

# ANNUAL EVALUATION



Maryland Green Schools Program

2023-2024



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MAEOE Maryland Green Schools Program

## TABLE OF CONTENTS

- 03 Evaluation Purpose & Methods**
- 07 Results: High-Level Progress**
- 12 Results: Trends in Public Schools**
- 19 Results: MDGS School Support**
- 23 Results: Environmental Impact**
- 32 Conclusions & Recommendations**

# STUDY PURPOSE & METHODS

Maryland Green Schools Program

2023-2024



# MARYLAND GREEN SCHOOLS PROGRAM

## About Maryland Green Schools (MDGS)

The Maryland Green Schools (MDGS) program is the signature program of the Maryland Association for Environmental and Outdoor Education (MAEOE). The program was initiated in 1999 and has expanded to 22 of Maryland's 24 counties (including Baltimore City). The process to become a Green School is rigorous, and the MDGS program supports schools by providing infrastructure, an array of logistical and financial support, and systematic application review to Maryland schools interested in applying. If schools are awarded, they carry the recognition of being certified as a Maryland Green School. Schools must reapply every four years until, at 12 years, they achieve Sustainable status.

By integrating environmental education and sustainability into school curricula, the MDGS program supports schools to pursue and achieve the state of Maryland's education requirements for environmental literacy put forth by the Code of Maryland Regulations (COMAR) 13A.04.17–Environmental Literacy Instructional Programs for Grades Pre-kindergarten–12). The MDGS program also helps to facilitate progress toward broader goals of the Chesapeake Bay Watershed Agreement.

## MDGS Program Goal

In 2019, as a result of the Maryland state legislature's "Maryland Green Schools Act of 2019," funding was provided to MAEOE to expand the contributions of schools toward statewide sustainability goals. For the MDGS program in particular, a goal was set to support 50% of all schools in Maryland to receive Maryland Green School awards by 2026. To achieve this ambitious goal, MAEOE set the following objectives:

- Increase support for the development of Green Schools;
- Provide professional development to more teachers; and
- Increase environmental literacy of students.

This evaluation aims to explore impacts of the first two objectives in detail. First, it examines progress towards expansion of MDGS awards statewide, including any changes over time and the identification of differences in award status across demographic, geographic, and other factors. Second, it explores evidence of the impact of professional development offerings and mini-grants on supporting schools to submit successful MDGS applications.



# EVALUATION DATA

## Evaluation Questions

The annual evaluation of the MDGS program explores progress towards the statewide goal of 50% of Maryland's schools awarded as Green Schools by the year 2026, with a focus on factors that may influence progress towards this goal and recommendations for strategic ways to achieve it.

Guiding evaluation questions include:

1. What is the current progress towards the goal? What percentage of Maryland schools obtained new awards, sustained awards, and lapsed awards? How are schools progressing through the life cycle of the MDGS program?
2. Among public schools, how does school participation and award status in the MDGS program vary across demographic, socioeconomic, geographic and other factors? Is MDGS improving their reach in strategic target areas identified by these factors?
3. How do professional development and grant support contribute to a school's likelihood to achieve and maintain a Green School award?
4. What is the cumulative environmental impact of the MDGS program?

## Data Sources

Several data sources were collated and analyzed in order to complete this comprehensive evaluation of the MDGS program:

1. MAEOE's MDGS dataset of all schools currently or previously awarded, award level, and award history.
2. School-level data on all public schools from the National Center of Educational Statistics (NCES) 2022-23 dataset (most recent available).
3. School-level data on all Maryland private schools from NCES' Private School Survey (2020-21; most recent available).
4. List of Maryland Approved Nonpublic Schools from the Maryland State Department of Education (2022; most recent available).
5. Environmental metrics reported in applications for 2023-24 Green Schools.
6. MAEOE records of PD participation and mini-grants awarded in 2023-24.
7. School-level data on Title I status from the Maryland State Department of Education's 2023-24 dataset.

# ANALYSIS AND INTERPRETATION

## Data Analysis

To conduct this evaluation, a systematic and rigorous data audit and cleaning exercise was undertaken to ensure that information derived from multiple data sources used for this analysis (such as the National Center for Education Statistics state-level school datasets) were both collated and merged with accuracy. Any discrepancies among the different data sources were brought to the attention of MAEOE staff and resolved/updated accordingly. The result is a merged dataset from which we explored the myriad factors that influence MDGS growth across Maryland schools.

To ensure consistency with prior annual evaluations and to most meaningfully compare the Green School population to all Maryland schools, the following criteria were applied to remove schools that:

- 1) Are solely pre-K (or daycare) facilities;
- 2) Have fewer than 15 students; or
- 3) Are alternative schools/programs.

The results presented in this report are based on the application of MDGS award policies to the collated dataset. Photos were either provided by MAEOE staff or licensed from Adobe Stock.

## Interpreting this Report

The MDGS program is based on a 4-year application cycle, and as such, annual progress is incremental. Much of the year-to-year change is related to the number of initial Green School awards from new recruits that year, as well as the number of schools who lapsed out of the Green School program. All other schools are elsewhere in the 4-year cycle and are not impacting growth or regression in statewide award rates.

Additionally, analyses for this report originate from data that are publicly available from NCES and the MD State Department of Education, as well as Green School data provided by MDGS. There are limitations to what these data can illustrate. Though we can explore factors that contribute to Green School award rates, we cannot comment on changes in student environmental literacy as a result of the program, or other similar items of interest to MDGS.

The intent of this evaluation is to provide discrete and tangible strategies to improve school participation and long-term commitment to the MDGS program, particularly in areas that have been historically under-resourced.

# RESULTS: HIGH LEVEL PROGRESS

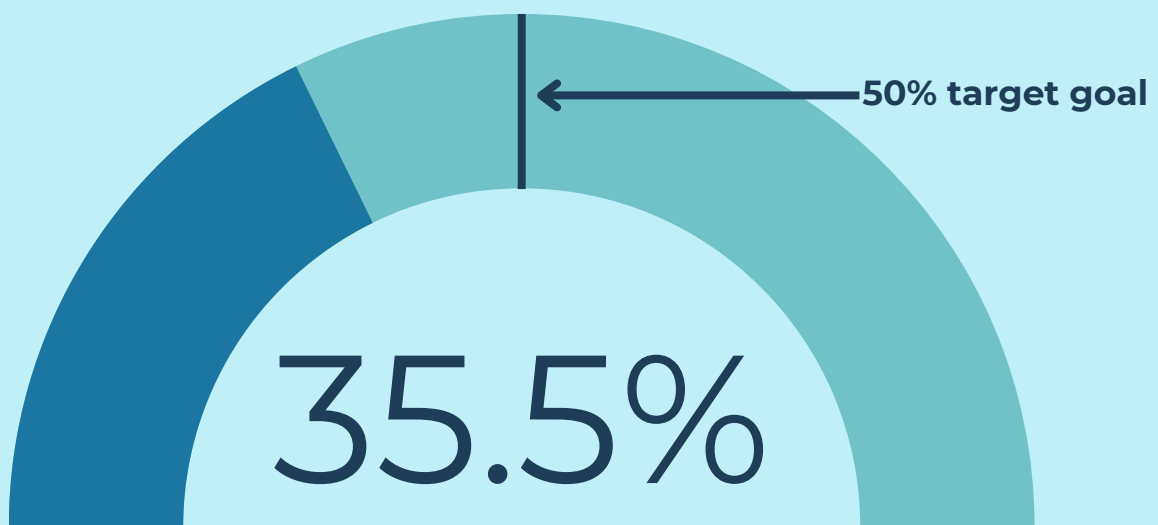
Maryland Green Schools Program

2023-2024



# PROGRESS TOWARDS 50% GOAL

In the 2023-24 academic year, 35.5% of all schools in the state – including both public and private – are awarded as Maryland Green Schools, showcasing a 1.5% increase from the previous year.



The primary goal of the Maryland Green Schools program is to achieve a 50% award rate across all Maryland schools by the year 2026. Since the 2020-21 academic year when annual program evaluations began, the statewide school award rate has vacillated between 33-36%, with this year also falling within that range. The increase seen this year, up from 34% in 2022-23, indicates that more schools were added to the program (25) than lapsed their Green School status (19). However, significant advances must be undertaken and achieved by MDGS in order to accomplish their ambitious 50% award rate target in the next two years. In this evaluation, we will explore an array of factors that contribute to this award rate, as well as opportunities to increase the rate in future years.

Note: The award rate of 35.5% is based on the number of awarded Green Schools (639) after applying the filters outlined in the Data Analysis section of this report. Without the filters, the total number of awarded Green Schools this year is 654.

