Maryland Green Schools: Progress toward Statewide Goals

School Year 2022-23 (FY2023)

Final Report Date: 07/26/2023

PREPARED BY

Jessica Sickler & Michelle Lentzner

J. Sickler Consulting

jessica@jsickler.net

PREPARED FOR

Maryland Association for Environmental & Outdoor Education

J. Sickler CONSULTING

Table of Contents

All photography in this report courtesy of MAEOE or Unsplash

BACKGROUND

Study Purpose & Methods

Context for Evaluation: Maryland Green Schools

About Maryland Green Schools

The Maryland Green Schools (MDGS) program is a sustainable schools award program and is the signature program of the Maryland Association for Environmental and Outdoor Education (MAEOE). The program began in 1999 and has expanded throughout 22 of Maryland's 24 school districts. The MDGS program provides infrastructure, support, and a rigorous review process to any school in Maryland, offering the opportunity to be awarded status as a sustainable school, and carrying the recognition and title of a Maryland Green School.

The MDGS program has been essential to Maryland's ability to connect with goals of the Chesapeake Bay Watershed Agreement, as well as helping schools achieve the state educational standards and requirements for environmental literacy (COMAR 13A.04.17 – Environmental Literacy Instructional Programs for Grades Prekindergarten – 12).

The MDGS Goal

The "Maryland Green Schools Act of 2019" was passed by the state legislature, providing funding to expand efforts to support schools toward sustainability. This included **a goal of supporting 50% of all schools in Maryland to be awarded the status of Maryland Green Schools by 2026.**

Through the support of this funding, MAEOE intends that their work will lead to: (i) increased support for the development of Green Schools, (ii) provided professional development to more teachers, and (iii) increased students' environmental literacy.

The evaluation continues to examine evidence of impact in the first two goals. First, it examines the extent of expansion of MDGS awards statewide, including any changes over time. This includes a focused look on whether there was progress in efforts to geographically expand its reach within eastern and western counties. Second, it explores evidence of the reach and impact of providing professional development and mini-grants, particularly whether these offerings have supported successful MDGS applications.

Year 3 Evaluation: Maryland Green Schools Program

Evaluation Questions

Evaluation has continued to examine progress toward expansion of awarded Green Schools, adding an examination of reach of professional development (PD) and mini-grant programs.

1. **What is current progress toward the goal?**

- Rate of new awards given? Rate of schools maintaining Green School status?
- To what extent do schools let awards lapse?
- How are schools distributed over the award levels / lifecycle of the program?

2. **Among public schools, how is MDGS doing at improving toward strategic targets?**

- Increases in far western and eastern counties?
- What are patterns of awarding by other key school characteristics – location, size, Title 1?

3. **How often do schools that participate in PD or receive mini-grants achieve awards?**

4. **What is the collective impact of MDGS?**

- Student reach
- Environmental metrics self-reported in 2023

Evaluation Data Sources

With a goal of achieving statewide impact, it is critical to examine how Green Schools compare to the full population of schools in Maryland. This requires merging multiple datasets to examine **which types of schools are not currently served by the MDGS program**, which more precisely informs efforts to improve outreach, support, and strategy. This analysis drew on several datasets*:

- MDGS historic dataset of all schools currently or previously awarded, award level, award history, and extension status as of May 2023.

- School-level data on all public schools from the National Center of Educational Statistics (NCES) 2021 dataset (most recent available).

- School-level data on all Maryland private schools, via NCES' Private School Survey (2020; most recent available).

- Environmental metrics reported in applications for 2023 MD Green Schools.

- MAEOE records of PD participation (2020-23 and mini-grants awarded in 2022-23 (data available as of May 2023).

*Data and results as of May 2023 data sources. Program updates after that time will be included in FY2024 reporting.

Data Analysis Process

The first step is an audit of the data provided by MAEOE on MDGS awardees, levels, and whether they are in good standing. This external verification analyzes MDGS raw data (e.g., last award year; number of past awards; etc.) using the program's current policies for awardees to remain in good standing (see next page). Discrepancies between external analysis and status levels in MDGS raw data are brought to the attention of MAEOE to ensure accuracy in their records. **Data in this report are solely based on evaluators' external application of MDGS award policies to the underlying data provided by MDGS in May**.

Comparing MDGS data with national data of school statistics requires an extensive data cleaning and merging process for up-to-date analysis of program reach. Because all entities collect data and metrics in slightly different ways, data are systematically cleaned, reviewed, and double-checked to enable accurate data merging. From this combined data set, the analysis examines the full set of currently awarded MDGS schools (whether awarded in 2023 or a prior year) against the population of all schools in Maryland.

Year 3 Evaluation: Analysis Details

Analysis: Award Status Rules

In the external audit of MDGS' data about current and past awardees' levels, status, and timelines (described on the prior page), we applied the following rules, communicated by MDGS for 2023:

- Schools with successful applications in 2023, 2022, 2021, or 2020 are all in good standing.

- Schools with a successful application in 2019 who did not reapply this year are automatically granted an extension; they remain in good standing, but in a grace period.

- Schools with a last successful application in 2018 or earlier who are *also* flagged in MDGS records as having requested an extension remain in good standing, in a grace period.

- Schools with a last successful application in 2018 or earlier who have not requested an extension are considered lapsed.

- All schools who have achieved Sustainable Status remain in good standing for 2023.

Analysis: Parameters on Schools

To compute the metric of the percentage of all Maryland schools that have become Maryland Green Schools, it was critical to identify the parameters of what defines a school that is appropriate and part of the core target audience for the MDGS program. With the increase of virtual schools and the lack of regulation and variability in the private school population, we found setting clear parameters for the comparative analysis was essential to achieving an actionable metric of percent of schools reached by MDGS.

To this end, when conducting analyses that compare the population of MDGS to all Maryland schools, the following filters were applied to both datasets to eliminate entries that:

1) are solely pre-K (or daycare) facilities;

2) have fewer than 15 enrolled students; or

3) are alternative or virtual programs without a physical building/grounds.

Interpreting Results

As we interpret the results presented in this report, it is important to contextualize the data and expectations of progress within the realities of this long-timeline program.

Because MDGS awards are on a 4-year cycle, change in metrics will be incremental. In any one year, only schools in that application year (roughly 25%) have the potential to shift status (moving up a level or becoming lapsed); the other 75% will inevitably remain stable from the prior year's data.

The only two factors that can affect change in a metric within an individual year is brand new schools being awarded (increase) or the number of previously-awarded schools that do not successfully reapply (decrease). The retention of schools in good standing as awardees simply maintains the prior years' rates.

Year 3 Evaluation: Lagging Effect of COVID-19

2020-2022: COVID-Era Grace Periods

Because the COVID-19 pandemic hit schools extremely hard, the MDGS program made accommodations to support and provide flexibility to schools in both the 2020-21 and the 2021-22 school years (the prior two evaluation periods for this initiative). This policy allowed MAEOE to support schools in sustainability progress, without penalizing them for the wide-ranging challenges of the pandemic.

The most significant modification made during the COVID era was that the MDGS program instituted a flexible award extension policy for 2021 *and* 2022. During the past two years, all schools were automatically granted an additional "grace period" if they had applications due but did not submit.

This meant that **in the past two years, the program was in the unusual position of having no schools whose Green School award status lapsed**.

2023: Lagging Effect of COVID-19

Because of the prior two years of extended and automatic grace period, MDGS anticipated that 2023 would likely result in some drop in the overall number and rate of Green Schools in good standing with the program. This was inevitable, as in any normal year, there are some schools that do not reapply and fall into the lapsed category.

Moreover, because of the past two years of extended grace periods, **we anticipated that the number of schools that fell into the lapsed category would be even higher than it would be in a typical year.** This is partly because of the "backlog" (i.e., schools who would have lapsed anyway in prior years, but were granted automatic extensions). But it is also because the ripple effects of COVID-19 on school systems – substantial turnover in teachers and school personnel, disruptions to curricula and field trips, changes in students' social-emotional needs, etc. – would only now begin to be felt in schools' abilities to invest in the process of becoming Maryland Green Schools.

RESULTS

Progress Towards 50% Goal

Number of Certified Maryland Green Schools

In 2023, there are 641 Green Schools. This is a decrease of 38 schools since last year, which is less of a drop than was feared, given the end of COVID-era grace periods.

These 641 awarded schools include all of those that are in good standing with MDGS's current guidelines. This includes schools who are up-to-date and awarded within the standard 4-year reapplication cycle, as well as 81 schools that are in an extension period.

As anticipated, 2023 saw a decrease in the number of awarded Green Schools. This was largely caused by the end of COVID-era automatic grace periods, with 66 schools dropping out of the extension period and into lapsed status this year.

However, **the MDGS program added 33 new awards this year**, which mitigated half of those losses. Of these 28 were brand new awardees, and five were schools that had Lapsed, but were able to restart their Green School journey in 2022-23. The net loss of Green Schools was ultimately only 33, or about 11 schools per year, averaged over the past three years of extended grace periods.

There are 641 Maryland Green Schools

This includes awarded, renewed, sustainable, and those in their extension period.
Another 231 schools were previously awarded Maryland Green Schools, but have allowed their status to lapse.

Awarded	Extension	Lapsed
560	81	231

Status within the MGDS Certification Lifecycle

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

In 2023, there were again fewer current Green Schools that completed the stages of Initial Award and First Re-award. The number of current Green Schools that completed a Second Re-award stayed stable. The number of Sustainable schools increased by 30 schools this year. It is worth noting that, as of this year, Sustainable schools could not fall into lapsed status, so it is not surprising that their numbers did not decrease.

Overall, the data suggest that **the program continued to do best at supporting currently awarded schools to continue their journey as a MD Green School.** There was virtually no loss of schools at either the Re-award 2 level and no loss at the Sustainable level.

The MDGS program is currently reconsidering its policy around when or if to require schools at the Sustainable level to re-apply to maintain the highest level of award status.

Where Schools are in the Green School Award Lifecycle

The distribution of all current Green Schools (n=641), and what phase of the process most recently achieved, from initial award through reaching sustainable status

Initial Award 20% (128 schools)	Reawarded 1 32% (207 schools)	Reawarded 2 21% (133 schools)	Sustainable 27% (173 schools)
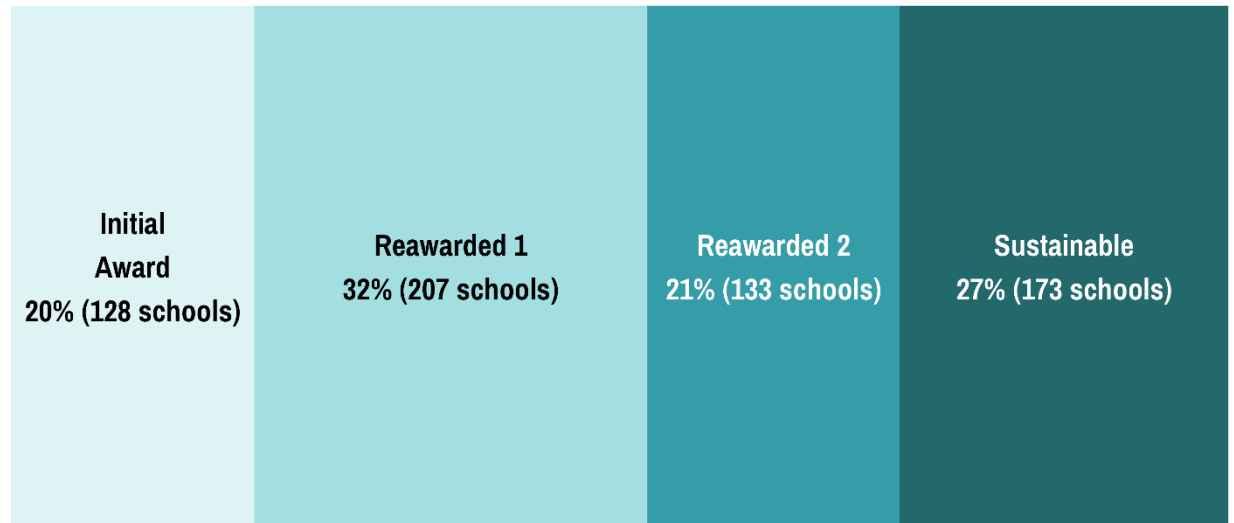
Progress Statewide: Public & Private Combined

As of 2023, around 34% of all schools in the state – public and private – are awarded as Maryland Green Schools. This was a slight decrease of two percentage points from 2022.

The goal of the MDGS program is to reach 50% of all schools awarded as Green Schools by 2026. The 34% achieved in 2023 was a decrease from 2022, but it was still higher than the coverage rate that was seen in 2021 (33%), indicating minimal loss of ground in this first post-COVID year.

34% Green Schools is computed against all schools in Maryland reported in the most recent publicly available datasets of schools (NCES, 2021 public and 2020 private school data). In cases where a school is registered as a Green School but not in the public dataset (this is only an issue with private school data), an entry was added for that school, to ensure each Green School is also counted among all Maryland Schools.

See the Background section of this report for more information about filtering to arrive at a metric that reflects those school entities that are legitimate candidates for MDGS awards.

Over one-third of all schools in Maryland are Green Schools

This includes awarded, sustainable, and those in their extension period.
This total includes both public and private schools.

