoms available from spring into fall). They designed the distribution of these plants for aesthetic appeal.

Elder Oak Commons (.5 acre with outdoor classroom in middle; .4 acre fully planted)



A 2023 grant from the DA Family Association launched this project to convert the grassy field at the corner of Pickett and Ridge Roads to a native plant garden. Annabel Renwick, Native Plant Curator at Duke Gardens, provided initial drawings, and landscape designer Preston Montague was engaged to develop a detailed plan. Environmental Science teacher and SLT member Andrea Caruso was the project leader, and she organized feedback sessions for faculty, administrators, and students. The ground was readied in winter 2025 and in April, community members of all ages answered the call to help with installation. A shaded gathering space was added in September 2025 and officially opened for use in spring of 2026.



The name “Elder Oak Commons” was chosen to highlight the presence of the Scarlet Oak (*Quercus coccinea*) that has been designated by the North Carolina Forest Service as a Champion Tree. Its height of 121’ and diameter over 5’ make it the largest known specimen of its species in the state. Its age is estimated to be over 200 years. Though DA takes no credit for its cultivation, we do celebrate its presence on campus and have affectionately named it the “Elder Oak.”

The Elder Oak Commons serves a two-fold purpose in line with sustainability goals. First, it offers a place for members of the school community to meet or spend unstructured time in a natural setting. In this way it complements the indoor Learning Commons and the sunny, active K Commons. Second, it serves habitat needs of local fauna. Plants have been selected to support pollinators with nectar & pollen from spring to fall. In the first year, there has already been an increase in butterflies, dragonflies, and native bees in the area. These insects, along with a bird bath and standing seed heads in winter will support birds year round. The distribution of flora and fauna will evolve as the garden matures.

Invasive species removal on plot on west side of Ridge Road (.75 acre)

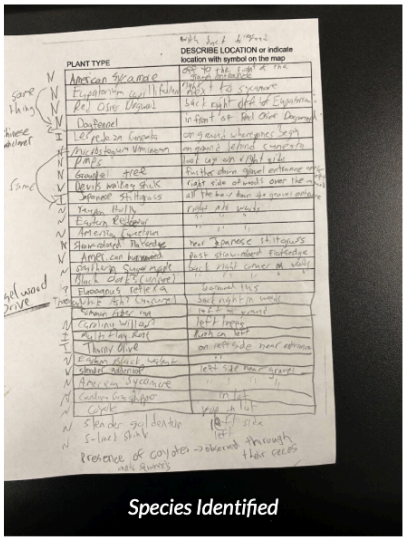
Each fall since 2023, groups of 10-15 Sustainability Committee members, faculty, and parent volunteers have gathered on a weekend morning to remove invasive species from the plot of land owned by DA on the west side of Ridge Road. Tree of Heaven had gotten established in a part of that property that had previously been a horse pasture. That tree species is especially problematic because of its ability to spread clonally and dominate the overstory, and because it is the preferred host for spotted lantern fly, an invasive insect that is progressing southward from Pennsylvania and Virginia. With guidance from NC invasive species expert Peter Schubert, we used the “hack and squirt” approach to bring TOH, Privet, and Autumn Olive under control. Microstegium (a/k/a Stiltgrass) remains an issue, but a less problematic one.


Learning from the Master, Pete Schubert


Learning more from the Master


Parker and Thomas identify species


Shreya, Thomas, and Charles



Species Identified


Merritt in action

Under the guidance of Andrea Caruso, Upper School students have driven much of the process and provided the main work force for biodiversity projects to date. Therefore, the focus has mostly been on the Upper School campus. All projects have been undertaken in consultation with groundskeeping staff. They have provided guidance and ordered materials, but they do not currently have the manpower to take responsibility for campus biodiversity efforts. Seasonal and long-term maintenance are factors that must be carefully evaluated for every project. A native-plant- focused horticulturist position would support the maintenance and expansion of native plant habitat while maintaining aesthetic standards. Such a position has been jointly requested by the sustainability and facilities teams but has not yet been funded.