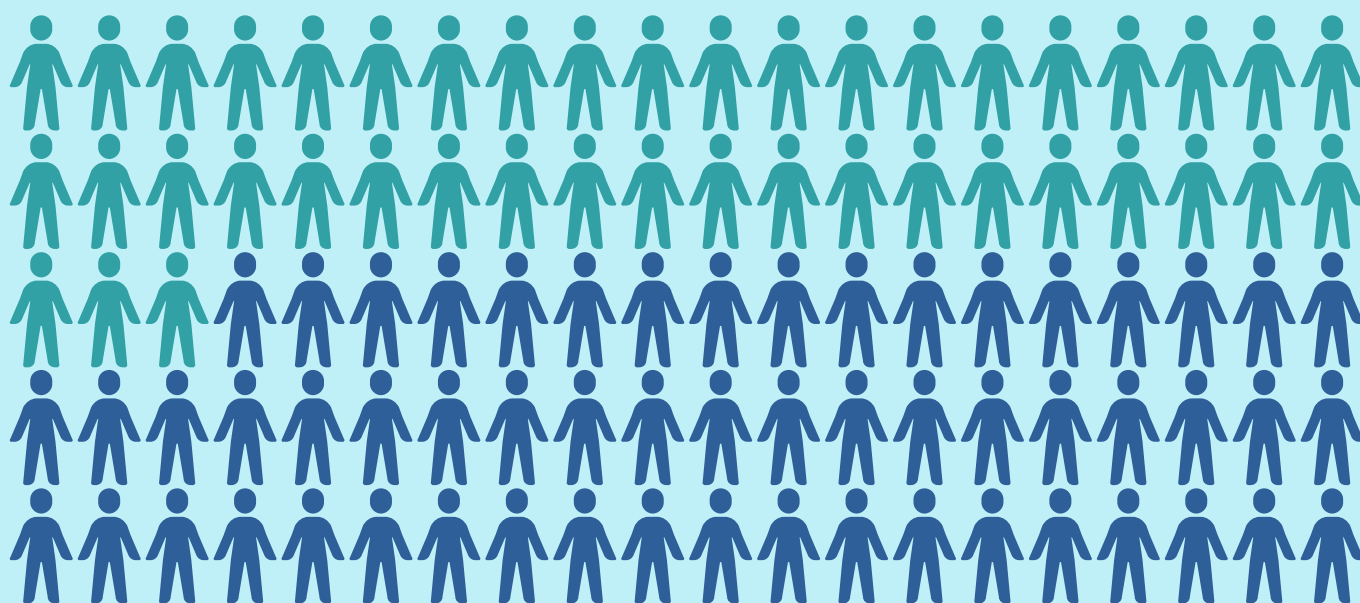


Statewide Green School award rate in each of four years that an annual impact evaluation was conducted for the MDGS program.



# STUDENTS SERVED BY MDGS

**A total of 421,516 students statewide are currently served by the MDGS program (43% of all Maryland students), up from 416,838 students in 2022-23.**



Though MDGS is reaching 35.5% of schools across the state, they are reaching 43% of the total number of enrolled students - a figure much closer to their target rate of 50%. This is unsurprising given greater participation in the program by larger-sized schools (as measured by the number of enrolled students).

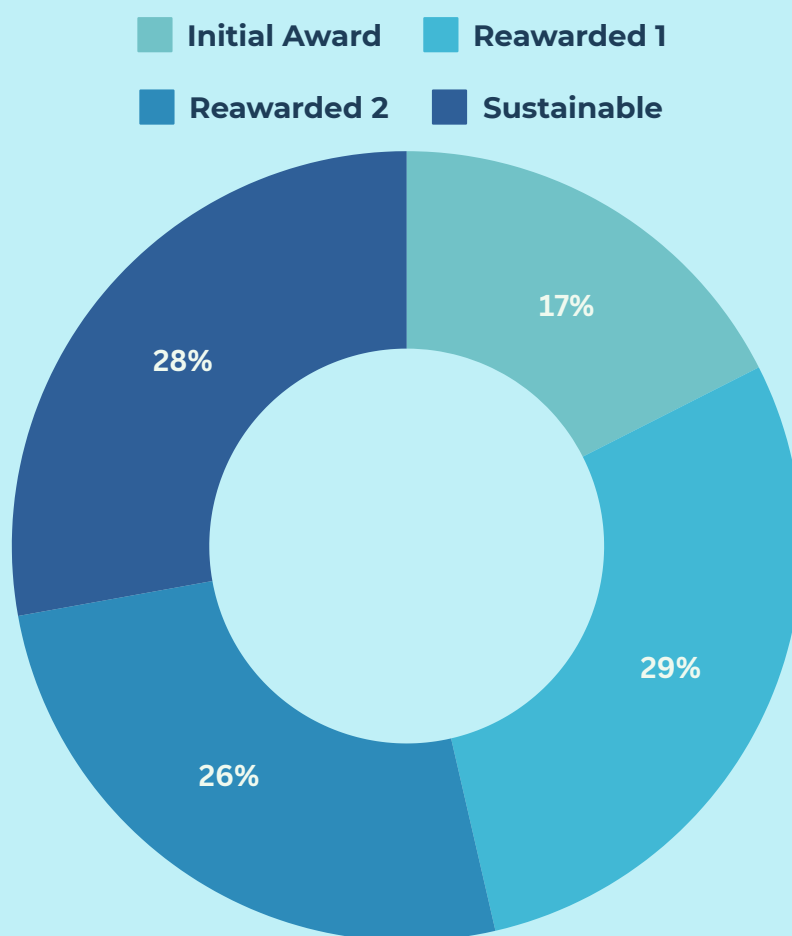
Another 135,540 students are attending schools that were previously awarded Green School status but have since lapsed (down from 135,773 in 2023).

The number of students in both awarded schools and in lapsed schools are conservative estimates, as the data from a small number of schools (almost exclusively private schools) did not report the size of their student body.

In the more detailed analysis of public schools found later in this report, this evaluation will explore which students are best served by the MDGS program and where there are opportunities to conduct more strategic outreach.

# GREEN SCHOOL AWARD LIFECYCLE

The current Maryland Green Schools are spread across the lifecycle of awards, with the largest segment having achieved their first re-award.



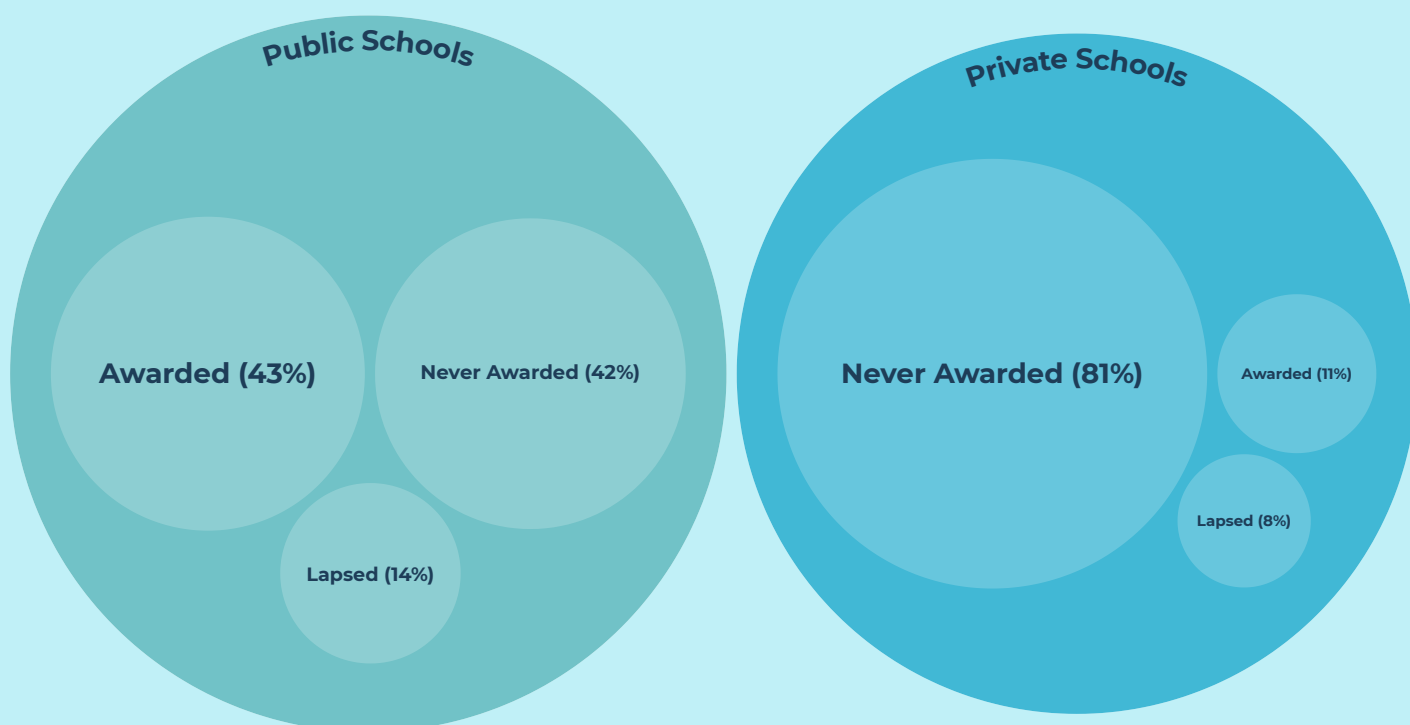
Green Schools are somewhat evenly distributed across the award lifecycle, with the highest percentage of schools having achieved their first re-award and the lowest percentage having obtained their initial award. Though this distribution is similar to the lifecycle distribution in the 2022-23 academic year, the percentage of schools obtaining an initial Green School award decreased from 20% to 17%.

Over half of the schools were re-awarded and maintaining their Green School status in 2023-24.

Once a Green School has achieved its fourth award (third re-award) and has become a Sustainable school, it can no longer lapse out of the program. As such, Sustainable award rates have remained stable over the last few years.

# PUBLIC VERSUS PRIVATE SCHOOLS

The Maryland Green School program has a significantly higher participation rate in public schools than in private schools.



The Maryland Green Schools program continues to have higher participation from public schools (591 of 1,364 public schools) than from private schools (48 of 434 private schools). This is not a new finding; MDGS reach in public schools has consistently been higher than in private schools since 2020-21 when systematic annual program evaluations were initiated.

Green School awards to private schools did increase by 2% which indicates incremental movement toward better reaching this segment of the population. Public school participation in the MDGS program is essentially unchanged from the 2022-23 school year.

A continued focus on improving private school recruitment and commitment to the Green Schools program is critical for achieving the statewide goal of 50% school participation by 2026.

Because the primary emphasis of the Code of Maryland Regulations (COMAR) is on public schools, and due to the availability of more robust data for public schools, this report will now explore public school data in greater detail.