34% Green School	66% Not a Green School
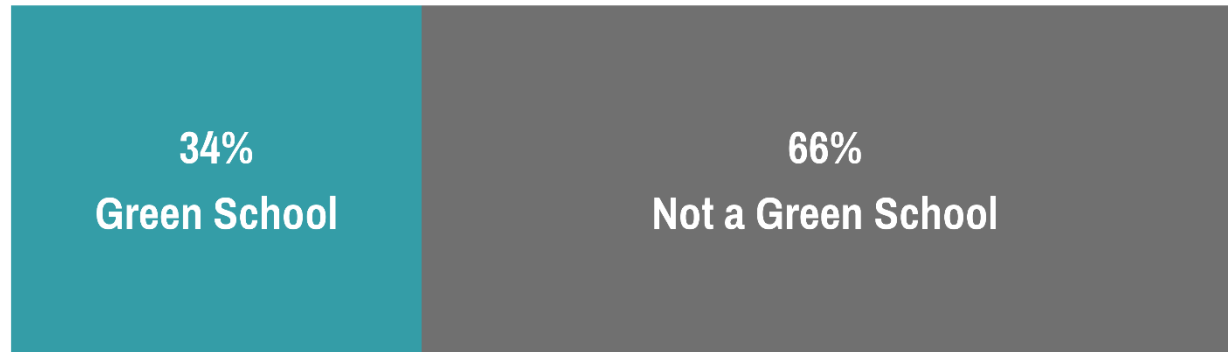
Progress Statewide: Public versus Private

Maryland Green Schools have stronger reach in public schools.

Comparing the proportion of current Green Schools within each type of school (public and private)

All Public Schools (n=1368)	Awarded Green School 43%	Lapsed 14%	Never Awarded 43%

All Private Schools (n=491)	Awarded 9%	7%	Never Awarded 84%
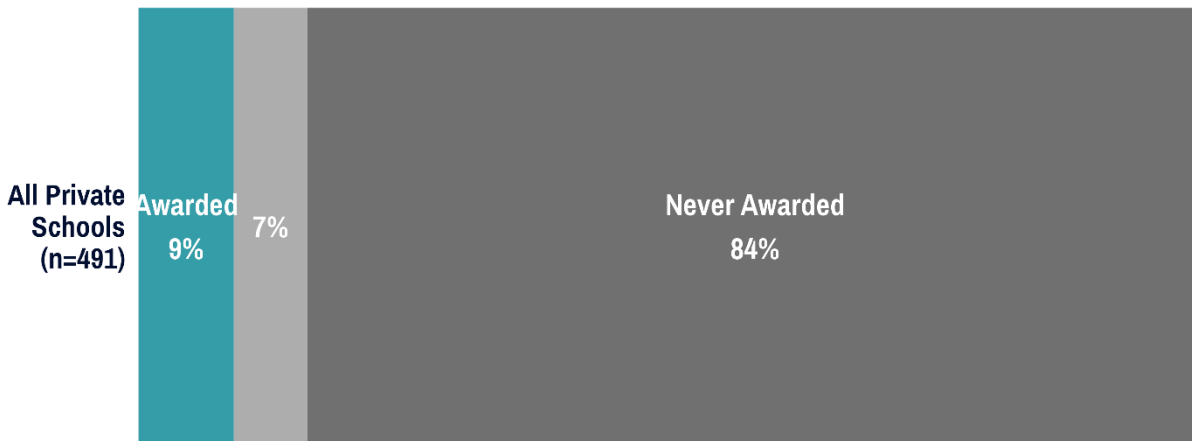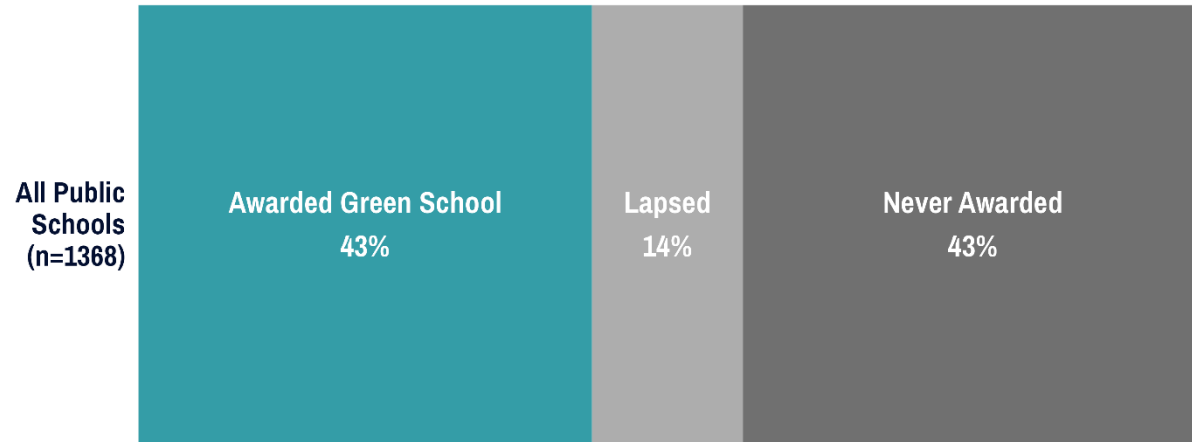
The MDGS program has had dramatically greater success among public schools than among private schools, with 43% of all public schools already awarded as Green Schools.

As has been previously found, MDGS has been much more successful at gaining traction within public schools. Of nearly 1,400 public schools in Maryland, 43% are already Green Schools, which is nearly at the overall target of 50%. **Moreover, this coverage rate only decreased by one percentage point from 2022.**

While there are far fewer private schools in the state, the rate of penetration into this group remains much lower (only 9% are awarded), this is a decrease of two percentage points from 2022. This substantial disparity raises questions about whether public and private schools have different needs, interests, or priorities when it comes to considering MDGS applications.

Because the primary emphasis of the COMAR is for public schools and accountability of the LEAs to the state, the next section of this report focuses on exploring the data from public schools in detail.

RESULTS

Progress in Public Schools

Public: MDGS Distribution Across Grade Levels

Of the nearly 600 public schools that are currently Green Schools, the distribution between elementary, middle, and high school levels is almost identical to the distribution of schools statewide.

Most of Maryland Green Schools are at the elementary level (nearly 60%), but this is proportional to the fact that nearly 60% of all schools in the state are also at the elementary grade level. There is also robust representation of middle and high schools in the population of Green Schools.

These breakdowns have been consistent and steady through 2021, 2022, and 2023, indicating that the MDGS program does not skew toward any one grade level, but is evenly reaching schools that serve students of all ages across the state. at serving different grade levels.

On the next page, we explore the award rates (awarded, lapsed, and never awarded) within each grade band in more detail to further illustrate this conclusion.

Distribution of Public Green Schools by Grade Level

The proportion of all public schools that are awarded that are from each grade band.
Note: 'Middle School' includes schools that are ES/MS and MS/HS for this graphic.

All Schools (n=1368): Elementary 58% | Middle 24% | High School 16%

Green Schools (n=583): 59% | 23% | 16%
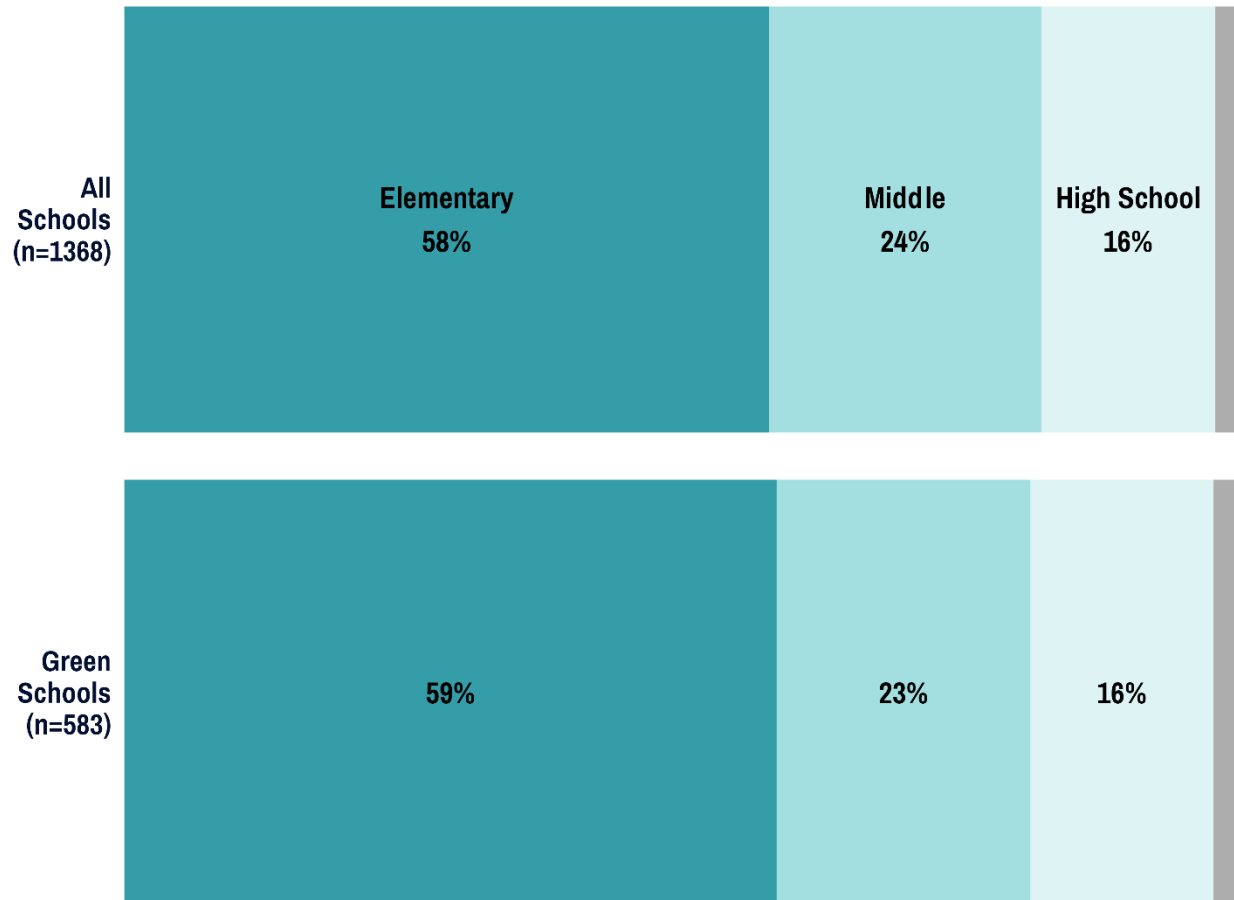
Gray is schools serving All Grades (ES, MS, and HS) or Ungraded (e.g., special ed, technical, etc.), as coded

Public: MDGS Reach within Grade Levels

MD Green Schools have reached 40% or more of schools in each grade band.

Comparing the proportion of schools that are Green Schools, by each grade level of public schools

	Awarded Green Schools	Lapsed Green Schools	Never Awarded
Elementary (n=793)	43%	15%	42%
Middle (n=335)	40%	16%	45%
High School (n=214)	45%	12%	43%
Ungraded/ All Grades (n=26)	46%	4%	50%
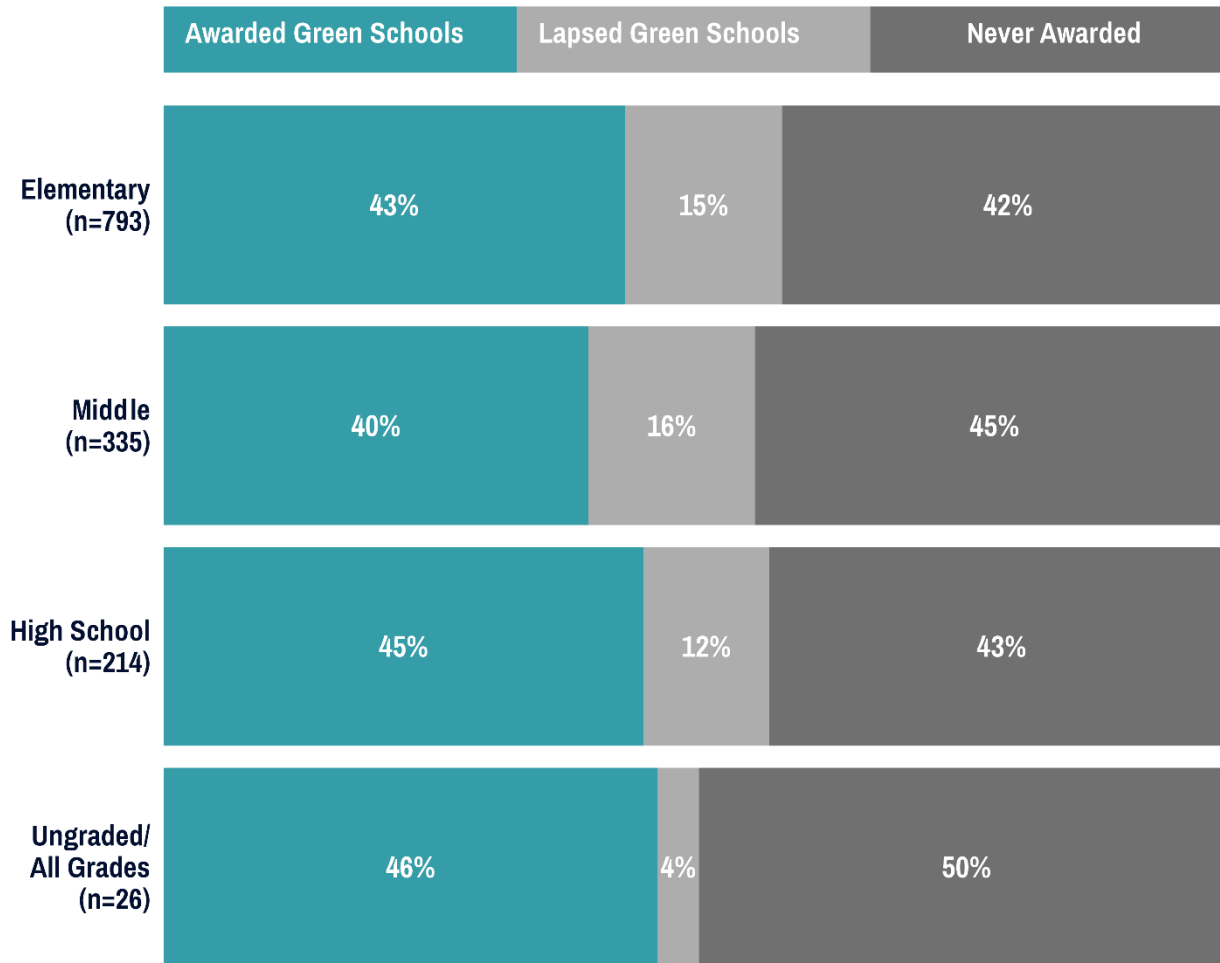
Note: 'Middle School' contains overlapping grade bands of MS/HS and ES/MS

Looking at the rate of reach of MDGS within each grade level, relative to the population of schools in Maryland, it confirms that the program is relatively balanced in its reach by grade level.