Collateral Benefits

Educating for Sustainability

There's nothing like digging in the dirt to strengthen a child's (or adult's) sense of place. Moreover, there's historical and physical context to the different soil types on campus from swampy sludge to hard packed clay, and they support different organisms. Similarly, mulched beds, pocket prairie, rain garden, and pine groves have different aesthetic and ecological properties. As biodiversity efforts take hold, there will be an increasing volume and range of curricular connections that could be made. Already, Merritt Schulz '25 created a little library for field guides and Charlie Jones '26 did a Girl Scout Gold project on invasive species. The Sustainability Director and divisional sustainability leaders play a significant part in fostering such connections.

Community Building

Biodiversity workdays bring people of all ages together to work hard for a common purpose. Parent volunteers find themselves working with students they didn't know before; faculty meet coworkers' spouses and partners and children. Connections are established between the school and community experts. Groundskeeping staff and faculty get to work together, especially in the case of Andrea Caruso, who has worked for part of two summers as a member of the groundskeeping team. Through these and many other interactions, the fabric of the community is strengthened.



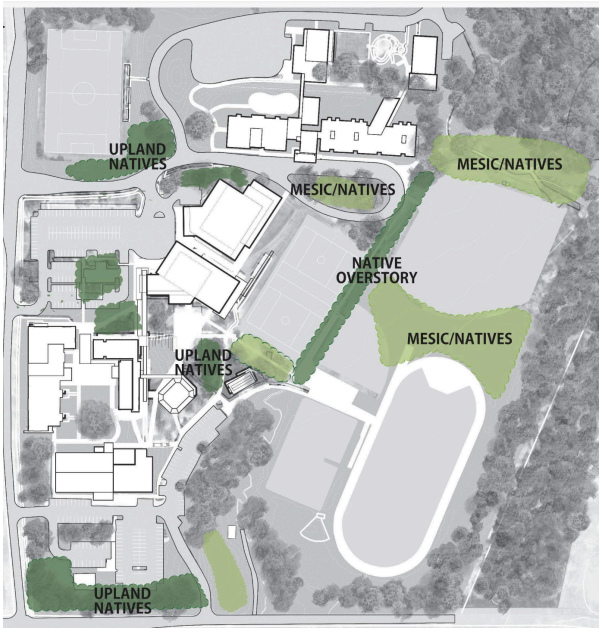
Protection of campus assets

The 2026 Master Plan envisions a return to DA's roots as a school with an outdoor ethos. Tree cover and vegetation will play a key role in realizing that vision, especially in the context of rising global temperatures. Trees reduce heating of dark surfaces (pavement), and dense vegetation provides evaporative cooling. Thus biodiversity will help maintain the inviting quality of outdoor spaces. Athletics, DA Summer, and other outdoor based programs will benefit.

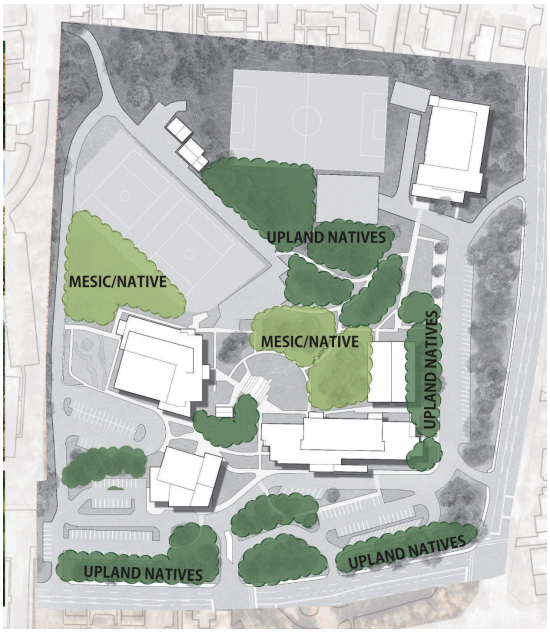
Engineered bioswales and mature vegetation, especially on steep slopes, will reduce runoff as paved and constructed surfaces are increased. Such features also provide carbon storage and contribute to the long-term health of trees and natural areas on campus.