# RESULTS: PUBLIC SCHOOLS

Maryland Green Schools Program

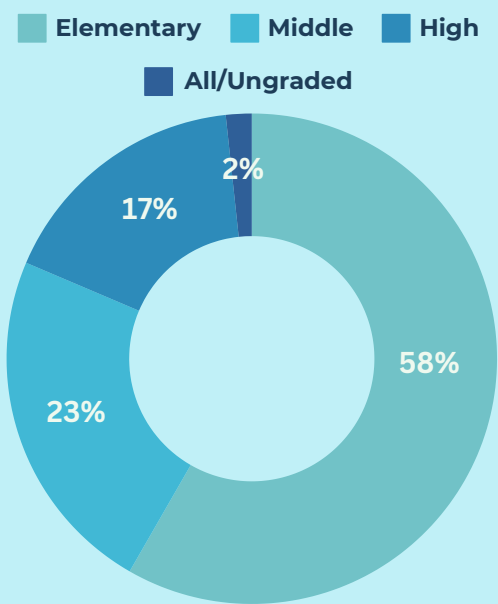
2023-2024



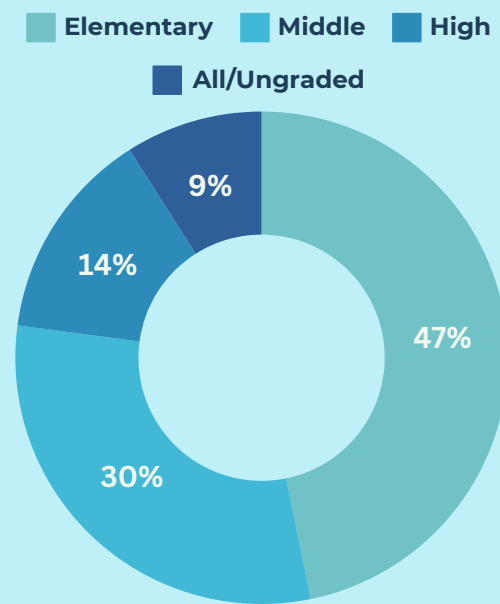


# MDGS DISTRIBUTION ACROSS GRADE LEVELS

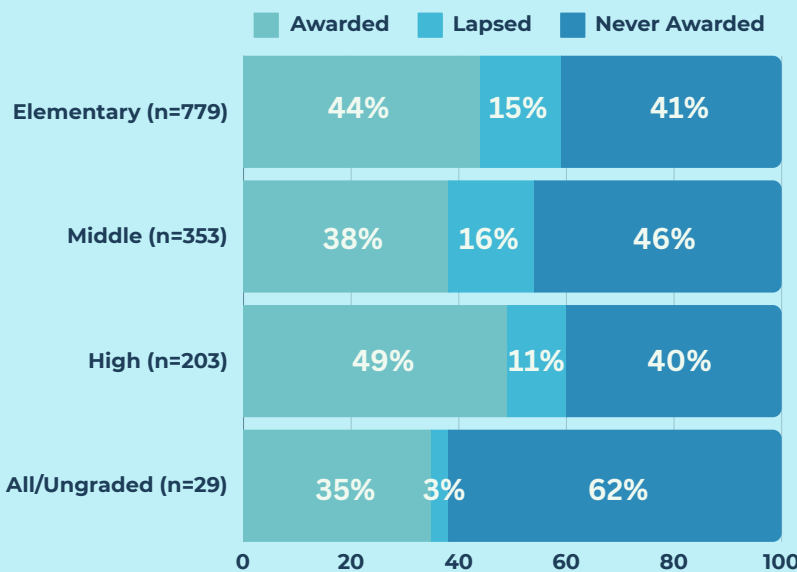
Of the nearly 600 public schools that are currently Green Schools, the distribution of elementary, middle, and high schools, as well as schools that are ungraded or serving all grade levels, closely resembles the distribution of schools statewide.



Green Schools



All Public Schools



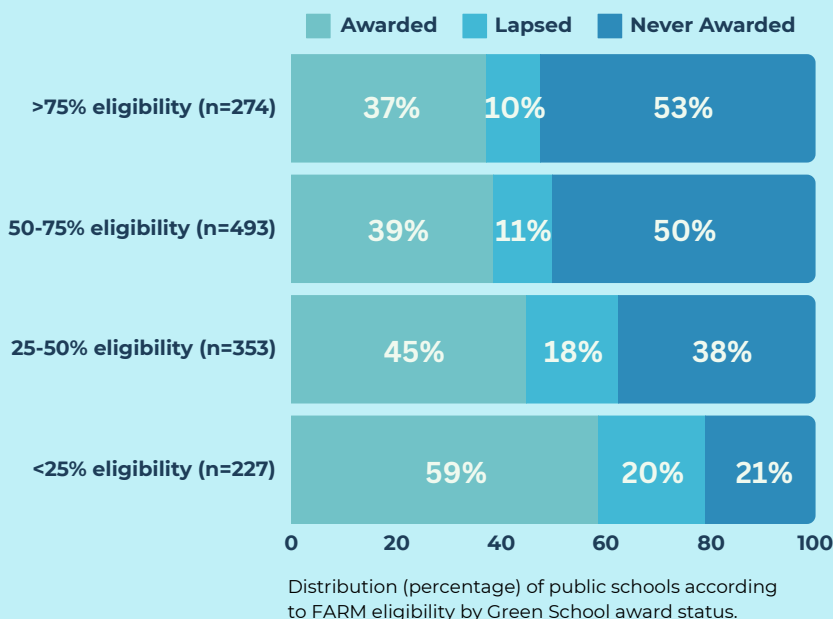
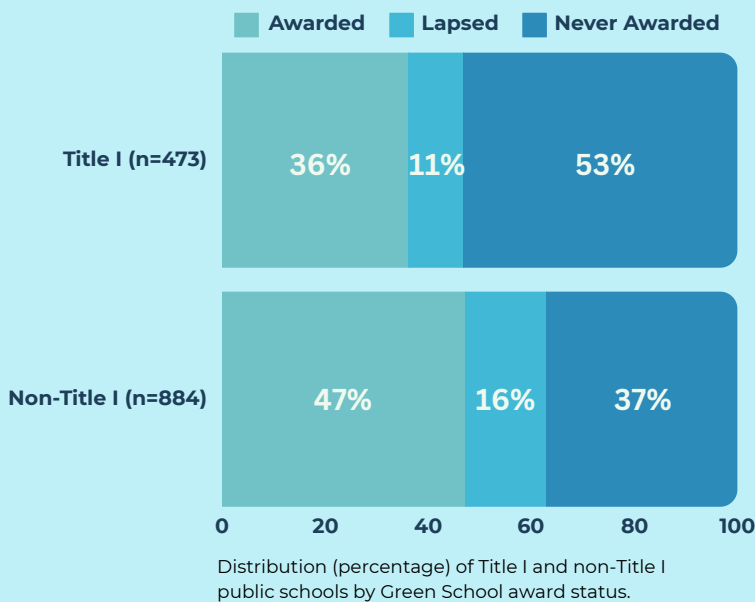
Distribution (percentage) of public school grade levels by Green School award status.

The distribution of Green Schools across grade levels in public schools is fairly proportionate to that of grade levels statewide.

In elementary and high schools, award rates approach the statewide goal of 50% (44% and 49%). In fact, high schools had decreased to 45% participation in 2022-23, and this year have returned to their 2021-22 level of participation at 49%. Efforts should focus on recruiting middle schools to MDGS and on helping awarded middle schools to retain their Green School award.

# SOCIOECONOMIC FACTORS

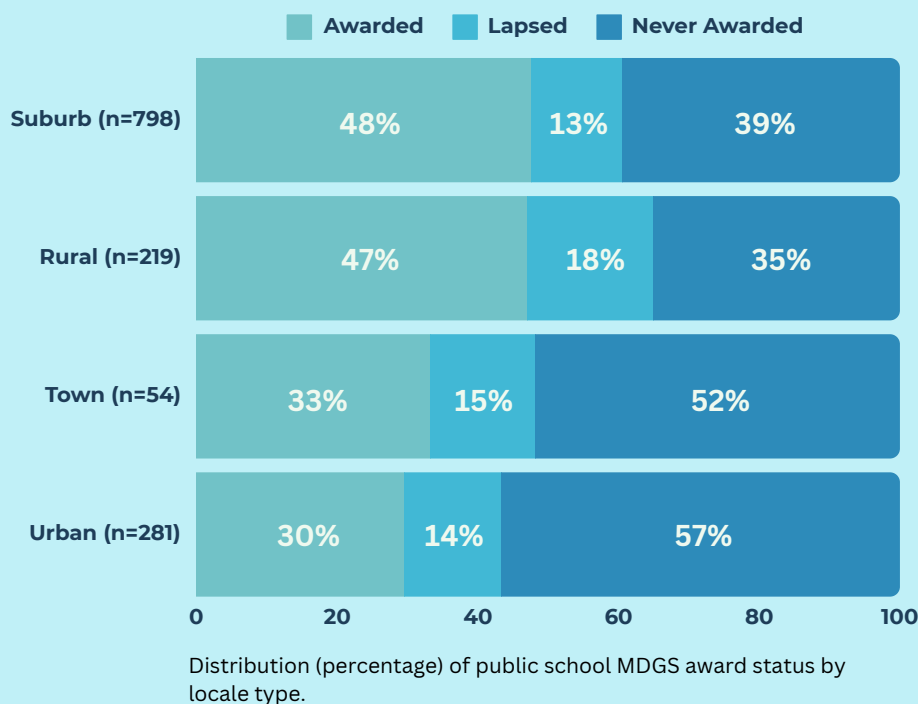
**Title I schools, as well as schools in which fewer students are eligible for the Free and Reduced Meal (FARM) program, are less likely to have achieved Green School awards.**



Participation in the Green Schools program decreases as student eligibility for Title I and FARM programs, both indicators of low socioeconomic status, increases in Maryland public schools. A clear picture emerges when these data are taken together - schools with fewer resources, and comprised of students of low socioeconomic status, are not as successful at applying or maintaining Green School award status, and many fewer of them are reached by the program. Even with an interest in participating and the best of intentions to apply/maintain status, it can be more difficult for schools to do this when the basic needs of their students (and likely, staff), are not being met outside of school. Schools with fewer resources and more disadvantaged students may benefit from resource programs (e.g., those that support basic needs like shelter, safety, and security) to improve their capacity to take on the challenge of becoming a Green School.