Within each individual grade band, we see that between 40% and 46% of schools are Maryland Green Schools. The rate is slightly higher for elementary and high schools, but only slightly.

Proportionally, the greatest decreases in reach of the MDGS program since 2022 was in high schools, where Green Schools previously covered about 49% of public schools.

As we have filtered out data from school entries in the state databases that represent alternative school programs that lack a physical building (and are often labeled as "ungraded") and are not suited to an MDGS application, we see that MDGS has also achieved proportional penetration into the relatively few non-traditional, "ungraded" or K-12 public schools that *are* appropriate to be candidates for the program. While it's a small segment toward the statewide goal, **it indicates that MDGS is working to reach equitably across types of school programs and students**.

MDGS Progress by County: Public Schools

County	Awarded	Lapsed	Never Awarded
Calvert County (n=23)	**100%**	0%	0%
Queen Anne's County (n=14)	**100%**	0%	0%
Prince George's County (n=197)	**74%**	1%	26%
Talbot County (n=8)	**62%**	12%	25%
Howard County (n=76)	**55%**	26%	18%
Garrett County (n=12)	**50%**	33%	17%
Montgomery County (n=205)	**47%**	8%	44%
Cecil County (n=28)	**46%**	14%	39%
Wicomico County (n=26)	**46%**	4%	50%
Anne Arundel County (n=119)	**42%**	21%	37%
Kent County (n=5)	**40%**	0%	60%
Carroll County (n=41)	**39%**	37%	24%
St. Mary's County (n=26)	**38%**	50%	12%
Charles County (n=37)	**38%**	16%	46%
Allegany County (n=22)	**36%**	0%	64%
Baltimore County (n=168)	**36%**	15%	49%
Harford County (n=54)	**35%**	33%	31%
Worcester County (n=13)	**31%**	31%	38%
Baltimore City (n=157)	**20%**	13%	68%
Washington County (n=43)	**14%**	14%	72%
Caroline County (n=9)	**11%**	11%	78%
Frederick County (n=67)	**7%**	15%	78%
Dorchester County (n=11)	**0%**	9%	91%
Somerset County (n=7)	**0%**	14%	86%

Rates of Green School achievement continue to vary widely by county. Calvert and Queen Anne's Counties have maintained success with 100% of public schools awarded.

In 2023, there were six counties in which MDGS has already achieved the benchmark of 50% Green Schools among the public schools in the county. **This decreased from 2022, when 9 counties had met this benchmark**. Wicomico, Cecil, and St. Mary's Counties all fell below the threshold this year.

There continue to be seven counties where fewer than one-third of schools are Green Schools. **This stayed stable from 2022**. This includes two counties, where the program has continually lacked any Green Schools (Dorchester and Somerset Counties).

Eleven school districts are in the middle of this range, with between 35% and 47% of public schools awarded by the MDGS program.

Page 17 shows changes in award rates by county, and page 18 shows a heat map to explore award percentages geographically.

MDGS Progress by County: Changes in 2023

County	Change since 2021	2023 Awarded	2022 Awarded	2021 Awarded
Calvert County (n=23)	--	100%	100%	100%
Queen Anne's County (n=14)	--	100%	100%	100%
Prince George's County (n=200)	↑ 10%	74%	68%	64%
Talbot County (n=8)	↓ 13%	62%	75%	75%
Howard County (n=76)	↓ 5%	55%	62%	60%
Garrett County (n=12)	↓ 8%	50%	58%	58%
Montgomery County (n=205)	↑ 4%	47%	44%	43%
Cecil County (n=28)	↓ 2%	46%	50%	48%
Wicomico County (n=26)	↓ 4%	46%	50%	50%
Anne Arundel County (n=119)	↓ 4%	42%	46%	46%
Kent County (n=5)	↑ 20%	40%	20%	20%
Carroll County (n=39)	--	39%	44%	39%
St. Mary's County (n=26)	↓ 12%	38%	54%	50%
Charles County (n=38)	↓ 1%	38%	42%	39%
Baltimore County (n=168)	↓ 1%	36%	39%	37%
Allegany County (n=22)	--	36%	36%	36%
Harford County (n=54)	↓ 4%	35%	41%	39%
Worcester County (n=13)	↑ 2%	31%	46%	29%
Baltimore City (n=162)	--	20%	22%	20%
Caroline County (n=9)	↓ 9%	11%	22%	20%
Washington County (n=42)	↓ 4%	14%	19%	18%
Frederick County (n=66)	↓ 2%	7%	11%	9%
Dorchester County (n=11)	--	0%	0%	0%
Somerset County (n=7)	--	0%	0%	0%

4 of the 24 Maryland LEAs increased the number of public schools with active MDGS awards in 2023. Kent and Prince George's County had the greatest proportional gains – with increases of over 10 percentage points since 2021.

Prince George's and Montgomery Counties have both steadily increased their rate of awarded schools each year since tracking began. Moreover, since both are very large counties (200 or more schools), movement of percentage points requires substantial increases in the raw number of schools who are continuing and adding to the program. The progress in Kent and Worcester Counties is also notable, but generally represents an addition of just one or two schools (due to the small county size).

With the end of COVID-era grace periods, however, far more counties saw at least some decline in their percentage of awarded Green Schools since 2021. Most of this downward movement was small. The largest percentage differences were in very small counties, where a change in status of between 1 and 3 schools can result in a change of over 10% in the coverage rate.

MDGS Progress by County: Public Schools

Proportion of public schools, by county, that are MD Green Schools

This heat map depicts which counties have the highest percentage of their public schools awarded (bright green), and which counties have the lowest percentage of public school awarded (bright blue).

The region with the lowest engagement in the MDGS program appears to in the Eastern Shore area, as well as some counties in western Maryland.

Kent County added a new Green School in 2023, raising its coverage to 40% of schools.

Montgomery & Prince George's Counties showed steady growth in award rates each year since 2021.

St. Mary's County saw a notable decline in 2023 – dropping below the 50% mark for the first time.

Worcester County lost ground from 2022 levels, but is still higher than its starting point in 2021.

% Awarded GS

100%

75%

50%

25%

0%
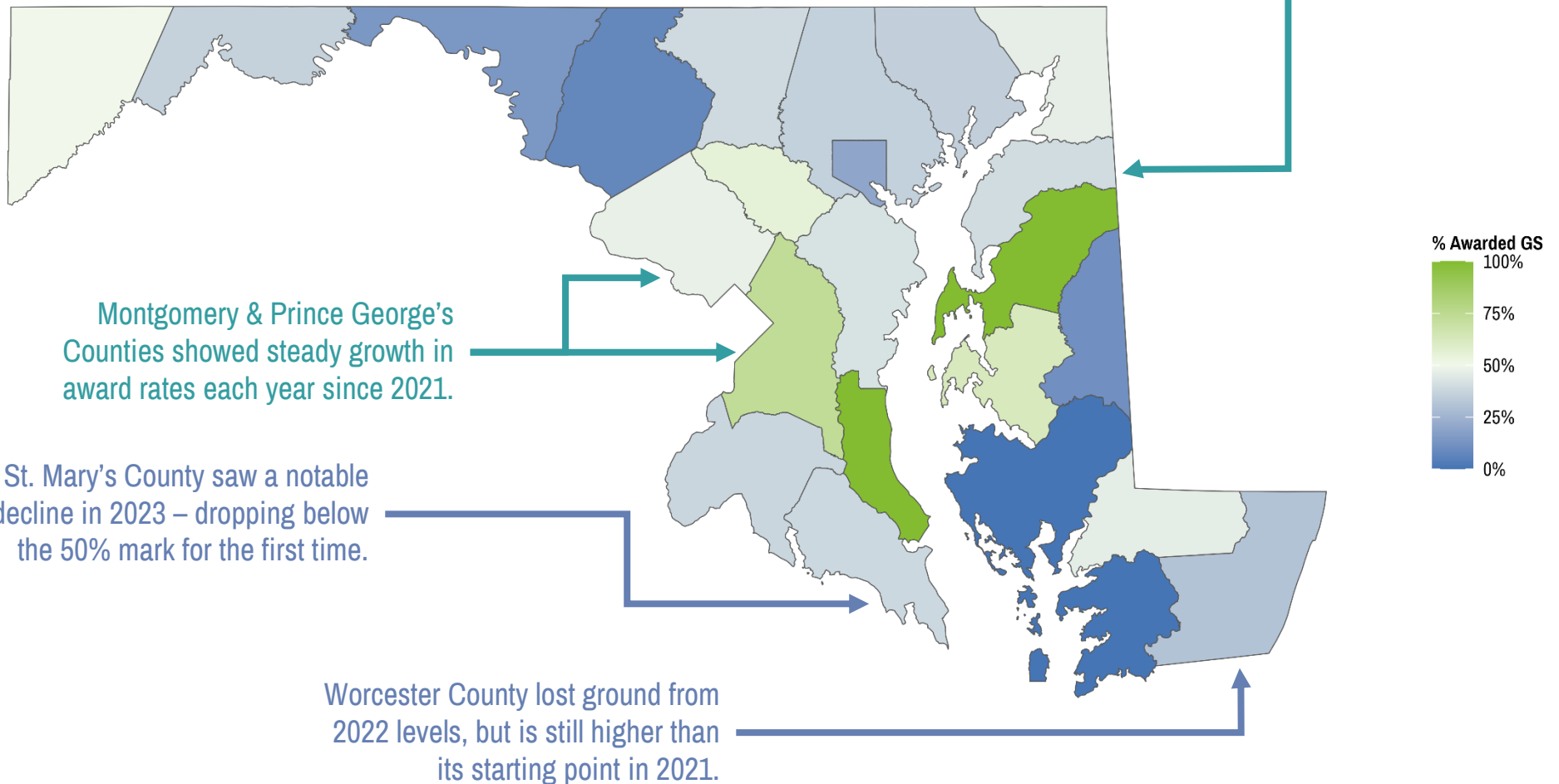
Public: Size of County and Award Rates

In the smaller counties, MDGS Award Rates are somewhat evenly distributed, but with a shift toward lower rates of award achievement. In the five largest counties of Maryland, only one district has exceeded the 50% mark.

Maryland's 24 counties vary widely in size – defined as the number of individual public schools contained within the county. Kent County is the smallest, with just 5 schools, and Montgomery County is the largest, with 205 schools. Given this variation, this scatter plot explores whether there are any relationships in the rates of MDGS awards based on this wide variation of county size.

The smaller counties are where the highest rates of Green Schools are achieved (in Calvert and Queen Anne's Counties). But they are also where the lowest rates occur (Somerset & Dorchester). In 2023, it also appears that more small counties fell below the 50% mark; the loss of just one or two schools in these districts has a big impact.

Prince George's County is the standout among large counties. Success has continued to be lower in Baltimore City, but the county has stayed quite stable over the past three years.