Future projects

The 2026 Master Plan includes an increase in building and paved spaces as well as an increase in locations for native plants. Planting will have to be carefully coordinated with construction and demolition of buildings. The green areas in the maps below represent opportunities for new native plant installations.



Ridge Road Campus



Academy Road Campus

The Lower School traffic circle offers an excellent opportunity for a rain garden that would help control runoff and bring native fauna to a visible location. The inclusion of a shade structure and benches could give parents a place to socialize or work while waiting to pick up children, an alternative to sitting in cars with engines idling.

Parking lot medians and other areas that are currently mulched or planted with non-native annuals can be replaced by perennial native flowering plants and grasses.

Landscape connectivity, wildlife corridors, and the Butterfly Highway could be mapped on campus and beyond with outreach to nearby landowners and nonprofit organizations. A species survey could be conducted with help from organizations such as the Durham Open Space Commission and the North Carolina Wildlife Foundation. If an at-risk species were to be discovered (which is likely), it could be a basis for a conservation grant from the US Fish and Wildlife Service.

Conclusions about increasing biodiversity

The dynamic quality of nature makes it challenging to estimate progress toward this goal. When exotic and invasive species are removed from an area and natives are reintroduced, a flourishing native

community is not guaranteed. Some individuals survive and others don't; seeds of all kinds blow in or are carried in by animals; insects and other creatures that take up residence may or may not be native. Sustainability projects have probably increased biodiversity on approximately 1.7 acres so far, but further effort will be needed to truly establish natural plant and animal communities. That said, the school is on track to meet the 2 acre goal in the next two years.

The role of sustainability in decision making

Since 2018-19, when sustainability came onto the school's radar in the form of a student-faculty study group, it has been considered in an increasing number of administrative discussions and decisions. There are still times, however, when the sustainability angle becomes apparent only at the eleventh hour or even after a decision is made. Seeking the sustainability perspective and including it in decisions about purchasing, travel, marketing, construction, maintenance and all kinds of decisions will result in a stronger, more coherent program.

Unexpected challenge and opportunity on Pickett Road

In 2023, Durham Academy became aware that property across Pickett Road from the Upper School campus had been sold by the Pickett and Coles families to a developer that was petitioning for rezoning. The proposal was to build a four- or five-story, 140 unit apartment building. While not directly relevant to the school's sustainability commitment, there was concern about parking and security, flooding in Sandy Creek Park that could back up onto DA property, and increased traffic that could make access to that park more hazardous. Administrators, faculty, and student leaders coordinated with neighbors and nonprofit groups opposed to the rezoning. They spoke at three public hearings. Ultimately, the rezoning was approved with proffers from the developer for bird-friendly design elements and $300,000 for pedestrian safety measures.



Angus Cook '26 and Evan Register '26 speak at Durham Planning Commission hearing Nov 12, 2025

In late 2025, the school learned that the development company that had sought rezoning had not closed on its contract to purchase the property and might be pulling out of the deal. The school is exploring the possibility of purchasing the land, either to hold for future use or to control its sale. Preservation of wetland areas around Sandy Creek will be a high priority.

The experience with rezoning focused attention on the street crossing where Sandy Creek Trail meets Pickett Rd. Runners, science classes, community service groups, and neighborhood residents often struggle to cross when traffic is heavy. NC DOT would only consider building a crosswalk if the trail continues on the north side of the road. It happens that DA owns the parcel where that trail would logically go, so student groups have begun building the trail.