# MDGS PARTICIPATION BY LOCALE

The MDGS program continues to have greatest success recruiting and awarding schools that are in suburban and rural locations, with opportunity to reach more urban schools.



A comparison of Green School award rates by locale was conducted across location categories assigned by the U.S. Census Bureau. In public schools, both suburban and rural schools have high Green School award rates (48% and 47%, respectively). These rates are approaching the 50% statewide goal that MAEOE aims to achieve by 2026. Additionally, lapse rates are lowest in suburban schools. Despite a high award rate, however, the lapse rate is also highest in rural schools.

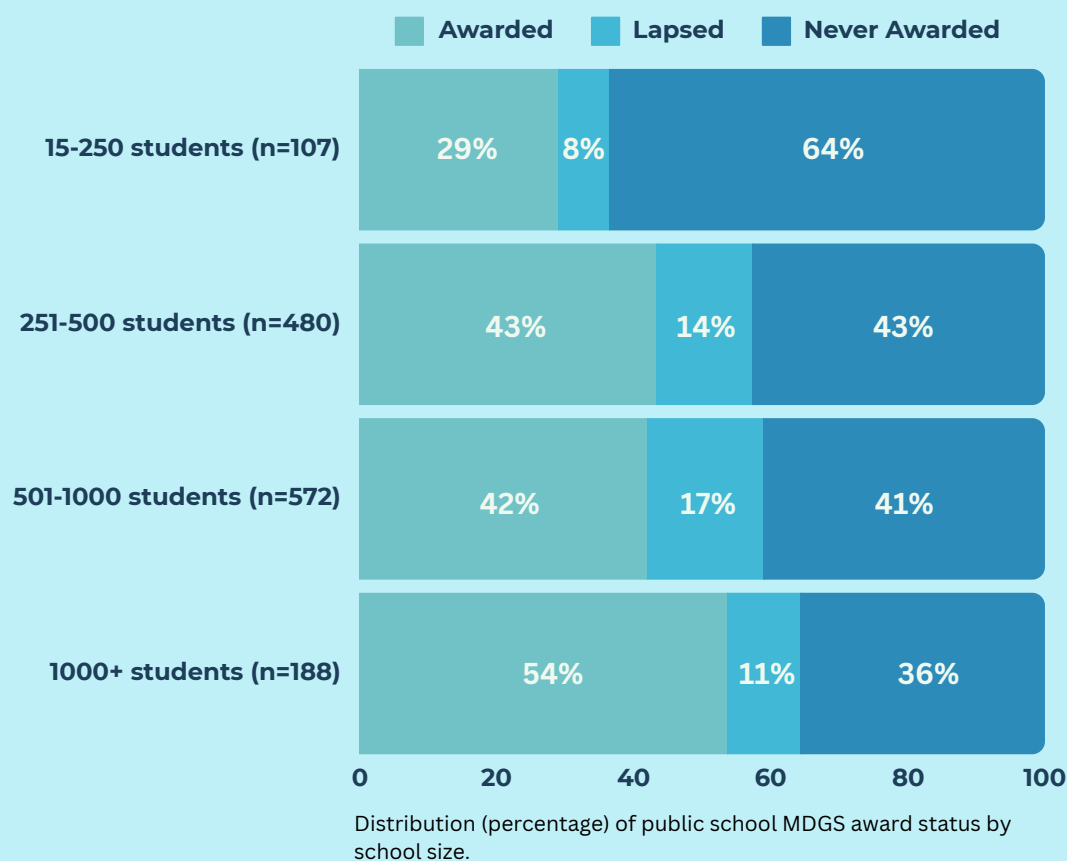
Green School award rates remain low for both urban schools and schools that

are located in towns. The sample size for towns is much smaller (only 4% of public schools are in towns), so it is more challenging to draw inferences from that segment. But cities are an important environment in which to recruit for the Green Schools program.

Over a third of city-based schools are designated Title I schools – a rate proportionately higher than found in suburban, town, and rural schools – and suggests these urban schools may benefit from sustained support to achieve and maintain Green School status.

# MDGS PARTICIPATION BY SCHOOL SIZE

Among public schools, and as in all past years, the MDGS program continues to see higher rates of participation in larger schools.



School size in public schools (as measured by number of enrolled students), is a robust and positively correlated indicator of Green School award rate, and these numbers are essentially unchanged from 2021-22 and 2022-23.

As with most metrics that were measured for this evaluation, school size is likely an indicator of Green School program participation because larger schools tend to have access to more resources than smaller schools, allowing them to not only complete the rigorous application but also continue to maintain all requirements of the Green School award.



# MDGS PARTICIPATION BY COUNTY

County (# of public schools)	Awarded (%)	Lapsed (%)	Never Awarded (%)
Calvert (n=23)	100	0	0
Queen Anne's (n=14)	100	0	0
Kent (n=5)	80	0	20
Talbot (n=8)	75	0	25
Prince George's (n=197)	74	2	24
Howard (n=76)	53	27	20
Cecil (n=28)	50	14	36
Garrett (n=12)	50	33	17
Montgomery (n=208)	48	9	43
Wicomico (n=25)	48	4	48
Charles (n=39)	44	10	46
Anne Arundel (n=122)	41	23	36
Carroll (n=38)	39	37	24
Worcester (n=13)	39	23	38
Allegany (n=22)	36	0	64
St. Mary's (n=26)	35	54	11
Baltimore County (n=166)	34	18	48
Harford (n=54)	33	33	33
Baltimore City (n=152)	21	12	67
Washington (n=43)	14	14	72
Frederick (n=66)	12	11	77
Caroline (n=9)	11	11	78
Dorchester (n=11)	0	9	91
Somerset (n=7)	0	14	86

**Participation in the Green School program varies by county. Calvert and Queen Anne's Counties maintain 100% award rates, while Somerset and Dorchester have no participating schools.**

Most counties have between 20-50% participation in the Green Schools program, with eight counties currently at 50% participation or above.

Prince George's and Montgomery counties have the highest number of participating schools, largely an artifact of their population size relative to other counties. However, Prince George's also maintains one of the highest relative rates of engagement. There is still opportunity to increase engagement in Montgomery, as well as other populous counties Baltimore, Baltimore City, and Anne Arundel.

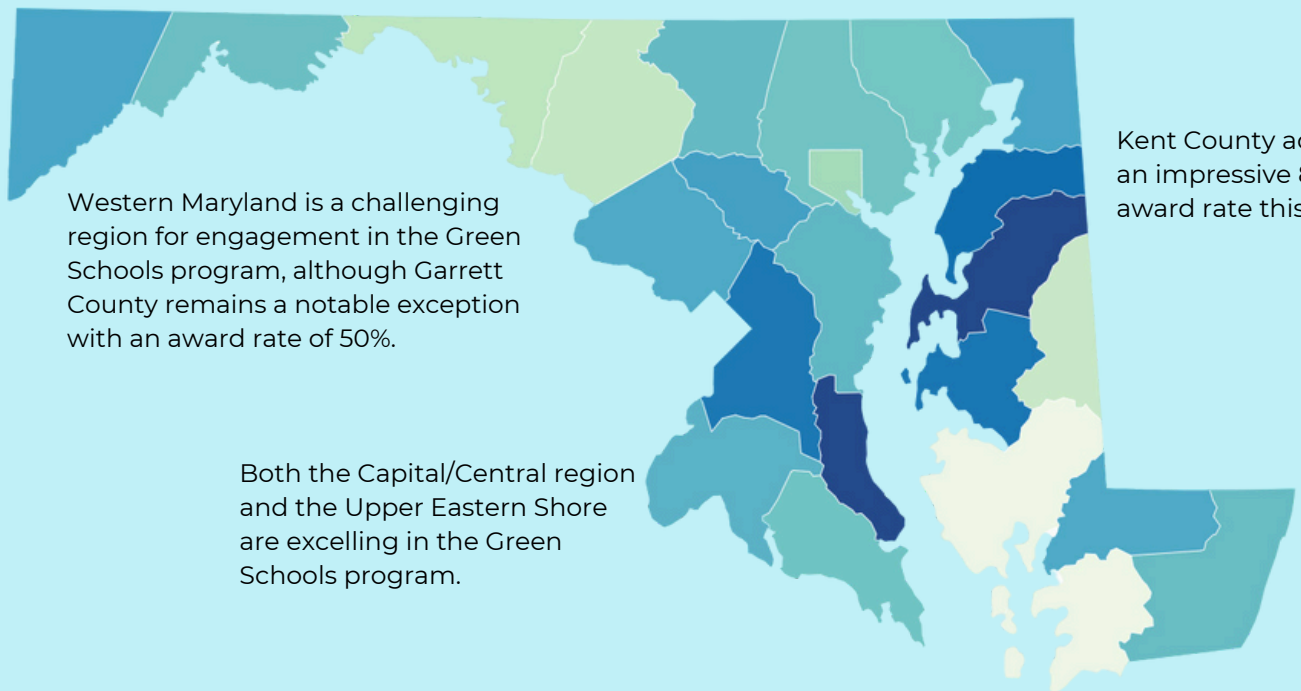
# MDGS PARTICIPATION BY COUNTY

Green School achievement is not geographically uniform, with hotspots of both high and low program engagement across Maryland. Several counties significantly improved their award rates in 2023-24, while others saw small regressions.

Public Schools Awarded (%)



Baltimore City remains an opportunity area for recruitment and support from the Green Schools program



Western Maryland is a challenging region for engagement in the Green Schools program, although Garrett County remains a notable exception with an award rate of 50%.