Scatter Plot: Percentage of Green Schools by Size of County

Scatter plot to explore any patterns between the size of a county (in terms of number of public schools) and the percentage of those schools that have achieved Green School status
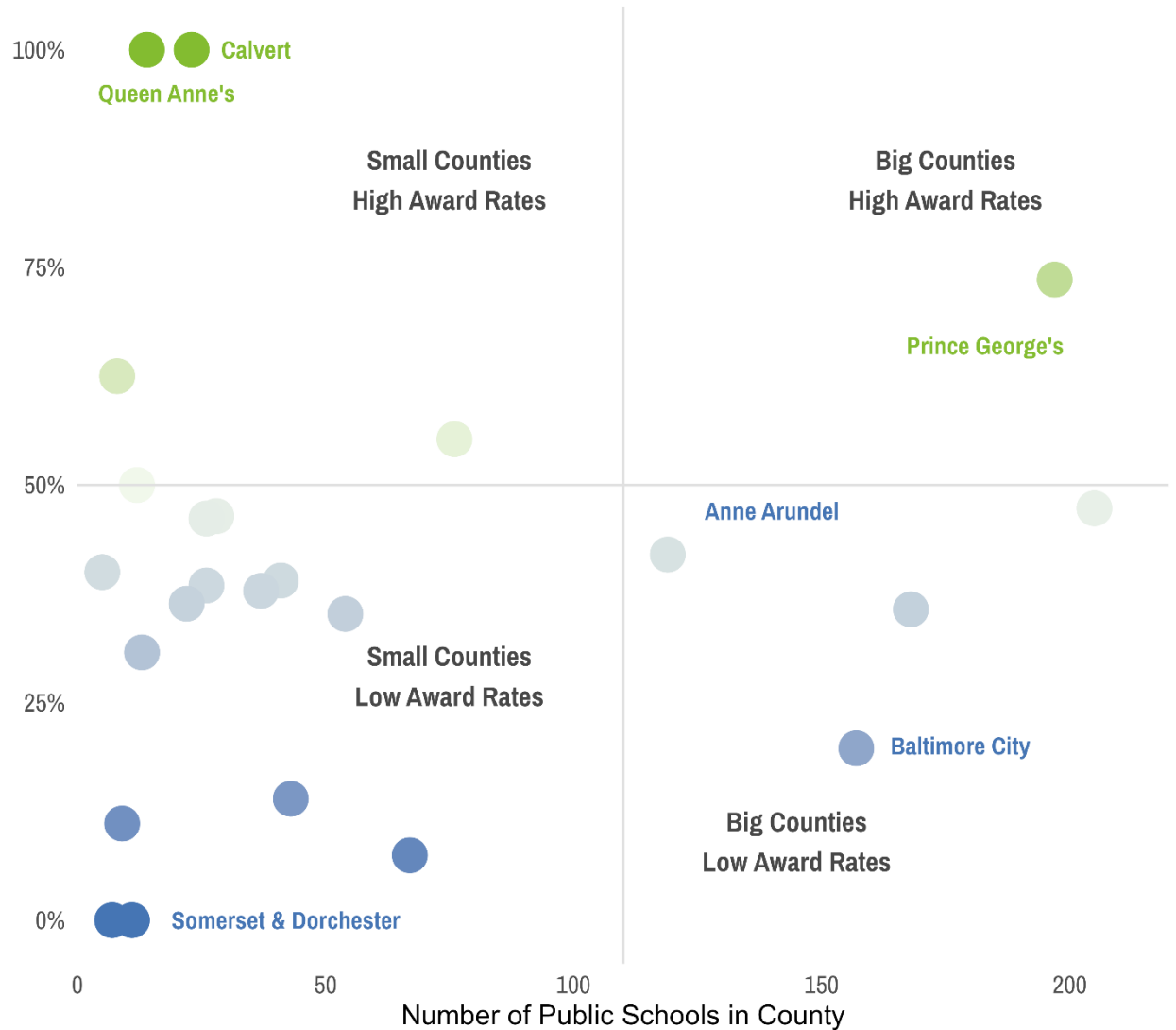
Public: MDGS Reach in Urban/Rural Locations

MD Green Schools have greatest reach in rural and suburban areas.

Comparing the proportion of public schools that are currently awarded, by each locale type.

Awarded Green Schools	Lapsed Green Schools	Never Awarded

Locale	Awarded Green Schools	Lapsed Green Schools	Never Awarded
Suburb (n=800)	48%	13%	40%
Rural (n=221)	45%	19%	36%
Town (n=54)	30%	17%	54%
Urban (n=288)	29%	14%	57%
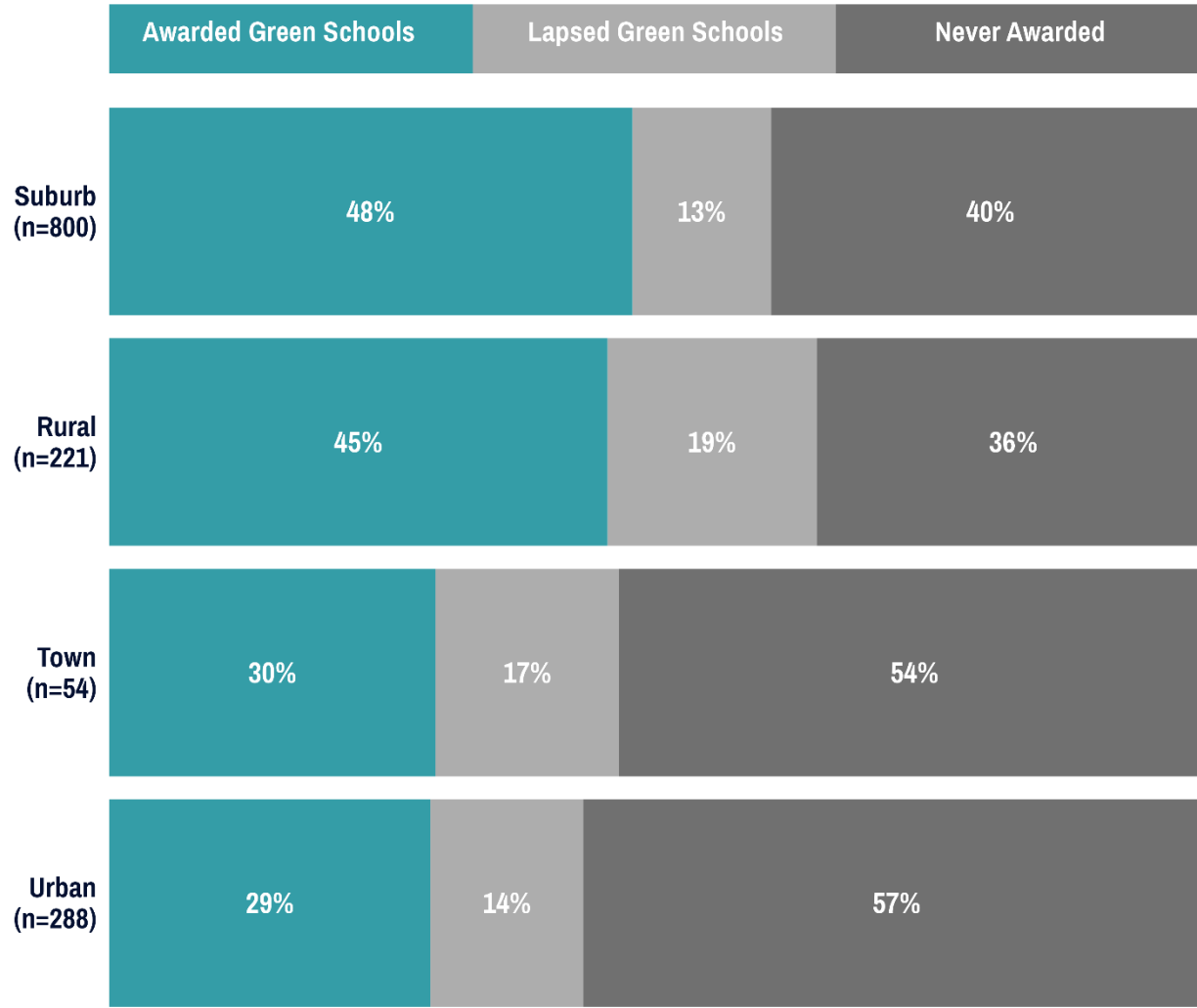
The MDGS program continues to have greatest success recruiting and awarding schools that are in suburban locations – which increased award rates by two percentage points since 2022.

When we compare the extent of the MDGS program's reach to schools based on the Census' classification of the school's location category (as rural, urban, suburban, or a town), it is clear that the program has had greatest success in schools that are in rural and suburban areas. In both of these locale types, 45% or more of schools are Green Schools.

However, while representation in suburban schools remained strong from 2022, the reach into rural districts dropped by 5 percentage points. **Rural and urban schools experienced the greatest impact of schools falling into Lapsed status, suggesting these areas experienced greater impacts during the COVID years.**

This highlights the differences at the individual school level, when compared with aggregate county- or district-level patterns. Schools classified as rural exist across nearly all Maryland counties.

Public: MDGS Reach by School Size

Among public schools, the MDGS program has continually had greater success in larger schools. The average enrollment at a Green School is just under 700 students, while the average enrollment at non-awarded schools is around 600 students.

Looking at the reach of the MDGS program by groupings based on school size, we see a progressive increase in percentage of reach as schools get larger. MDGS has already reached 44% or more of all schools with over 250 students enrolled. Among the largest schools in Maryland (1,000+ students), MDGS status has already been awarded to more than half of those schools.

Interestingly, there were not dramatic changes in these proportions between 2022 and 2023, despite the greater shifts in schools moving into lapsed status. **This suggests that school-size is a robust indicator of how easy or feasible it may be to engage in the Green School application process.** Smaller schools may face specific challenges or barriers to the process, which MDGS may be able to address to improve their involvement in the program.

MD Green Schools have have had greatest reach into larger schools.

Comparing the proportion of public schools that are currently awarded, by the size of the school (as defined by student enrollment numbers).

	Awarded Green Schools	Lapsed Green Schools	Never Awarded
1000+ students (n=189)	53%	11%	37%
501-1000 students (n=557)	42%	17%	41%
251-500 students (n=499)	43%	13%	44%
15-250 students (n=118)	29%	10%	61%

Public: MDGS Reach in Title I Schools

The MDGS program continued to have much greater success recruiting and awarding schools that are not Title I schools, a designation used to identify schools with high rates of students from low-income families.

As was seen in past years, schools that are Title I eligible are less likely to be Maryland Green Schools. However, MDGS has managed to keep a relatively stable reach into Title I schools (increasing from 36% to 37% between 2022 and 2023).

Interestingly, the total number of of Title I schools in Maryland has been increasing every year – between the data reported in 2020 and 2021 (used for this analysis), an additional 65 schools became eligible for this need-based program. This means that that for MDGS to keep up its percentage reach into this category, they need to keep pace with the fact that more schools every year move into this category. It is the most fluid of the demographic metrics that are tracked in this evaluation. These data suggest that MDGS is doing a good job at keeping pace with these changes, although more work could be done to serve these high-need schools.

MD Green Schools have less reach into Title I schools.

Comparing the proportion of schools that are currently awarded, by whether they are designated as Title I.

	Awarded Green Schools	Lapsed Green Schools	Never Awarded
Title I (n=785)	37%	12%	51%
Not Title I (n=583)	50%	17%	33%

Public: MDGS Reach based on FARM Eligibility

The MDGS program also continues to have stronger reach in schools where the majority of students are not eligible for free and reduced meal programs (an indicator of socio-economic status of families). This year, greatest growth occurred within schools where between 50% and 75% of students were eligible.

Much like the data on the prior page (Title I status), this indicator has had a lot of movement in the past year – with fewer schools falling into the highest-need category, while more schools moved into the 50-75% FARM category. This is also where MDGS saw the greatest change in its reach. MDGS increased its reach into schools with 50-75% FARM-eligible students by 4 percentage points, even with the larger number of schools in this category. On the flipside, it had far less reach into the schools where nearly all students are eligible for this program (dropping from 35% to 22% of those schools).

The rates in the schools with fewer FARM-eligible students have remained fairly constant over time.

MD Green Schools have less reach in schools with high FARM eligibility.

Comparing the proportion of schools that are currently awarded, by the percentage of students who are eligible for free and reduced meals (FARM).

Awarded Green Schools	Lapsed Green Schools	Never Awarded

	Awarded	Lapsed	Never Awarded
Schools w/ 75-100% eligible (n=129)	22%	9%	69%
Schools w/ 50-75% eligible (n=426)	38%	11%	52%
Schools w/ 25-50% eligible (n=471)	44%	14%	42%
Schools w/ 0-25% eligible (n=337)	54%	21%	25%
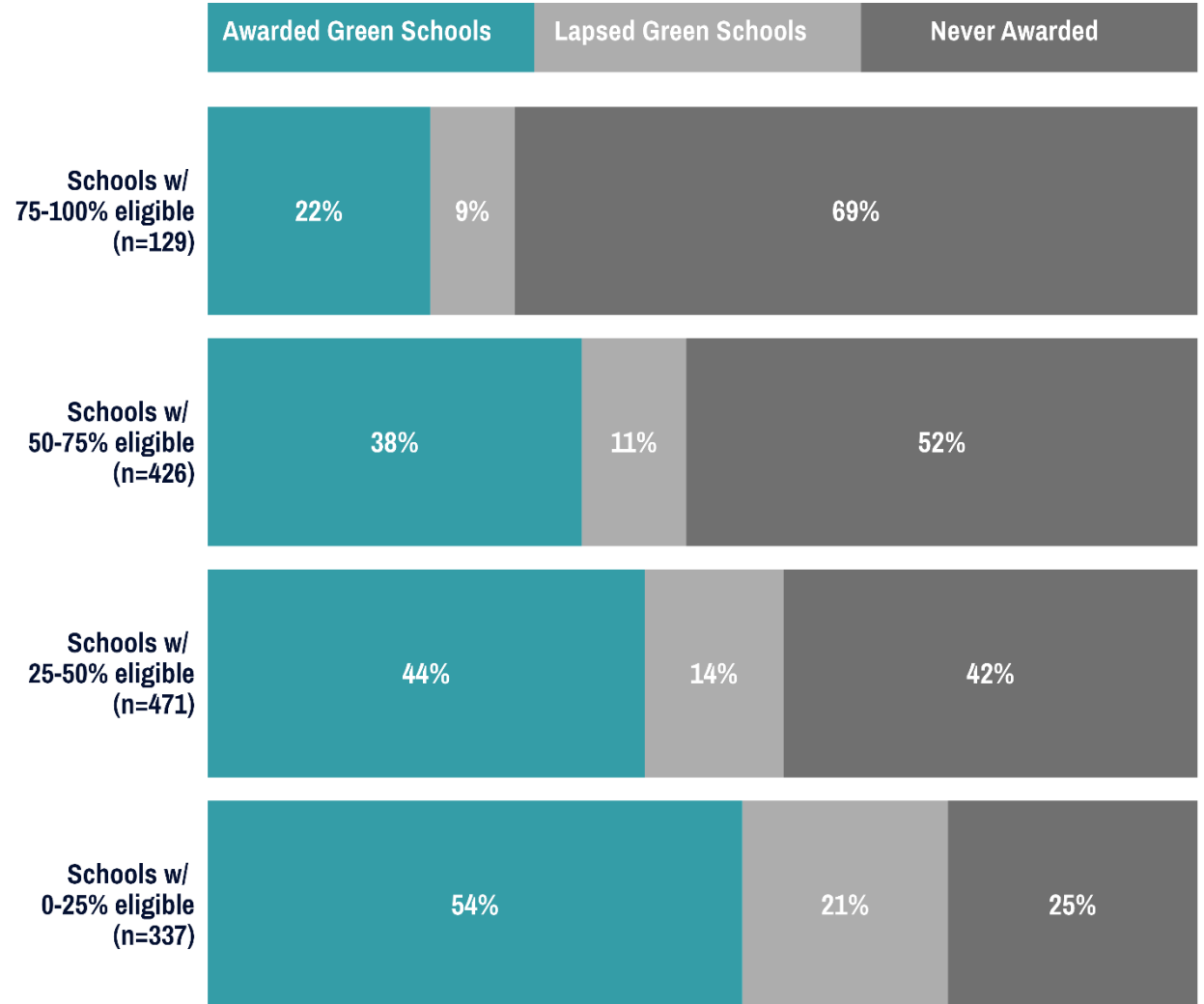
RESULTS

Reach of MAEOE PD & Grant-Making

PD & Mini-Grants Offered and Tracked: 2022-2023

List of Individual Trainings Tracked by MAEOE & Total Attendees

In this table, attendees refers to the individual people listed in MAEOE's professional development tracking data.