Parcel of land owned by DA east of Sandy Creek and north of Pickett Rd



Cross Country team members building trail to extend Sandy Creek greenway, November 2025

Beyond the 4-Year Goals

As the school approaches fulfillment of the 4-year goals, presumably by June 2028 or before, there will be important choices to make about the next phase of sustainability. Scientific understanding of climate change and biodiversity loss is always evolving, as are the most effective remedies. Education for sustainability is also a dynamic field. Will “sustainability” as the umbrella term continue to be useful? Will the school attempt to meet the goal of 50% emissions reduction by 2030 that was set by the United Nations Intergovernmental Panel on Climate Change? When is the right time to set a goal of net zero emissions? These are among the questions to be answered.

Further opportunities include:

- Considering the school's role as one of the largest landowners in Durham. What responsibilities and opportunities does that status entail? How can DA support sustainability efforts in surrounding communities?
- Seeking to strengthen sustainability efforts in peer schools. Durham Academy could host a regional climate education summit with the Institute for Global Leadership. We could offer a professional development workshop or collaborative project with TISAC schools or perhaps add a sustainability dimension to the Garrett Road Rivalry. Could SAIS or NAIS be persuaded to hold workshops and challenge schools to implement the Principles of Good Practice for Environmental Sustainability published in 2017?
- Explore the DA investment portfolio and whether it is consistent with the commitment to sustainability
- Get more involved with the Green Schools Alliance and its approach to benchmarking progress.

Appendix A: Timeline of Leadership and Financial Commitments

2020-21	Upper School Sustainability Committee established with Brandon Caveney as first elected chair. Tina Bessias named as Sustainability Coordinator (25% FTE).
2022-23	SLT established with faculty representatives from each division, at least one staff member, and a liaison to the Family Association.
2023-24	Grant from the Innovation Journey Fund established stipends for Divisional Sustainability Leaders and school-wide Sustainability Program Leader (approximately 50% FTE), funded a Professional Development workshop by Jaimie Cloud, and funded the first greenhouse gas assessment by GreenPlaces.
Dec 2023	4-year sustainability goals endorsed by Board of Trustees.
2024-25	Stipends for divisional leaders incorporated into school budget. School-wide Sustainability Leader position established at 70% of FTE. $100,000 sustainability fund included in school budget. Andrea Caruso takes lead on biodiversity goal, receives 1 semester course release.
2025-26	Tina Bessias announces plan to retire in June 2026. Sustainability leadership position expanded to full time Director for 2026-27. National search conducted, Alexandria Creech hired for position to begin July 1, 2026.

Appendix B: Data Variation

Data collection example: waste

Emissions in the category of waste include landfill waste, recycling, compost, and drinking water. Here are the totals for that category over the four years that DA has been assessing emissions.

Year	CO2e
2021-22	199
2022-23	23
2023-24	245
2024-25	130

The apparent year-over-year changes do not reflect changes in practice. In 2022, the landfill and recycling data was omitted in the process of reporting to GreenPlaces, so the drop to 23 mT should be disregarded. The other changes are more uncertain because local waste management companies do not provide data on either weight or volume picked up. The low overall total (130 mT) for waste-generated emissions in 2024-25 may be a byproduct of a change in providers; the school contract with Republic ended and was replaced by Meridian.

School activity example: Business travel

The number and length of flights taken for debate, Cavalier Capstones, World Language study, and other educational purposes vary significantly from year to year. Because the school values the educational experiences they enable, the focus has been on seizing opportunities that present themselves rather than limiting emissions.

Impact of weather on electricity use

The largest sources of emissions in the category of electricity are the school's HVAC systems, and the amount used varies according to the weather.

Changes in assessment protocol

The global Greenhouse Gas Assessment protocol is a product of scientific research, and it evolves with the best understanding in the field. During the 4-year period that Durham Academy has been using it, several categories have been combined and a major new one, Transmission and Distribution Losses, was added. GreenPlaces has been willing to calculate old data according to new protocols, but the process adds complexity.

Appendix C: 2024-25 Greenhouse Gas Emissions Assessment