Kent County achieved an impressive 80% award rate this year.

Both the Capital/Central region and the Upper Eastern Shore are excelling in the Green Schools program.

The Lower Eastern Shore continues to show low engagement with the Green Schools program, but Wicomico County holds steady at a 48% award rate.

County (# of public schools)	Change Since 2022-23 (%)	2023-24 Awarded (%)	2022-23 Awarded (%)	2021-22 Awarded (%)	2020-21 Awarded (%)
Kent (n=5)	+40	80	40	20	20
Talbot (n=8)	+13	75	62	75	75
(+) Worcester (n=13)	+8	39	31	46	29
Frederick (n=66)	+5	12	7	11	9
Charles (n=39)	+6	44	38	42	39
(-) St. Mary's (n=26)	-3	35	38	54	50
Howard (n=76)	-2	53	55	62	60

Notable increases and decreases in county award rates for the Maryland Green Schools Program in 2023-24.

# RESULTS: MDGS SCHOOL SUPPORT

Maryland Green Schools Program

2023-2024



# PROFESSIONAL DEVELOPMENT

Of the 78 schools whose staff attended at least one professional development offering during the 2023-24 academic year, 50 (64%) completed a successful Green Schools application between 2021-2024, showcasing the value of these offerings.

Professional Development Offering (2023-24)	Organizations Attended	Green Schools Attended
Green School Application Portal Training	59	36
Green School Application Info Session	33	17
Addressing Environmental Justice in Communities	20	7
Project Learning Tree E-STEM Workshop	17	8
DEIJA Symposium	52	4

Attendance of MDGS professional development offerings in 2023-24.

Data provided by MAEOE describe five unique professional development (PD) opportunities available to schools and other interested organizations. As was the case last year, this year's PD offerings were mostly focused on guiding schools through the Green School application process. However, there was also an important focus on topics related to diversity and inclusion, as well as environmental justice, signifying the MDGS commitment to a One Health approach to environmental conservation achieved by the Green Schools program.

Other attendees of these opportunities included representatives from school

districts, government, non-profit organizations, foundations, and businesses. Though most attending organizations were individual schools (n=78), many were represented by these other categories (n=49), of which most attended the DEIJA Symposium. Individual schools, as expected, had highest attendance at the Green School application training opportunities.

In addition to the 50 schools attending PD offerings that completed a successful Green Schools application, another 19 (24%) are newly recruited schools (including one school rejoining after a lapse) that may apply in the future.



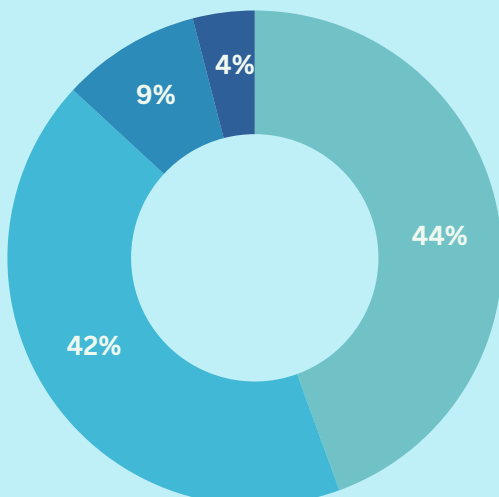
# MINI-GRANT SUPPORT

In the 2023-24 academic year, 127 mini-grants were provided to individuals representing both schools and other organizations (up from 101 mini-grants in the 2022-23 academic year). A total of 93 schools received mini-grants, with a range of 1-3 mini grants per school. A collective number of 6,653 students and 88 teachers were supported through the grants.

Mini-Grant Offering (2023-24)	Organizations	Green Schools	Non-Green Schools	Title I Schools	Number of Participants
Professional Development Grants	8	1	0	1	88 (teachers)
Green Team Grants	45	37	8	10	2,613 (students)
Transportation - Field Trip Grants	22	16	4	6	1,391 (students)
Transportation - Youth Summit Grants	30	28	2	11	643 (students)
Student Action Project Grants	22	19	3	8	2,006 (students)

Number of recipients of MDGS mini-grants in 2023-24.

- Successfully applied in 2024
- Reapplication due in 2025 or later
- New to MDGS/rejoining
- Lapsed MDGS school



**Of schools that received mini-grants this year, the outcomes were highly favorable.**

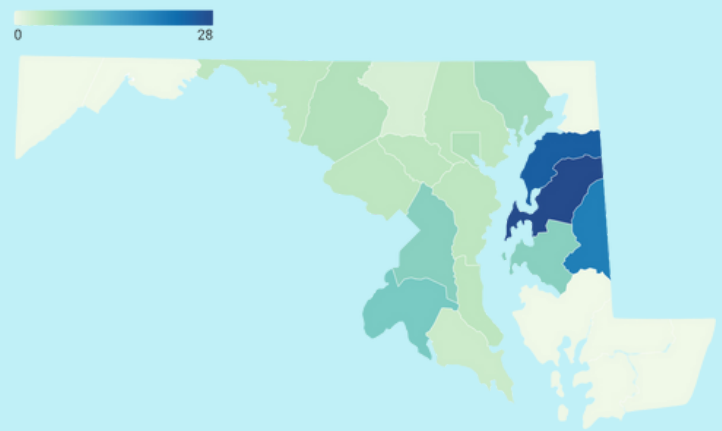
Over 86% of schools that received mini-grants in the 2023-24 academic year either went on to complete successful Green School applications or their reapplication is due in 2025 or later, an encouraging result that suggests these grants support schools to apply and receive Green School awards.

# MINI-GRANT SUPPORT

During 2023-24, counties receiving higher numbers of mini-grants saw higher Green School award rates, while counties without mini-grant support continued to lack participation in the program.

County	Number of Schools Receiving Mini-Grants
Prince George's	21
Montgomery	13
Baltimore County	12
Baltimore City	9
Anne Arundel	6
Queen Anne's	5
Charles	4
Frederick	4
Harford	4
Howard	4
Caroline	2
Kent	2
Washington	2
Calvert	1
Carroll	1
St. Mary's	1
Talbot	1
Allegany	0
Cecil	0
Dorchester	0
Garrett	0
Somerset	0
Wicomico	0
Worcester	0

Proportion of Schools with Mini-Grants (%)



The table on the left shows the number of mini-grants received in each county in 2023-24, while the map depicts the percentage of each county's total number of schools, public and private, that received mini-grants.

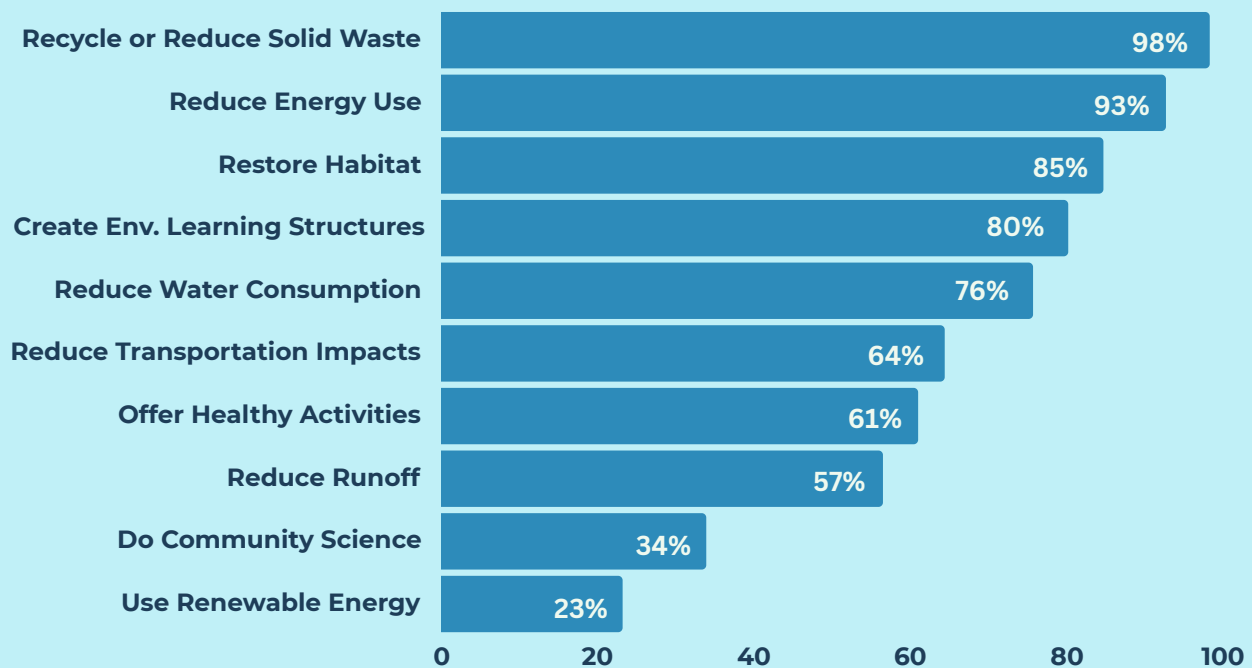
Though Prince George's, Montgomery, and Baltimore counties received the highest number of mini-grants, Kent, Queen Anne's, and Caroline received the highest number of grants relative to county size (as measured by the number of schools). Two of these counties, Kent and Queen Anne's, hold the highest Green School award rates across Maryland.

Charles and Prince George's counties also have high mini-grant support proportional to county size. Charles is among the counties with the highest increase in award rate from 2022-23 to 2023-24, and Prince George's county continues to be a success for the Green Schools program.



# GREEN PRACTICES IN GREEN SCHOOLS

Self-reported data from 177 Green Schools showcase high participation in a series of sustainable and green practices, though there is lower participation for activities that require high levels of training and/or resources.



Self-reported participation (% of schools who answered yes) in a series of green practices Across Maryland Green Schools (n=177) in 2023-24.