Name of Professional Development Offering (2022-23)	Total Individual Attendees
Green Schools Committee Meeting Open	123
Green Schools Application Info Session	121
DEIJA Symposium 1	66
Green Schools Application Online Portal Training	37
Funding Opportunities through MAEOE	29
Green Center Green Leader Training	25
DEIJA Symposium 2	7
Green Center Green Leader Meeting	6
Green Center Application Info Session	5
Green Teacher Leader Meeting	3
PD Sessions: Attendance Total	**422**
Green Team Grants	34
Transportation - Youth Summit Grants	32
Transportation - Field Trips Grants	22
Student Action Projects Grants	8
PD Grants	5
Mini-Grants: Recipient Total	**101**

In total, MAEOE records listed a total of 422 people who attended professional development trainings and 101 received mini-grants during 2022-23.

Data are drawn from MAEOE's tracking records of individuals attending trainings during the 2022-23 school year. The professional development opportunities, open sessions, and meetings this year were more directly focused on topics related to applying and supporting schools in applying to be a Green School. In addition, 101 people received mini-grants to support their efforts to advance Green Schools work.

The open meeting of the Green Schools Committee was the most well-attended event, followed very closely by the Green Schools Application sessions that were offered this year. The mini-grants supported transportation to field experiences, green team teacher stipends, student action projects, and PD.

In this section of the report, we will dig into more detail about school-based attendees and recipients and whether there was any relationship between support received and achieving a Green School award. We will also include the past data of PD attendance from 2019 through 2023.

All PD Programs Offered and Tracked: 2019-2023

List of Individual Trainings Tracked by MAEOE & Total Attendees

In this table, attendees refers to the individual people listed in MAEOE's professional development tracking data.

School Year	Name of Professional Development Offering	Total Individuals
2022-2023	Green Schools Committee Meeting Open	123
2022-2023	Green Schools Application Info Session	121
2022-2023	DEIJA Symposium 1	66
2022-2023	Green Schools Application Online Portal Training	37
2022-2023	Funding Opportunities through MAEOE	29
2022-2023	Green Center Green Leader Training	25
2022-2023	DEIJA Symposium 2	7
2022-2023	Green Center Green Leader Meeting	6
2022-2023	Green Center Application Info Session	5
2022-2023	Green Teacher Leader Meeting	3
2021-2022	Nature-Wise: Reading, Writing, Playing and Probing in the Outdoor Classroom	195
2021-2022	Forest Literacy Six-Workshop Series	131
2021-2022	LGBTQ Community Conversation: Creating Safe & Welcoming Spaces Outdoors	72
2021-2022	2022 MAEOE Summer Institute	27
2021-2022	Forest Literacy (June 11 & 12) Outdoor Workshops	26
2021-2022	Green Schools are Awesome	9

School Year	Name of Professional Development Offering	Total Individuals
2020-2021	PLT E-Units (various topics)	351
2020-2021	Diversity Equity Inclusion Justice Accessibility Symposium	266
2020-2021	Using the Outdoors as a Classroom - Taking Learning Outside	88
2020-2021	Youth Voice, Youth Action (Earth Force) - Cohort 2	76
2020-2021	Using the Outdoors as a Classroom - Evaluating the School Grounds	70
2020-2021	Using the Outdoors as a Classroom - Integrating MWEEs	64
2020-2021	Using the Outdoors as a Classroom - Best Practices	56
2020-2021	Youth Voice, Youth Action (Earth Force) - Cohort 1	56
2020-2021	Using the Outdoors as a Classroom - Planning and Implementation	54
2020-2021	Summer Watershed Academy	51
2020-2021	Using Tree Farms as Training and Field Experience Sites	43
2020-2021	2021 MAEOE Summer Institute	33
2020-2021	Globe	27
2019-2020	Lunch and Share (16 Sessions)	162

PD Attendance by School Affiliates

Overall, the professional development delivered by MDGS since 2019 primarily served individuals who listed affiliations with individual schools or, in fewer cases, with a county-wide school district. Within these individuals, 328 unique Maryland schools were represented.

Most of the attendees of trainings were individuals who listed the name of an individual K-12 school as their affiliation, representing the core end-user for achieving MDGS awards. Some of these individuals (a much smaller portion) did not name an affiliation with one school, but listed an entire district. They are included in this count.

Other attendees came from a wide range of organizations, likely those who support schools in the MDGS process. Some are known to be Green Centers (key partners in supporting Green Schools), but this was not systematically tracked prior to 2022. Also included in the other entities were representatives of state, federal, and local government; colleges and universities; and foundations.

67% of attendees of MAEOE professional development listed direct affiliation with either a Maryland K-12 school or a Maryland public school district.

Aggregate counts of the number of individual registrants based on the type of organization they listed as their affiliation; types were assigned based on the name entered by the attendee. If an individual attended multiple trainings, they would be included multiple times in this count.

Attendee's Organizational Affiliation	Number of Individual Attendees
School or School District	**1,534**
Other Entity / None Provided*	745
Total	2,279

Note: Other entities include various supporting organizations, including informal/community organizations centered on sustainability education; representatives from state, local, and federal government agencies; individuals from institutions of higher education; and foundation representatives. "None Provided" are individuals who did not enter an affiliation. These other categories are not tracked systematically, so they cannot be broken out in detail reliably.

Number of PD Attendees by County

Counts of Individual School-Based Attendees at PD Sessions, Organized by County

This table shows counts of just those attendees (2019-2023) who were affiliated with a named K-12 school in Maryland.

County	Attendees from Private Schools	Attendees from Public Schools	School Type Unknown	Total
Prince George's	19	385	2	406
Baltimore	24	284	15	323
Anne Arundel	130	49	0	179
Montgomery	42	117	5	164
Baltimore City	15	91	4	110
Charles	0	49	0	49
Washington	0	36	0	36
Allegany	0	31	0	31
Caroline	0	31	0	31
Howard	1	27	2	30
Harford	0	19	4	23
Wicomico	2	21	0	23
Frederick	3	15	0	18
Carroll	0	15	0	15
St. Mary's	0	13	1	14
Cecil	0	7	0	7
Queen Anne's	0	5	0	5
Calvert	0	4	0	4
Worcester	0	4	0	4
Talbot	0	3	0	3
Garrett	0	1	0	1

Overall, the largest number of professional development attendees in MAEOE's records have been from schools in the larger counties in the state – Prince George's, Baltimore, Anne Arundel, and Montgomery.

Overall, there were far more attendees from public schools than private schools, which aligns with the patterns of schools generally and MDGS schools. Prince George's and Baltimore County had strong attendance from public schools. **Anne Arundel County stands out from all of the others for having a much stronger participation by affiliates of private schools,** with about 2.5x attendees from private schools than public schools. In 2023, however, this county also added more public school attendees to these counts.

Somerset, Dorchester, and Kent Counties continued to have no school-level affiliates attend PD from 2019-2021.

These numbers count every individual session attendee. If an individual attended multiple sessions or a single school was represented many times, they are counted multiple times in these data. We explore unique school participation on the next pages.

Number of Schools Engaged in PD, by County

Counts of Individual Schools that Attended Professional Development, by County
This table shows counts of individual schools that were represented at session(s) by one or more staff.

County	New Schools in PD in 2022-23	Total Individual Schools in PD	Percentage of All Schools in the County
Caroline (n=11)	1	6	55%
Charles (n=49)	1	14	29%
Allegany (n=28)	--	8	29%
Prince George's (n=257)	17	67	26%
Queen Anne's (n=17)	2	4	24%
Baltimore (n=245)	18	53	22%
Wicomico (n=34)	1	6	18%
Talbot (n=12)	--	2	17%
Baltimore City (n=211)	7	35	17%
Anne Arundel (n=160)	8	26	16%
Carroll (n=50)	4	8	16%
Calvert (n=27)	1	4	15%
Howard (n=97)	7	14	14%
Montgomery (n=307)	16	44	14%
Harford (n=70)	3	10	14%
Washington (n=58)	1	8	14%
Worcester (n=16)	1	2	12%
St. Mary's (n=49)	1	6	12%
Frederick (n=81)	--	8	10%
Cecil (n=36)	2	3	8%
Garrett (n=15)	--	1	7%

A total of 329 unique schools were engaged in PD since 2019 – representing about 18% of all schools in the state. In 2022-23, 133 unique schools attended PD, 91 of whom had never previously attended a MAEOE PD session.

Given the goal of encouraging a greater number of *schools* to apply to be MD Green Schools, a better measure of the professional development reach was looking at how many individual schools were represented in the trainings. This measure also helps reveal the proportion of the county's schools (public and private) reached by MAEOE PD.

In this way, it becomes clear that the program was successful at including a relatively large proportion of the schools within smaller counties in training opportunities. Most notably, 55% of the schools listed in Caroline county – public and private – took part in a training since state funding began.

In 2022-23 PD sessions alone, we saw that **17 counties had at least one school attend a PD session that had never previously attended a MAEOE PD opportunity.**

On the next page we depict the reach of support, by county, of PD and mini-grants combined.

Reach of Support via PD & Mini-Grants, by County

Proportion of all schools, by county, that received support between 2019-2023

This heat map depicts which counties with the highest percentage of all individual schools (public and private) that received some form of MAEOE support - attending PD or receiving a mini-grant (brighter colors). Counties with the lowest proportion of schools receiving supoprt are lighter shades. Gray indicates no schools from that county received support.

PD and grants reached the highest proportion of schools in Caroline County, with several other counties seeing support go to 29% or more of their schools.

64% of Caroline County's 11 schools participated in PD or received a mini-grant.

29% or more of schools in Queen Anne's, Prince George's, Charles, and Allegany Counties received support.

% Receiving MAEOE Support

60%

40%

20%
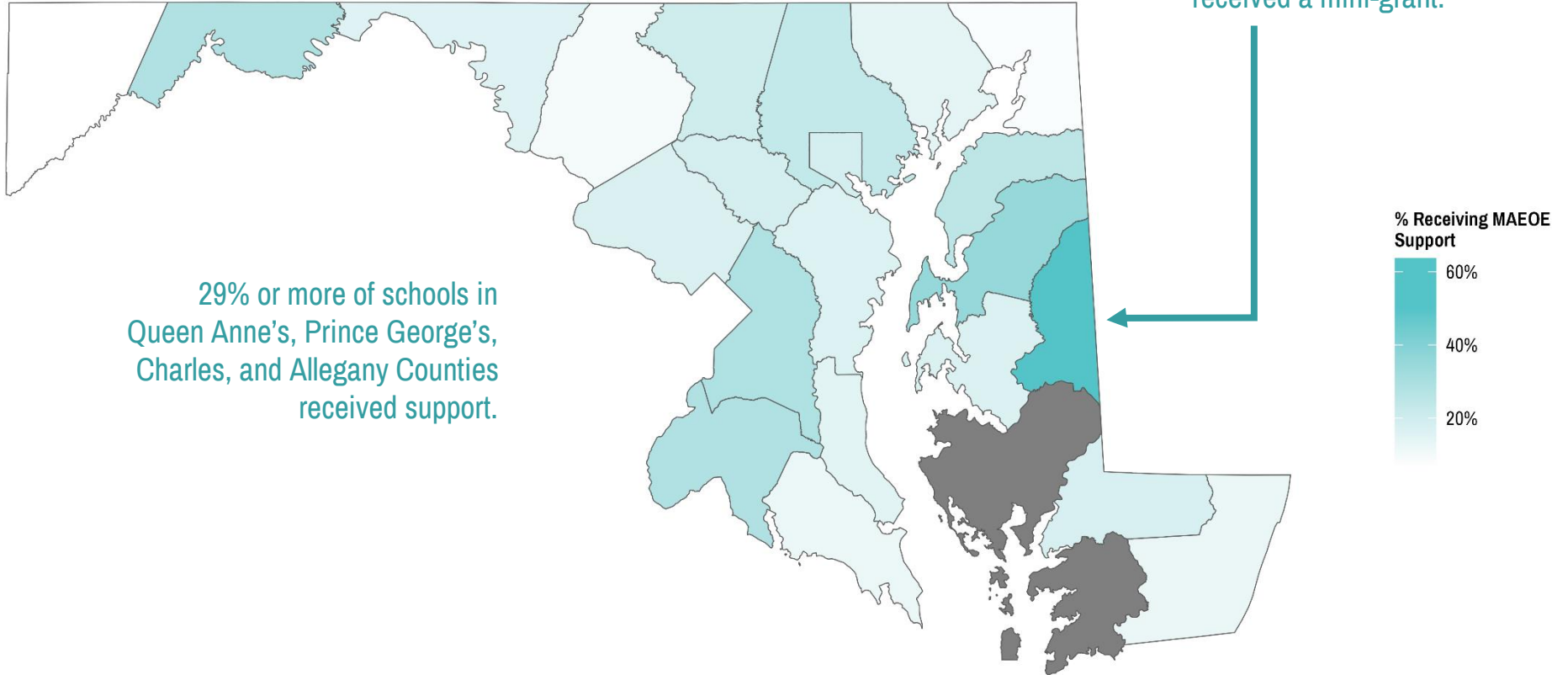
PD Supporting Achievement of MDGS Awards

As of 2023, 60% of the schools from which staff attended MAEOE PD since 2019 have successfully applied or re-applied for MDGS status. This percentage dramatically increased in 2023, jumping from 46%, indicating a correlation between PD and successful Green School applications.

After four years of PD, we see that most of the schools attending trainings ultimately successfully applied. Because of the four-year cycle for applications, this year is the most robust data to show that **the trainings are successful in helping schools get or maintain their award.**

In fact, last year's data showed that 18% of those in PD were positioned for an application in 2023 or later; it appears that most of those schools did successfully complete their applications in the past year.

The next major category of schools that took part in PD are those that are completely new to the MDGS program; but they have still not yet submitted an application. They may be working on the process or were just gaining information.

MDGS Outcomes When School Staff Attend Professional Development

For each individual school that had at least one staff person attend a training (n=329 schools), this shows what was the outcome - as of the 2023 cycle - for that school's application to the MDGS program.

Category	Percent
Successfully Applied 2020-23	60%
New to MDGS (hasn't yet applied)	23%
Still in Extension/ Grace Period	9%
Lapsed MDGS School (hasn't reapplied)	5%
Reapplication Due in 2024 or later	2%
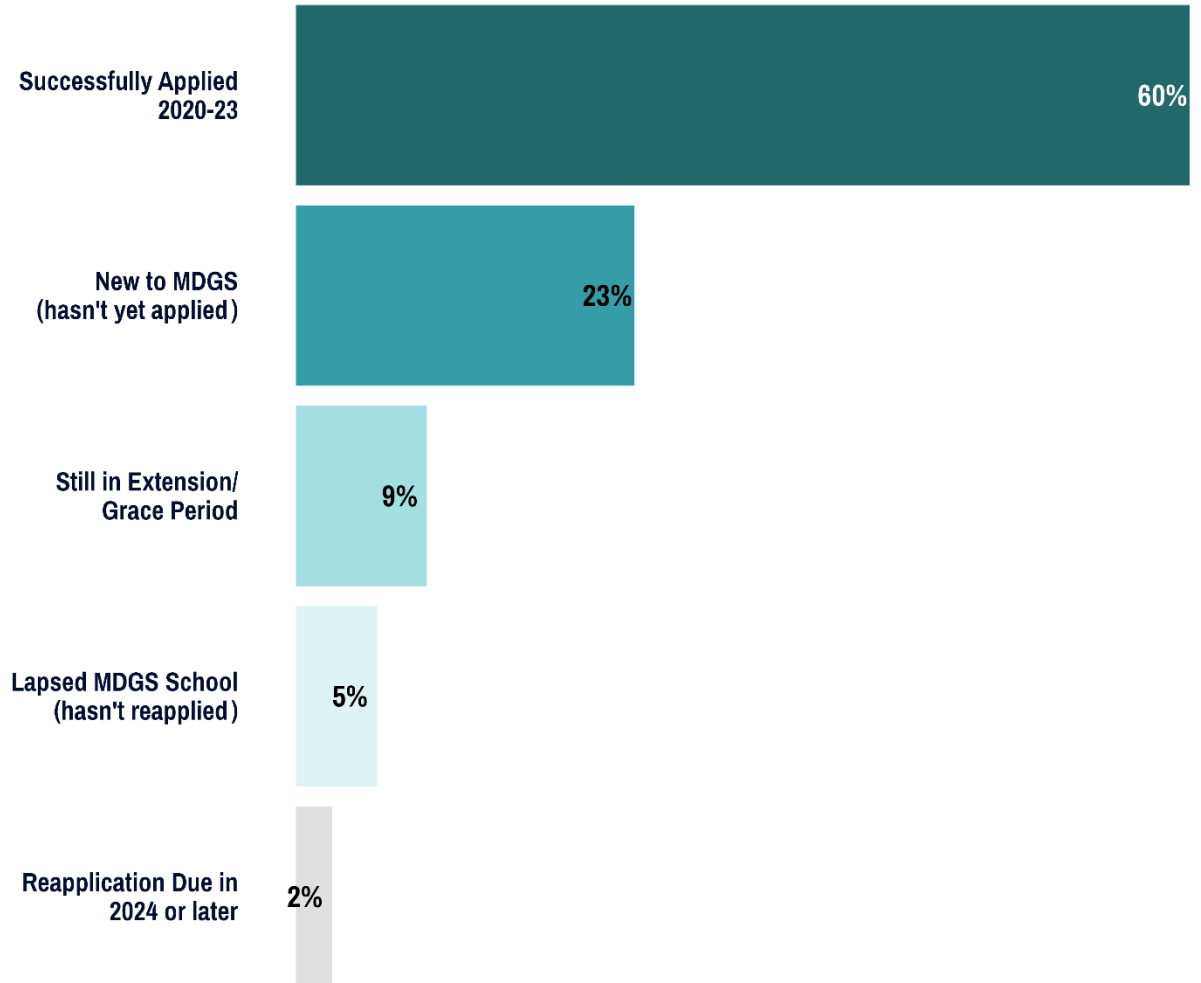
Professional Development & MDGS Achievement

MDGS Application Outcomes by School Year of Tracked Professional Development

This table shows counts of individual schools that were at a professional development session, and the outcome of the MDGS application process that they achieved by 2022.

Outcome of Professional Development Attendance	2019-20	2020-21	2021-22	2022-23	Total
Successfully Applied 2020-23	6	103	55	92	256
New to MDGS (hasn't yet applied)	0	39	24	21	84
Still in Extension/Grace Period	1	14	8	12	35
Currently Lapsed MDGS School	0	11	3	5	19
Recertification Due in 2023 or later	0	3	3	3	9

When we look at the outcome data by year in which PD was attended, we see that the overall pattern is consistent between the years.

In all years, schools that attended PD, as of 2023, have successfully reapplied and were awarded in the past four years, followed by schools that are still new to the MDGS process (as of 2023).

Of interest are the 39 schools in 2020-21 and 24 schools in 2021-22 who attended PD of some kind but, as of 2023, have still not taken the step to apply and become a Green School. However, PD in earlier years of the process often covered wider ranging topics that support Green School success, and were not as directly explicit about the application process. As that shift in PD occurred in 2022-23, we may see that effect decrease in future years.

Mini-Grants Supporting Achievement of MDGS Awards

MDGS Outcomes for Schools Receiving Mini-Grants

For each individual school that received at least one mini-grant in 2022-23 (n=76 schools), this shows what was the outcome in 2022-23 for that school's application to the MDGS program.

Category	Percentage
Successfully Applied 2023	42%
Reapplication Due in 2024 or later	42%
Still in Extension/Grace Period	7%
Lapsed MDGS School (hasn't reapplied)	5%
New to MDGS (hasn't yet applied)	4%
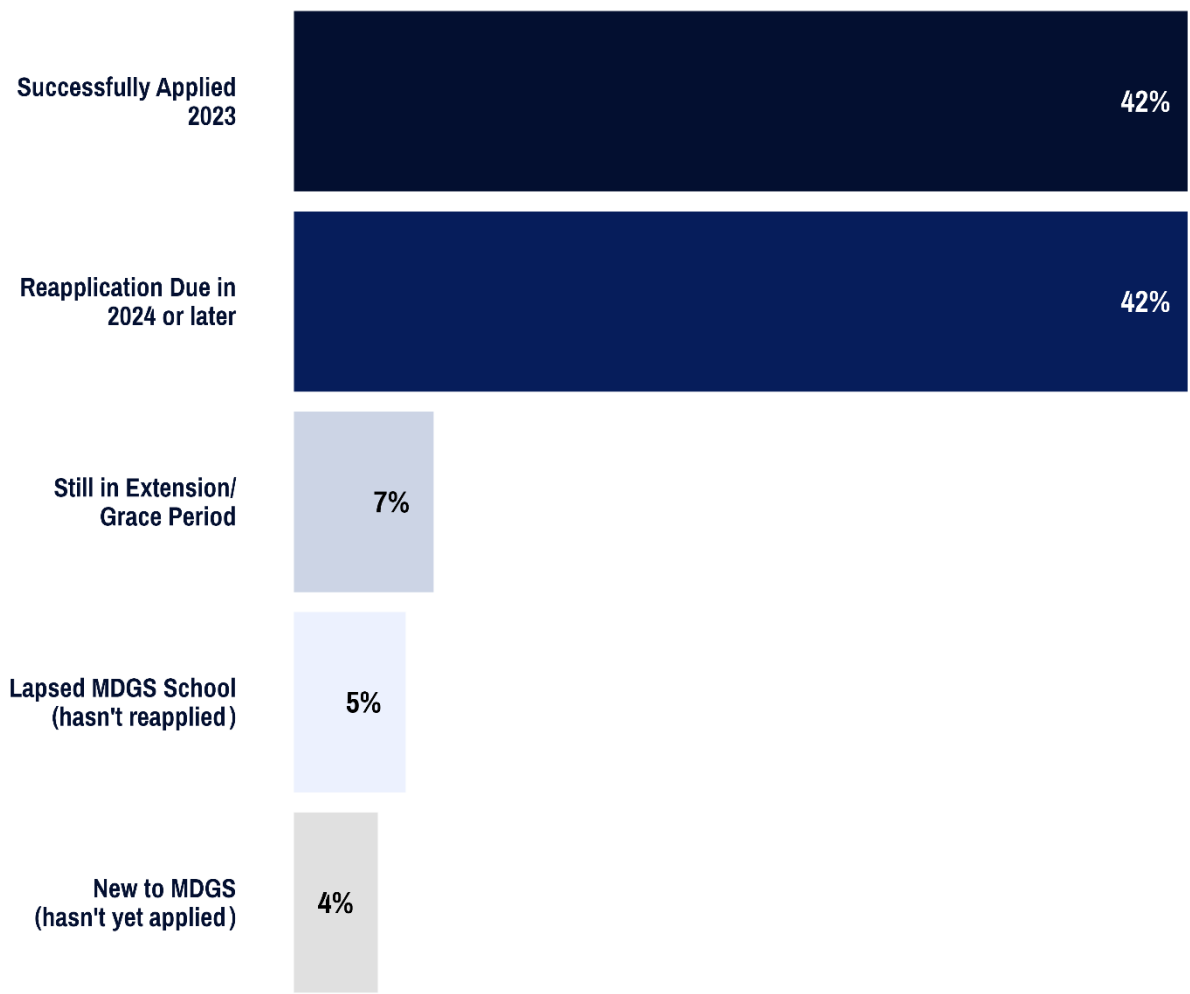
Mini-grant data only covers the current school year, and we see that 84% of mini-grants were used by schools that successfully applied to be a Green School in 2023 and those that are looking ahead to a future reapplication due date.

The grants seemed to be split between schools that were due to renew this year and those for whom their application is still a year or more away. **That 42% of recipients successfully reapplied this year suggests the grants are supportive of schools' efforts to have a successful application to the program.**

Notably, only 5% of the schools that received awards (4 schools) are in a Lapsed phase – meaning in this year or a prior year they missed their opportunity to apply and are no longer in good standing as a Green School. This supports the finding that the funding could successfully support the reengagement with lapsed schools.

RESULTS

Collective Student & Environmental Impact 2021-22

Number of Students Served by MD Green Schools

Over 416,000 students are currently attending Maryland Green Schools. This is a decrease of about 21,000 students, due to the lower total number of schools that are in good standing as Green Schools.

When the total student enrollment numbers are aggregated across all currently awarded Maryland Green Schools (including those in their extension periods), the extent of the impact of the MDGS program is clear. While the total number decreased from last year, the potential reach to students is clear.

Over 135,000 students are enrolled at schools that were previously Green Schools, but have not maintained their status in recent years.

Awarded Maryland Green Schools serve over 416,000 students

This includes awarded, sustainable, and those in their extension period.
Another 135,000+ students attend schools that were previous Green Schools, but that has lapsed.