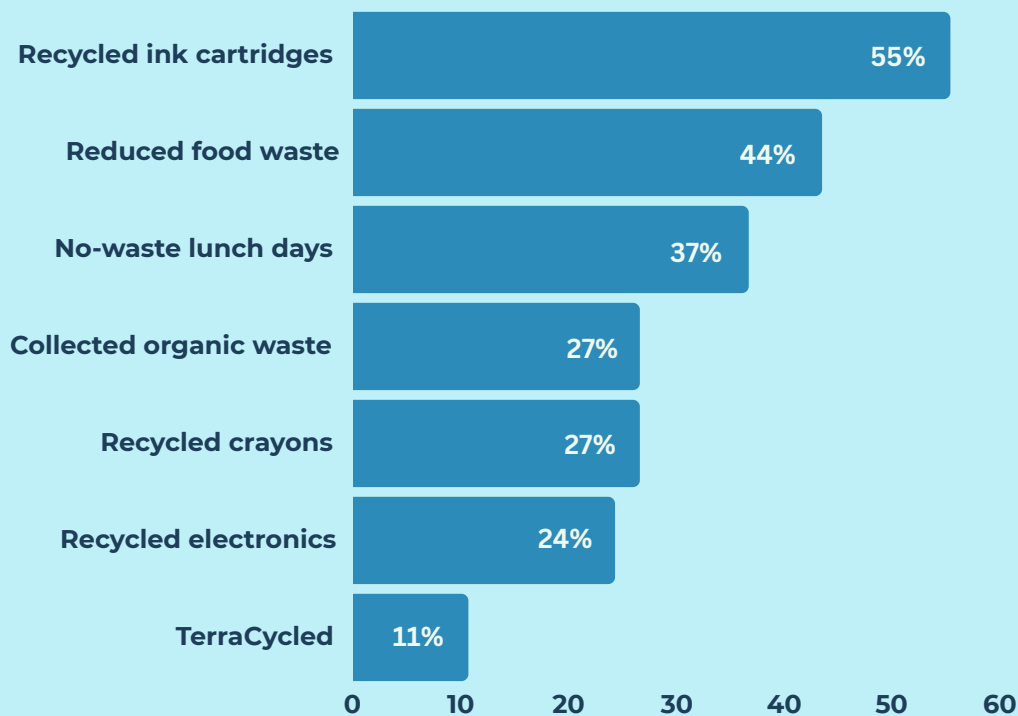
Participation in different green practices is varied. Activities that require little time, effort, and training to complete are conducted by schools more often than those requiring substantial training and resources. For example, implementing no-idle zones at schools (a component of reducing transportation impacts) likely requires employee training and onsite enforcement. Also, the responsibility for performing this behavior rests primarily with the parents and caregivers who transport the students to and from the school, rather than staff or the students themselves.

Another example of a practice with many barriers to participation is the use of renewable energy. Buy-in for installation and maintenance of renewable energy infrastructure is likely required at the district or county level, and costs can be prohibitive for low-resourced schools. In contrast, it is relatively simple, straightforward, and cost-efficient for individual schools to reduce energy use (e.g., using energy-efficient light bulbs), so there are fewer barriers to participation for individual schools wishing to engage in these types of activities.

# RECYCLING & REDUCING WASTE



Over half (55%) of Green Schools reported recycling ink cartridges, and over a third reported reducing food waste and holding “no-waste” lunch days.



Self-reported participation (% of schools who answered yes) in a series of practices to recycle and reduce waste across Maryland Green Schools (n=177) in 2023-24.

In aggregate across recycling efforts, Green Schools reported nearly 12,000 recycled ink cartridges, nearly 5,000 recycled electronics (including cell phones and batteries), 2,000 lbs of recycled crayons through Crayola’s ColorCycle™ program, over 6,000 lbs TerraCycled, and a grand total of nearly 4 million lbs. of recycled material.

For waste reduction practices, schools reported between 27-44% participation. Collectively, schools held nearly 2,700

(over 7 years!) “no-waste” lunch days, reduced food waste by 350,000 lbs, and collected over 350,000 lbs of organic food waste.

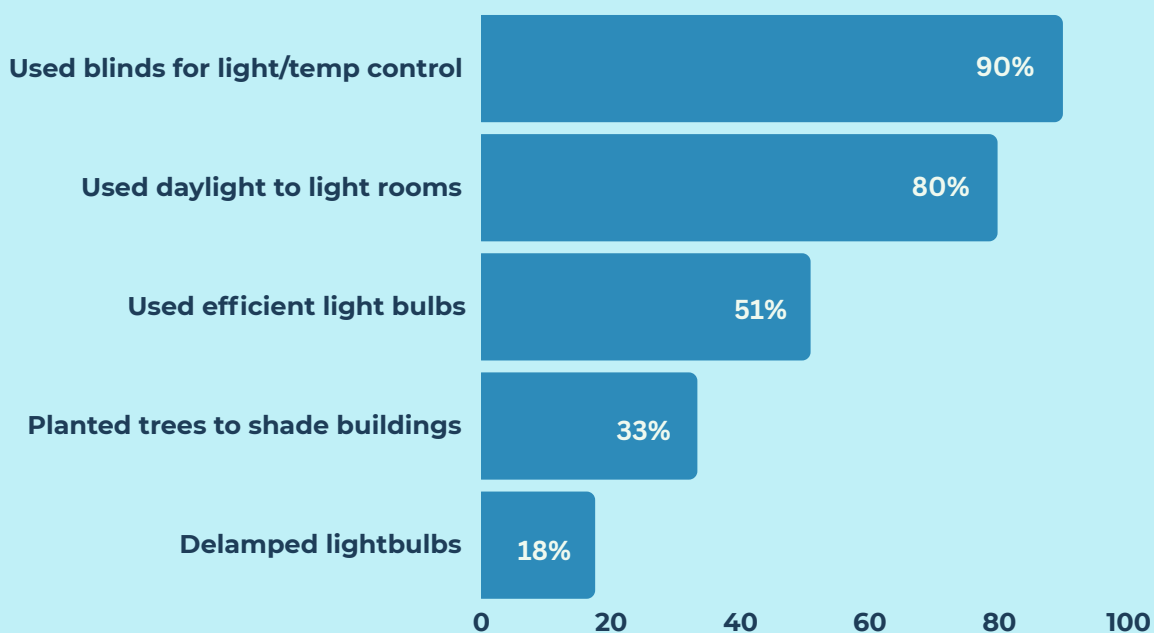
Ranges for most of these self-reported metrics were atypically large and many contained unrealistic outliers; as such, caution must be taken when interpreting the reported values.



# ENERGY CONSERVATION



To conserve energy on school grounds, schools most often reported that they used blinds for temperature and light control and used daylight for lighting rooms.



Self-reported participation (% of schools who answered yes) in a series of practices to conserve energy across Maryland Green Schools (n=177) in 2023-24.

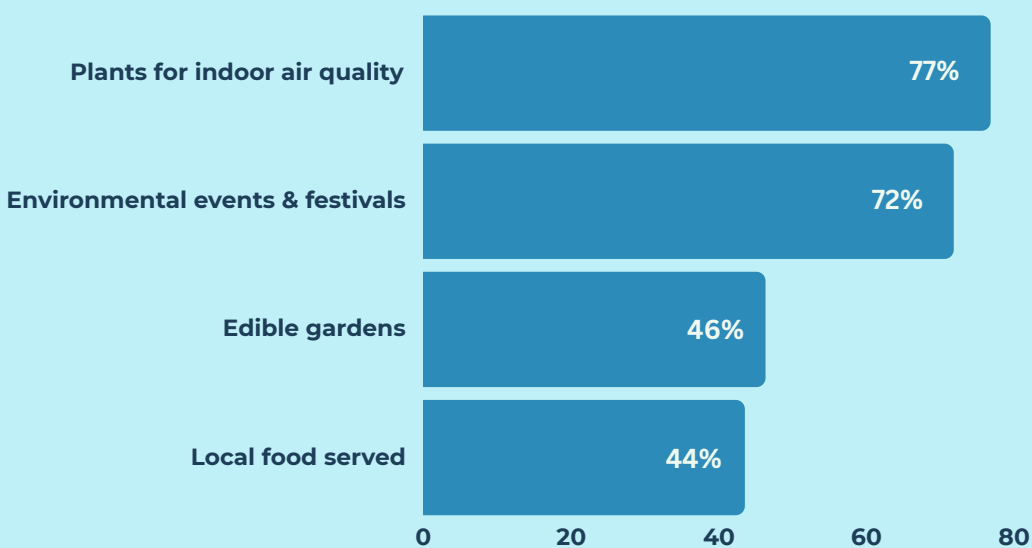
Most energy conservation behaviors had high participation from Green Schools in 2023-24, with the highest engagement reported for using window blinds to control indoor temperature (90% of schools), using daylight to light classrooms (80%), and using energy-efficient light bulbs (51%). These participation rates match those reported in the 2022-23 academic year. Lower levels of engagement were reported for the following behaviors: planting trees to shade buildings (33%), and de-lamping lightbulbs (18%).

Significant variation in school-reported metrics associated with these behaviors suggest that some of the estimates may be unreliable. For example, the total reported energy savings for 177 schools is 5.5 million kWh, yet nearly 1 million kWh of that value was reported by a single school.

# HEALTHY SCHOOL ACTIVITIES



**Most Green Schools reported having indoor plants for air quality (77%) and hosting outdoor events and environmental festivals (72%). Nearly half maintain edible gardens and serve local food.**

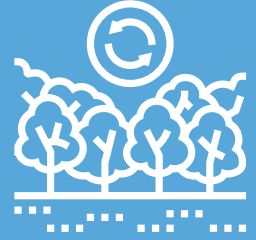


Self-reported participation (% of schools who answered yes) in a series of practices to conduct healthy activities across Maryland Green Schools (n=177) in 2023-24.

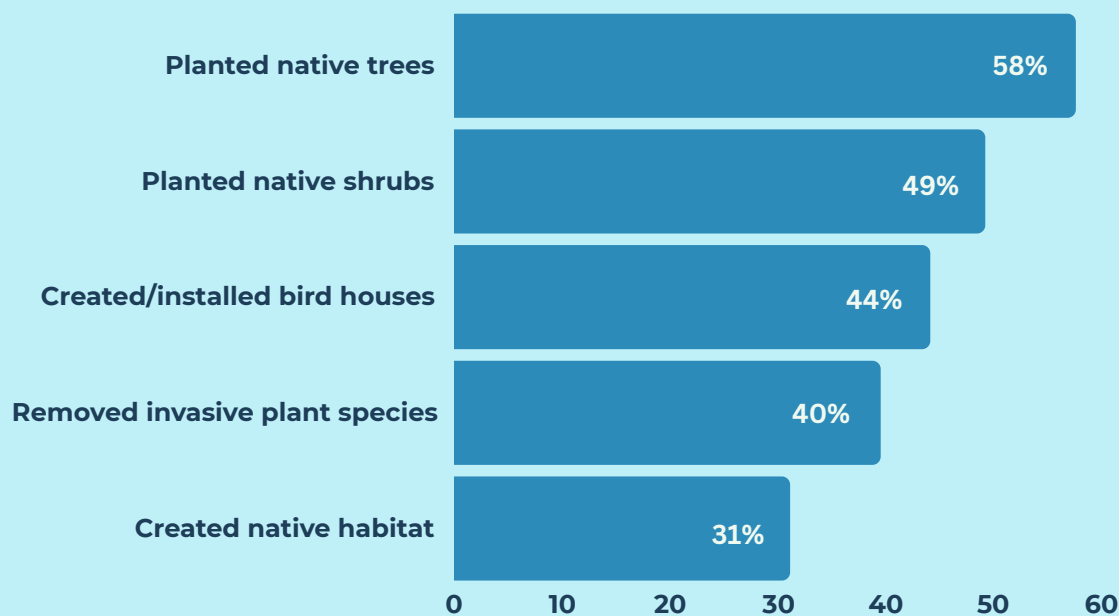
Engagement across all healthy activities remained consistent with last year's reported values, with the exception of maintaining indoor plants for air quality which increased by 7%. Schools reported serving local food between 1-288 times during the school year, for a total of 3,459 times. Of schools maintaining edible gardens, a cumulative 22,000+ sq ft of gardens were reported, nearly the size of 5 NBA regulation-sized basketball courts. This is an increase from last year.

It is possible that edible gardens are less common because of the time and effort it takes to maintain them. The ability of schools to procure locally-sourced food also involves many factors outside of their control, such as food availability and cost. To improve engagement in these activities, the MDGS program could provide subsidies or explore connections between local food and state-sponsored health initiatives to increase support for individual schools.

# HABITAT RESTORATION



**Around 85% of Green Schools restored native habitat in 2023-24, yet the reported range for specific habitat restoration activities was 31% (creating native habitat) to 58% (planting native trees).**



Self-reported participation (% of schools who answered yes) in a series of practices to conduct habitat restoration across Maryland Green Schools (n=177) in 2023-24.

In total, Green Schools installed 538 bird houses, planted 1,453 native trees and 16,813 native shrubs, removed over 90,000 sq ft of invasive species, and created over 160,000 sq ft of native habitat – the equivalent of nearly three Baltimore Ravens football fields.

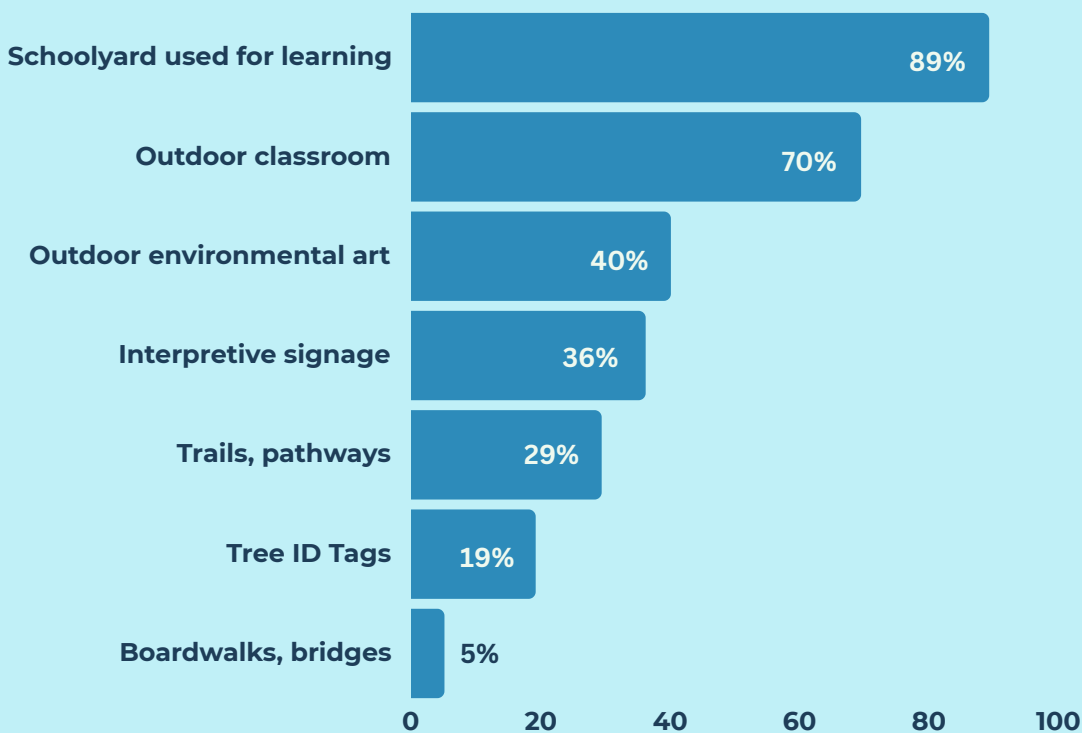
Habitat restoration metrics, as seen with other green practices, show wide ranges in self-reported values. Most values are still feasible; for example, 86,000 sq ft of created habitat was reported by a school that manages a naturalized forest onsite. However, 15,000 of the reported 16,813 native shrubs planted were reported by a single school, so this metric and others are not representative of how most schools are contributing.

Creating native habitat continues to be the least reported habitat restoration activity but was still accomplished by more than one third of Green Schools. Because planting native trees and shrubs are forms of creating habitat, it would be valuable to evaluate the utility of native habitat as a stand-alone category.

# ENVIRONMENTAL LEARNING



One of the most common green practices in Green Schools is to utilize schoolyards for outdoor learning. Less common are practices to introduce passive educational offerings such as interpretive signage and tree identification tags.



Self-reported participation (% of schools who answered yes) in a series of practices to promote environmental learning structures across Maryland Green Schools (n=177) in 2023-24.

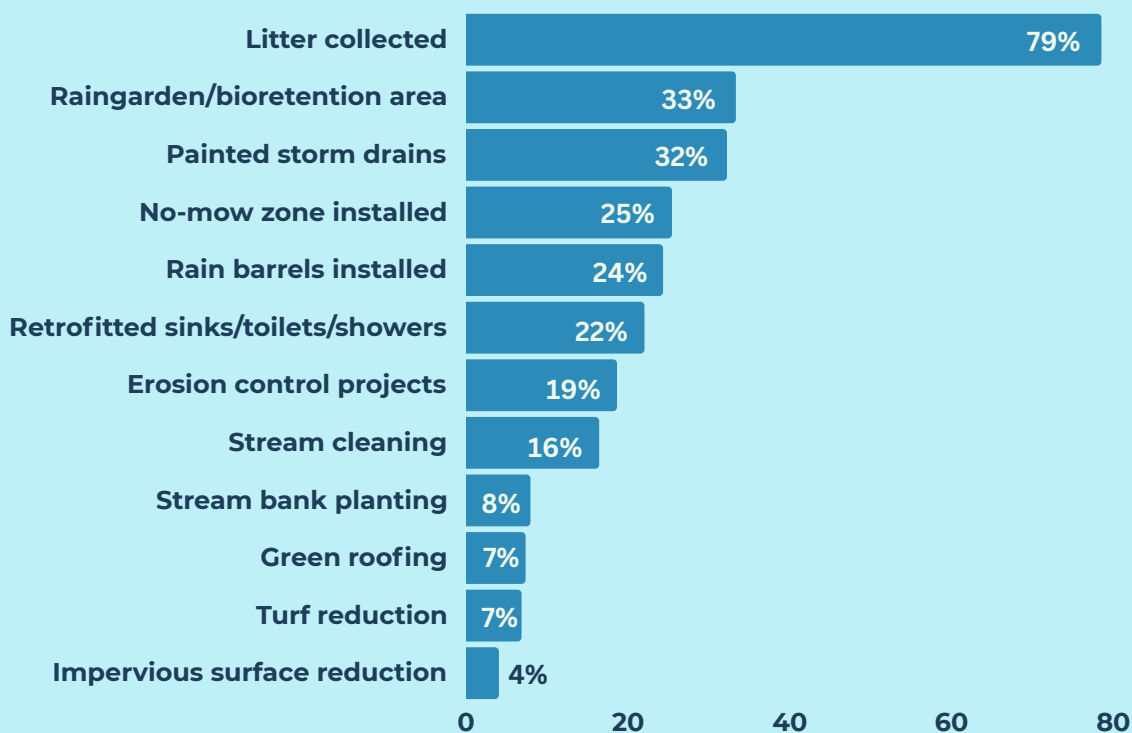
Schools continue to find outdoor learning a feasible and impactful activity for teachers and students, and school participation has thus remained remarkably consistent over the years. Consistency in self-reported school participation for less common activities, such as building trails, boardwalks and bridges, is also noted. The consistency among values across years suggests that activities with fewer constraints will continue to be conducted, while those with more constraints are not seeing those constraints fully addressed.