Awarded	Extension	Lapsed
367,364 students	49,474 students	135,773 students
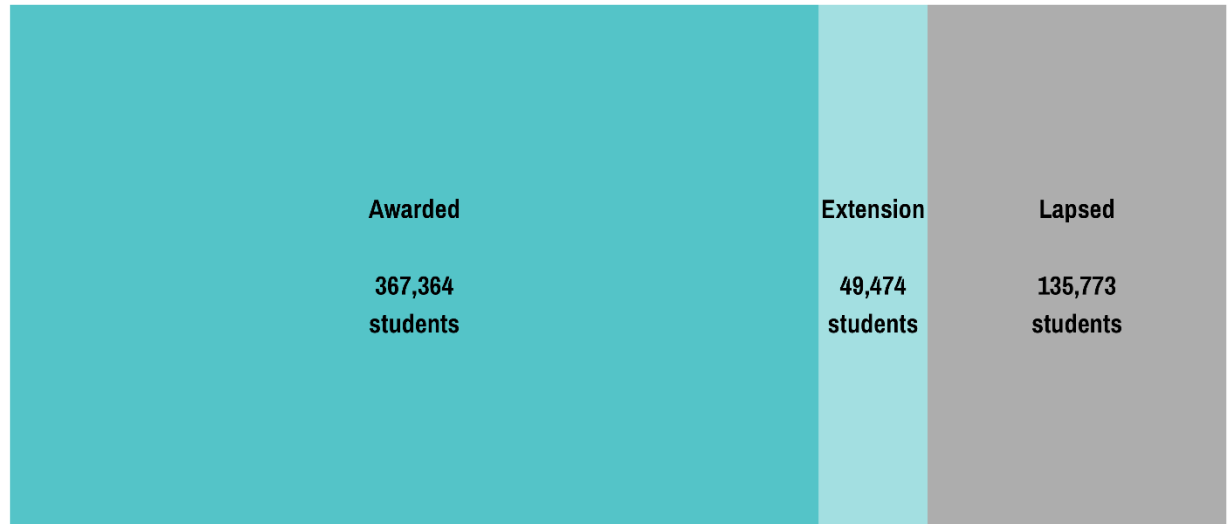
Schools' Green Practices in 2022-23

Three green practices dominate the work of Green Schools; 94% of schools awarded in 2022-23 are making some effort to recycle or reduce waste, provide healthy school activities, and/or reduce their energy use.

In addition, 78% or more of schools reported developing environmental learning structures, restoring habitats, and water conservation. These practices are up slightly from 2021-22 applications (with a new reporting process for these indicators instituted in 2023).

The relatively less common green practices this year mirrored what was seen in previous years: runoff reduction, responsible transportation use, community/citizen science projects, and renewable energy use.

As in past years, there is the indication of a clear pattern in which actions schools find easier and more challenging to put in place. Specifically, green practices that are within the locus of control of school staff/students are much more likely to be implemented than those that require buy-in from the district, community, or external stakeholders.

Self-Reported Rates of Green Practices Across Maryland Green Schools in 2022-23

These are the rates of schools answering 'yes' to a yes or no question about whether they have implemented each of the following green practices. (n=155 applicants in 2023)

Practice	Rate
Recycle / Reduce Solid Waste	94%
Healthy School Activities	94%
Energy Use Reduction	94%
Environmental Learning Structures	83%
Habitat Restoration	81%
Water Conservation	78%
Runoff Reduction	55%
Responsible Transportation Use	54%
Community Science Projects	43%
Renewable Energy Use	26%
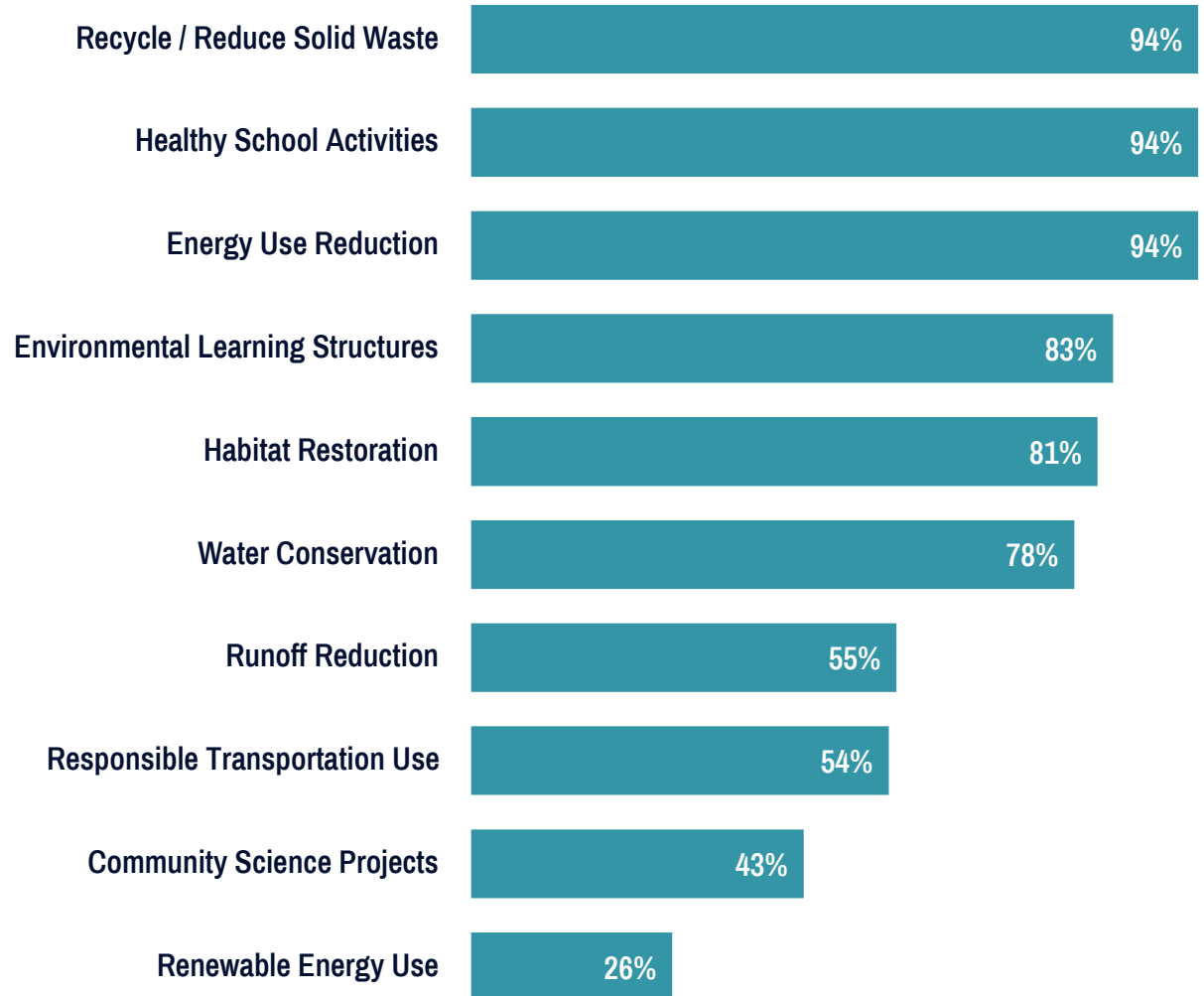
The Profile of Common School Practices by Year

Overall, the pattern of which categories of green practices are more and less commonly implemented by schools has stayed incredibly stable over the past three years of data.

This consistency in high-level patterns is notable because each year's applicant pool is comprised of an entirely different set of schools. Any commonalities in patterns over three years indicates the categories that schools, in general, find easier or harder to implement.

There are clear, **consistent clusters of activities that show bands of high, moderate, and lower use.** High use activities are recycling, healthy schools, and energy reduction; moderate-high use activities are habitat restoration, environmental learning structures, and water conservation; moderately low use activities are transportation, runoff, and community science. And renewable energy use is the lowest use category.

Year-to-year changes are difficult to interpret. They likely reflect idiosyncratic differences in a year's applicant pool. Moreover, in 2023, the reporting process changed, so these shifts likely relate to methods, rather than systemic change.

Patterns in Percentages of Applicants Reporting Use of Each Category: 2021-2023

This chart compares the percentage of applying schools that indicated they had done some environmental practice within each category from the Metrics Survey from each of the last three years.

	2021	2022	2023
Recycle / Reduce Solid Waste	97%	99%	94%
Healthy School Activities		92%	83%
Energy Use Reduction	86%	88%	81%
Habitat Restoration	74%	78%	78%
Env. Learning Structures	70%	70%	
Water Conservation	66%	65%	
Responsible Transportation Use	47%	Community Science Projects 50%	55% / 54%
Runoff Reduction	44%	43%	43%
Renewable Energy Use	19%	28%	26%
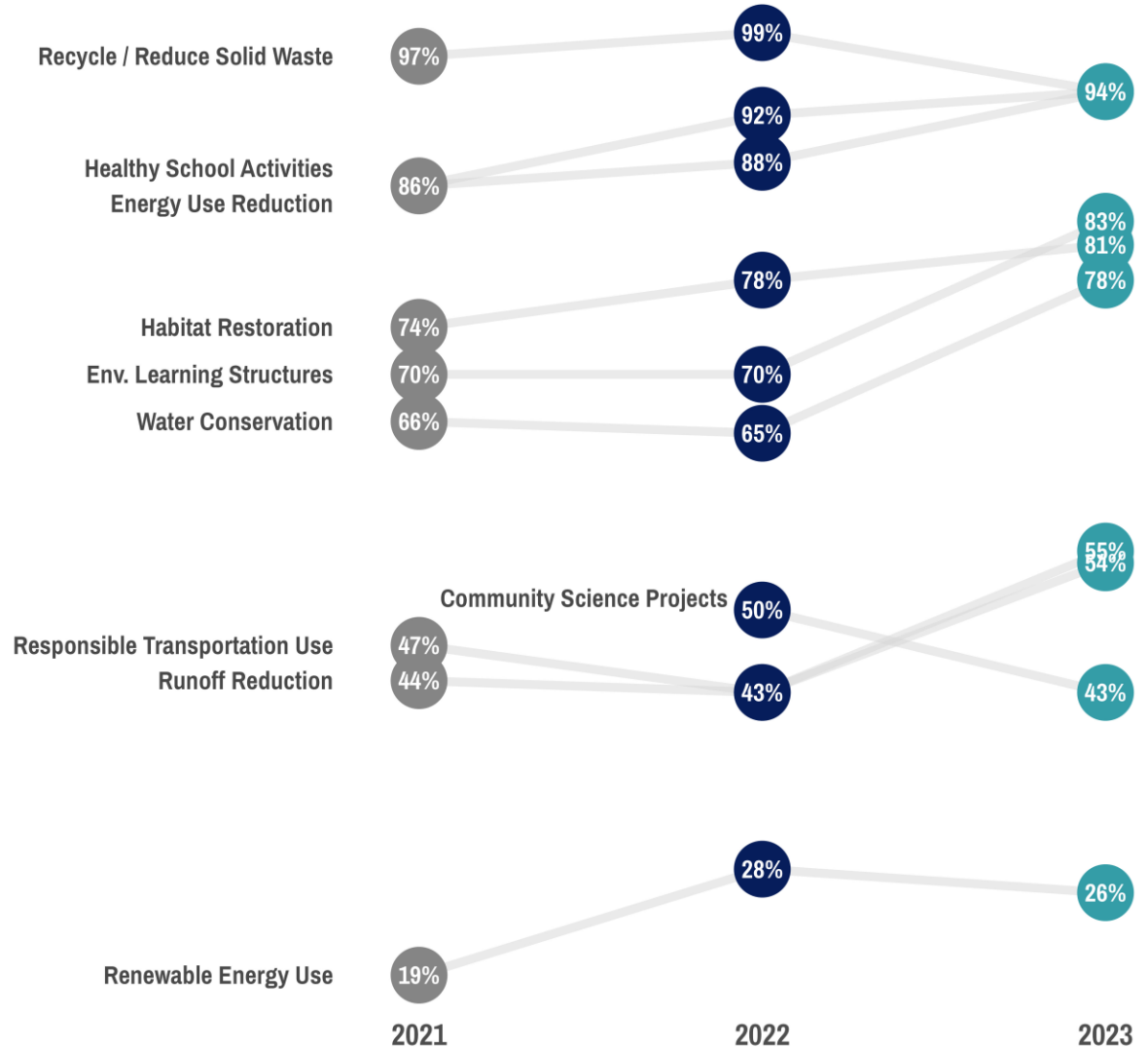
Specific Practices: Recycling & Reducing Waste

Self-Reported Rates of Recycling and Waste Reduction in MD Green Schools

A school was counted in the percentages below if they entered any number above zero in a question quantifying that practice, indicating they had participated to some extent. (n=155)