There is a profound connection between human health and health of the environment. Participation in healthy, nature-based activities has the potential to relieve nature-deficit disorder and reduce anxiety in children while also promoting environmental conservation through sustainable practices. The fact that so many Green Schools are engaged in outdoor and nature-based activities showcases the important role MDGS plays to promote human health and wellbeing, specifically in our youth.

# WATER CONSERVATION



Collecting trash bags of litter to prevent pollution of waterways is the water conservation activity with highest participation from Green Schools. Other practices are less common.



Self-reported participation (% of schools who answered yes) in a series of practices to conserve water across Maryland Green Schools (n=177) in 2023-24.

Aside from removing litter from waterways, water conservation practices were not commonly employed by Green Schools in 2023-24 (and also not in previous years). Many of these practices, such as retrofitting water infrastructure (e.g., sinks, toilets, showers) and green roofing, require significant and costly installations. In the absence of funding or support provided so that schools can make these changes, they are unlikely to occur at the individual school level.

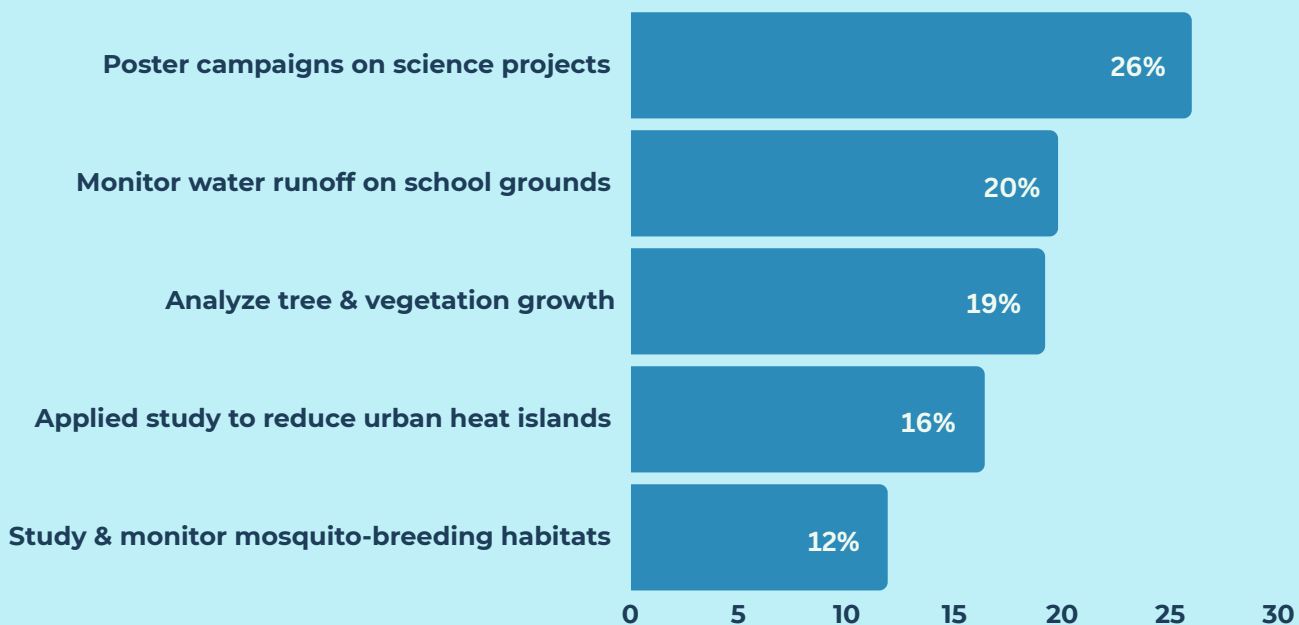
For those schools who did participate in water conservation practices, self-reported metrics associated with each activity are plagued by unreliable data. For example, of 65,519 sq ft of stream bank planting (e.g. riparian buffer) reported across all schools, 61,829 sq ft was reported by a single school. Either schools have not been adequately trained on reporting of the various metrics, or they are not given time to measure these metrics during the school day.



# COMMUNITY SCIENCE



**Green Schools are much less likely to participate in community science initiatives than in other green practices. This is a newer reporting category in the metrics survey which could potentially affect response validity due to unfamiliarity with the activities.**



Self-reported participation (% of schools who answered yes) in a series of practices to engage in community science across Maryland Green Schools (n=177) in 2023-24.

Community science practices, as was seen with water conservation practices, had comparatively low engagement from Green Schools than other green practices analyzed for this evaluation. Two potential factors may explain low levels of school participation in community science projects. First, this practice is newer to Green School reporting, and therefore newer to teachers and schools. Additional training may be required to set up schools for success and empower them to undertake community science projects with their students. Second, community science often requires collaboration with the NGO or academic institution that hosts the project. The MDGS program likely needs to facilitate and grow connections between schools and project hosts to ensure long-term participation.

Community science is an important activity not only to achieve sustainability, but also to improve scientific literacy and facilitate career networking opportunities for students, and should thus be further prioritized by the program in future years.

# CONCLUSIONS & RECOMMENDATIONS

Maryland Green Schools Program

2023-2024



# PROGRESS TOWARD GOAL



## **35.5% of Maryland schools are Green Schools.**

MDGS improved the statewide Green School award rate by 1.5% since last year. Exploring the how award rates differ by school attributes helps to identify areas of success for the MDGS program and areas still in need of improvement.

Suburban schools have a proportionally high Green School award rate (48%), rapidly approaching the statewide target of 50%. Rural schools also have a high award rate (47%), though their lapse rate is higher than other locale types.

Larger and more affluent schools maintain higher award rates than smaller schools, Title 1 schools, and schools with a higher proportion of FARM-eligible students. This suggests that the resources available to schools is impacting Green School status. Interestingly, high schools and elementary schools are also faring better in the MDGS program than middle schools, with award rates of 49% and 44%, respectively.



## **Award rates are on the rise in several counties.**

Two counties (Calvert and Queen Anne's) maintain 100% award rates, while another five counties (Kent, Talbot, Worcester, Frederick, and Charles) improved their Green School award rates by at least 5% since last year. Of the 24 counties in Maryland (including Baltimore City), eight have a current Green School award rate of 50% or better.



## **MDGS support results in successful Green School applications.**

Schools are most likely to complete successful Green School applications and maintain their status if they have an opportunity to partake in professional development offerings or receive mini-grants from MDGS. This is true for currently awarded schools, new recruits to the MDGS program, and even lapsed schools wanting to rejoin. Mini-grants in particular resulted in 44% of recipient schools earning a Green School award this year.

# CHALLENGES TO PROGRESS



## **Factors inhibiting growth of the Green Schools program**

Though MDGS is successful in many regions of Maryland and across many types of schools, it is helpful to elucidate the areas providing challenges to recruitment and sustainment in the program.

A continuing challenge for the MDGS program is engagement from private schools. Just 11% of private schools are Green Schools, as opposed to 43% of public schools. Though there are likely many contributing factors for this outcome, one possibility is that private schools tend to be more decentralized, which may inhibit efficient communication and outreach that is more typical in public schools.

Additionally, MDGS has had less participation from urban schools, Title I and high FARM-eligibility schools, and small schools. These are clearly resource-related challenges and will require different forms of support, such as programs to support basic needs, such as physical and psychological safety of students, prior to encouraging schools to submit an application.



## **Regional challenges**

MDGS reaches certain counties and geographic regions in Maryland more than others. Western Maryland and the Lower Eastern Shore continue to have low participation in the Green Schools program. Somerset and Dorchester counties do not have any awarded Green Schools.



## **Data quality and relevance**

Recommended updates to the Green Schools application include revisions to improve the validity of responses (with particular regard to the environmental metrics survey) as well as curation of outcome-oriented questions that can be used to guide strategic MDGS outreach. This includes a barriers survey to better understand what factors cause schools to lapse, as well as the motivations that most influence schools to stay involved. Additional qualitative data collected from schools receiving PD and mini-grants could be used to better understand the impact of these programs.

# AREAS OF OPPORTUNITY



## **Provide evidence-based, targeted support to in-need schools**

Currently MDGS is not on track to meet the 50% Green School award rate goal unless significant advances are made in the next two years. This goal is achievable so long as funding is dedicated to developing a data-driven and tailored approach to strategic recruitment and support/outreach, based on the results of this evaluation. Several factors are identified that influence schools' ability to apply and retain Green School awards, such as socioeconomic status and locale type. Exploring cross-sectional impacts of these factors, as well as conducting school and community needs assessments, can produce a list of target schools in need of extra support to become Green Schools and identify how best to support them. Further, additional resources to conduct a qualitative analysis of the rich feedback and data provided by schools about their professional development experiences, challenges with reporting, and experience with the application process would further refine such an approach and increase odds of successful recruitment.



## **Improve quality of environmental impact data**

Collecting environmental metrics data from Green Schools has the potential to quantify the environmental impact of the program, further motivate both individuals and schools to engage in green practices, and secure additional funding for the MDGS program. These outcomes, however, are dependent on the reliability and accuracy of the data. It is critical that MDGS identify and tackle the necessary improvements to survey design, as well as to offer a training program for teachers and staff that provides instruction on how to collect and report these data.

Further, availability of certain data (such as renewable energy usage) required to complete the environmental metrics survey is currently a challenge for schools. A priority for MDGS is to work with utility companies or school districts to readily provide these data to schools in a clear and concise format.



# ANNUAL EVALUATION



Maryland Green Schools Program

2023-2024



 **Prepared by:**  
Human Nature Group

 **Contact:**  
[rachel@humannaturegroup.org](mailto:rachel@humannaturegroup.org)