Practice	Percentage
Recycled Ink Cartridges	59%
Composted	45%
No Waste Lunch Days	36%
Recycled Electronics	30%
Recycled Crayons (Crayola Color Cycle)	27%
TerraCycled	10%
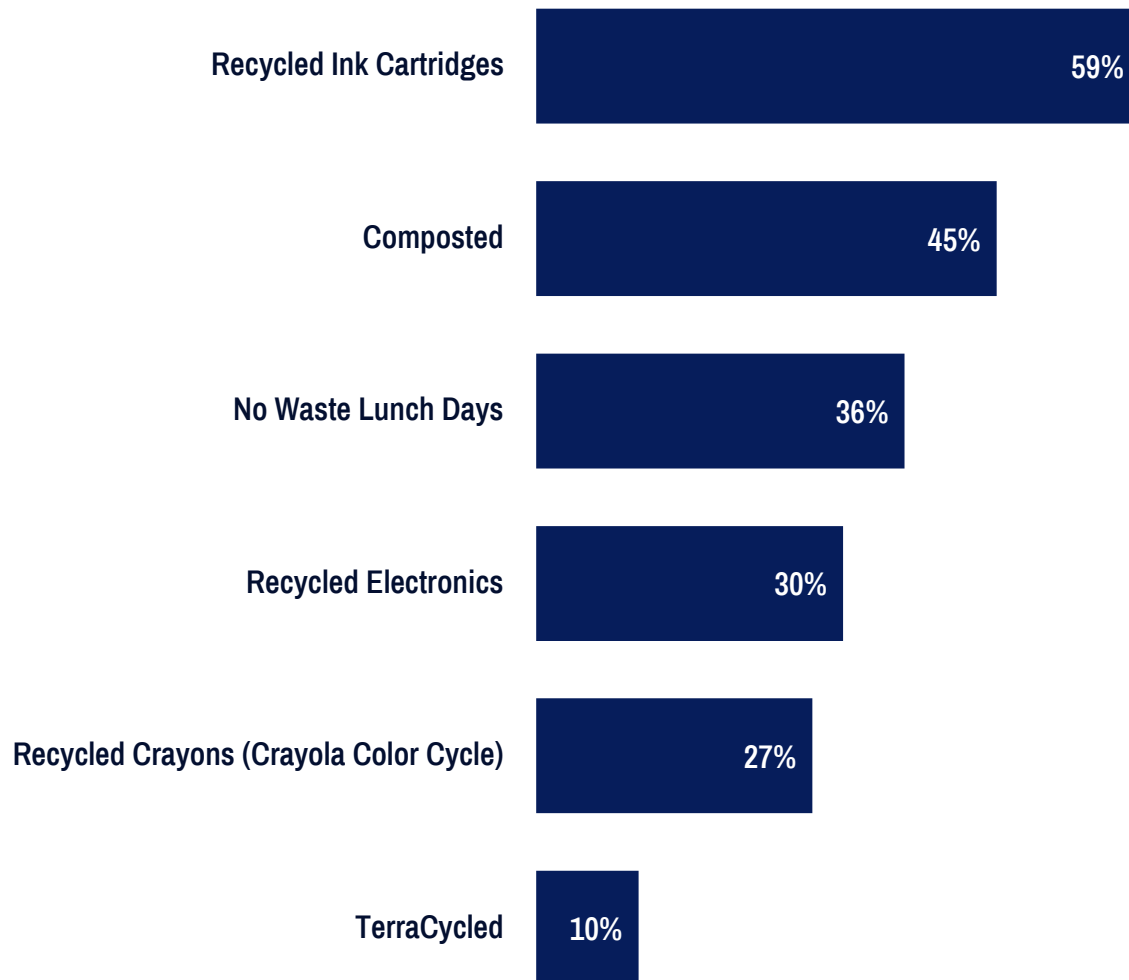
Ink cartridges were the most commonly reported item targeted by recycling programs (59%). Nearly half of Green Schools reported using some form of composting at the school.

Within the waste reduction category, schools estimated they had recycled 12,000 ink cartridges in aggregate. In reports of composting, drum composting was the most common form (26 schools). Other strategies were using a composting facility (17), vermiculture (16), and open frame composting (12 schools).

36% of schools reported having at least one "No Waste Lunch Day," and schools reported a total of 1,963 No Waste Lunch Days held across all Green Schools.

Just under one-third of schools reported recycling electronics, and around a quarter recycled crayons through Crayola Color Cycle. In total, schools estimated recycling 1,492 pounds of crayons and 28,250 electronics; however, a single school reported they recycled 20,000 electronics, which substantially skews this total.

Fifteen schools reported TerraCycling, for a total of 5,049 pounds of waste across all schools.

Specific Practices: Energy Conservation

Schools most often reported that they used blinds for temperature and light control to reduce energy use, followed closely by using daylight for lighting.

91% reported using blinds as a strategy for energy conservation. 82% of schools reported they used daylight to light rooms, which is a dramatic increase from only 61% of schools in 2021-22 awardees. Well over half had installed energy-efficient lightbulbs as another way they had used to conserve energy, a percentage which is also more than a 10 percentage-point increase from last year. The total estimates of lightbulbs installed by applicants was over 96,000; however, again, single school reported installing 40,000 efficient lightbulbs, which greatly contributed to the high level of this number.

Less common energy conservation strategies included planting shade trees and de-lamping lightbulbs. According to applicants' estimates, this resulted in 465 trees being planted for the purposes of energy conservation by these schools.

Self-Reported Rates of Energy Conservation Practices Across MD Schools

A school was counted in the percentages below if they entered any number above zero in a question quantifying that practice, indicating they had participated to some extent. (n=155)

Practice	Percentage
Used Blinds for Light/Temp Control	91%
Used Daylight to Light Rooms	82%
Installed Efficient Lightbulbs	63%
Planted Shade Trees	29%
Delamped Lightbulbs	22%
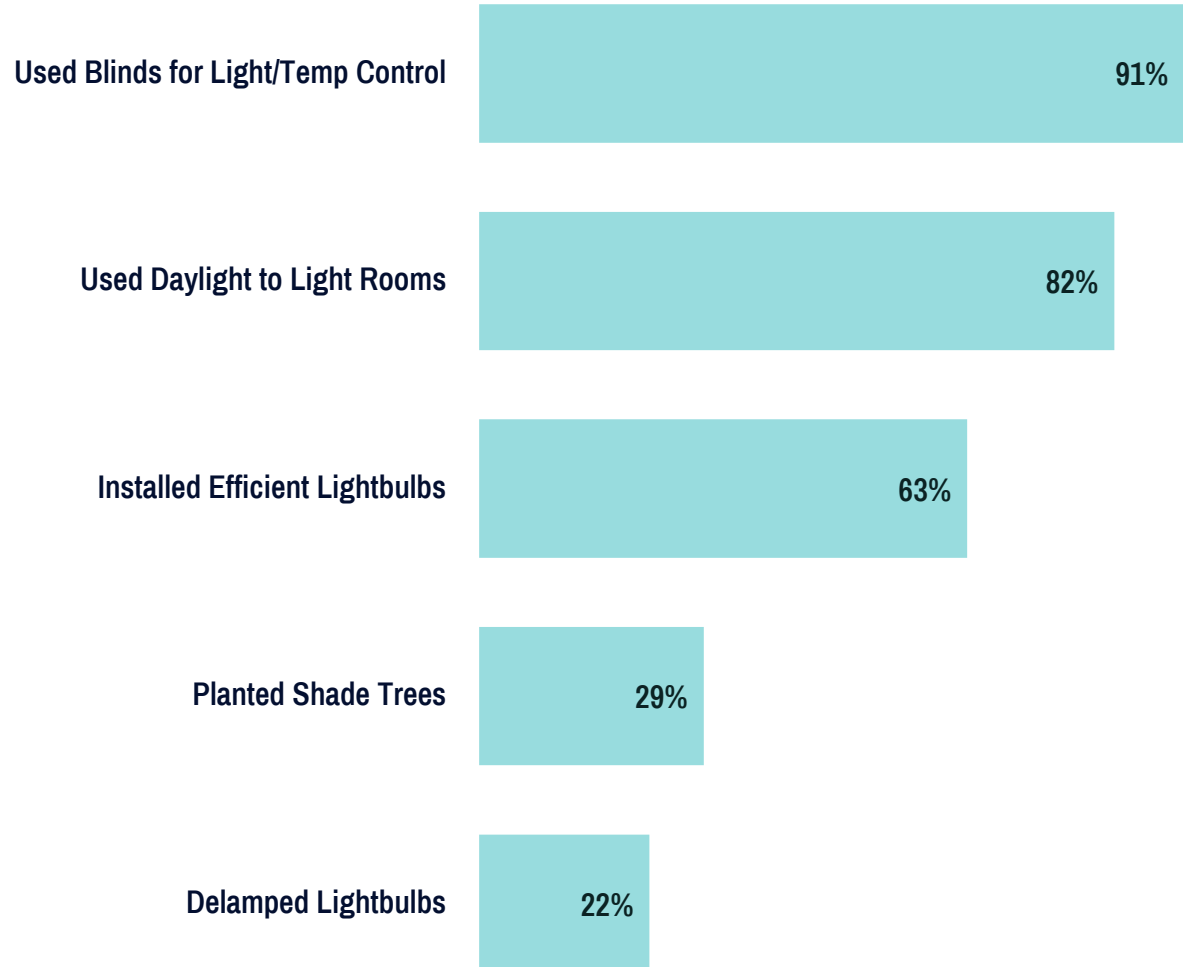
Specific Practices: Healthy School Activities

Self-reported Rates of Healthy School Activities Across MD Green Schools

A school was counted in the percentages below if they entered any number above zero in a question quantifying that practice, indicating they had participated to some extent. (n=155)

Outdoor Running Events and Environmental Festivals — 72%

Plants for Indoor Air Quality — 69%

Served Local Food — 45%

Edible Garden — 42%

Green Schools reported hosting outdoor events and having indoor plants as the two most common healthy school activities in 2022-23.

The rates at which schools have reported having outdoor running events and environmental festivals has stayed fairly consistent since 2021, as have rates at which schools report having at least one indoor plant for air quality. Schools reported using a total of 5,476 indoor plants across all schools.

Nearly half of 2022-23 schools reported serving local foods at least once per year, resulting in local foods served 4,158 times, based on self-reported numbers.

Edible gardens were a similarly used strategy, with schools self-reporting they had 13,175 square feet of edible garden space across all schools in 2022-23.

Specific Practices: Habitat Restoration

Around half of all reporting Green Schools planted native shrubs and trees and installed bird houses in their surrounding habitats.

Creating native habitat was the least reported habitat restoration activity, but was still accomplished by more than one-third of 2022-23 Green School applicants.

According to self-reported accounts, these actions resulted in 1,208 native trees being planted, 1,514 native shrubs being planted, and 499 bird houses being installed.

The estimates provided by applicants regarding the scale of their removal of invasive species and creation of native habitat varied wildly; as with other metrics discussed, one school reported extraordinarily high (and implausible) estimates for some metrics. With that caveat, based on self-reported numbers, schools claimed that 806,745 sq. ft. of land had invasive species removed (750,000 of this was reported by a single school) and 1.49 million sq. ft. of native habitat created (1.3 million of this was reported by a single school).

Self-Reported Rates of Habitat Restoration

A school was counted in the percentages below if they entered any number above zero in a question quantifying that practice, indicating they had participated to some extent. (n=155)

Practice	Percentage
Planted Native Shrubs	52%
Created/Installed Bird Houses	50%
Planted Native Trees	48%
Removed Invasive Species	40%
Created Native Habitat	38%
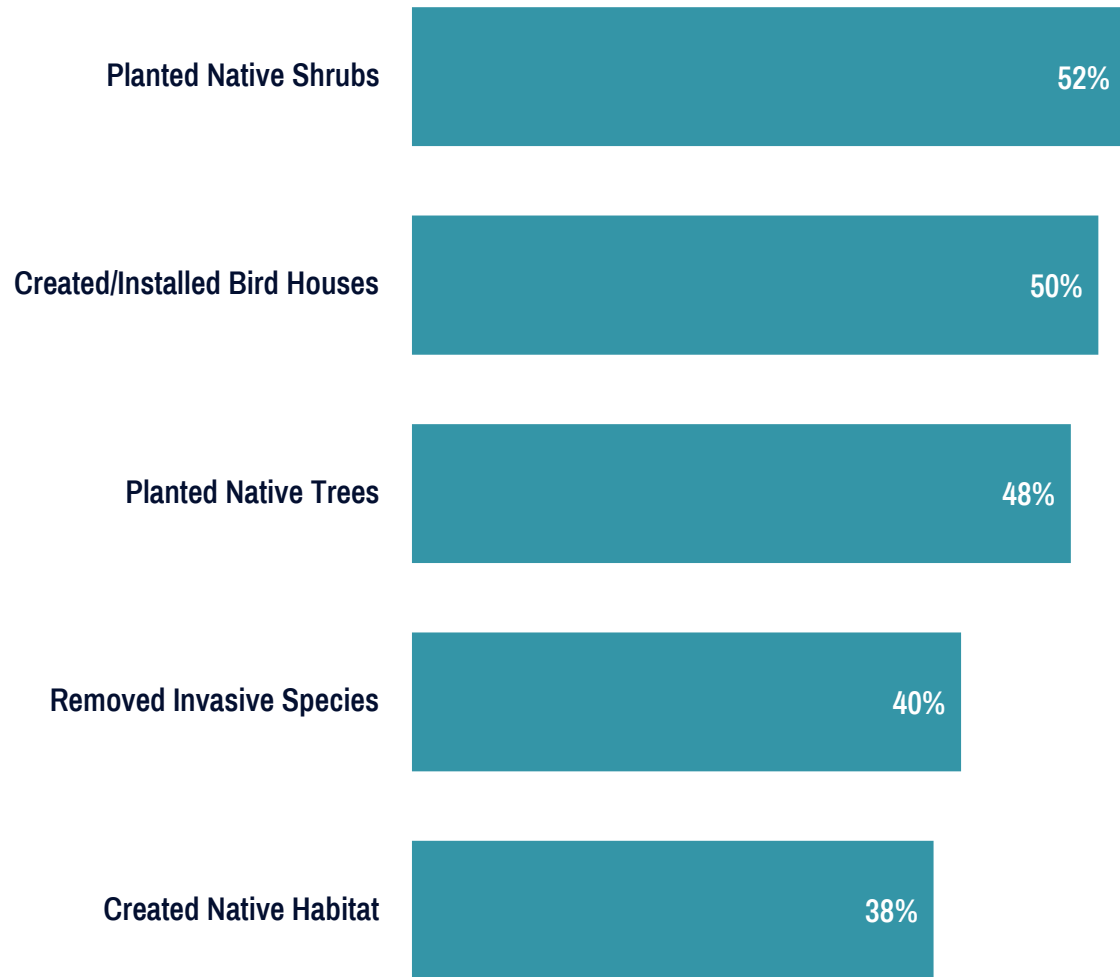
Specific Practices: Environmental Learning Structures

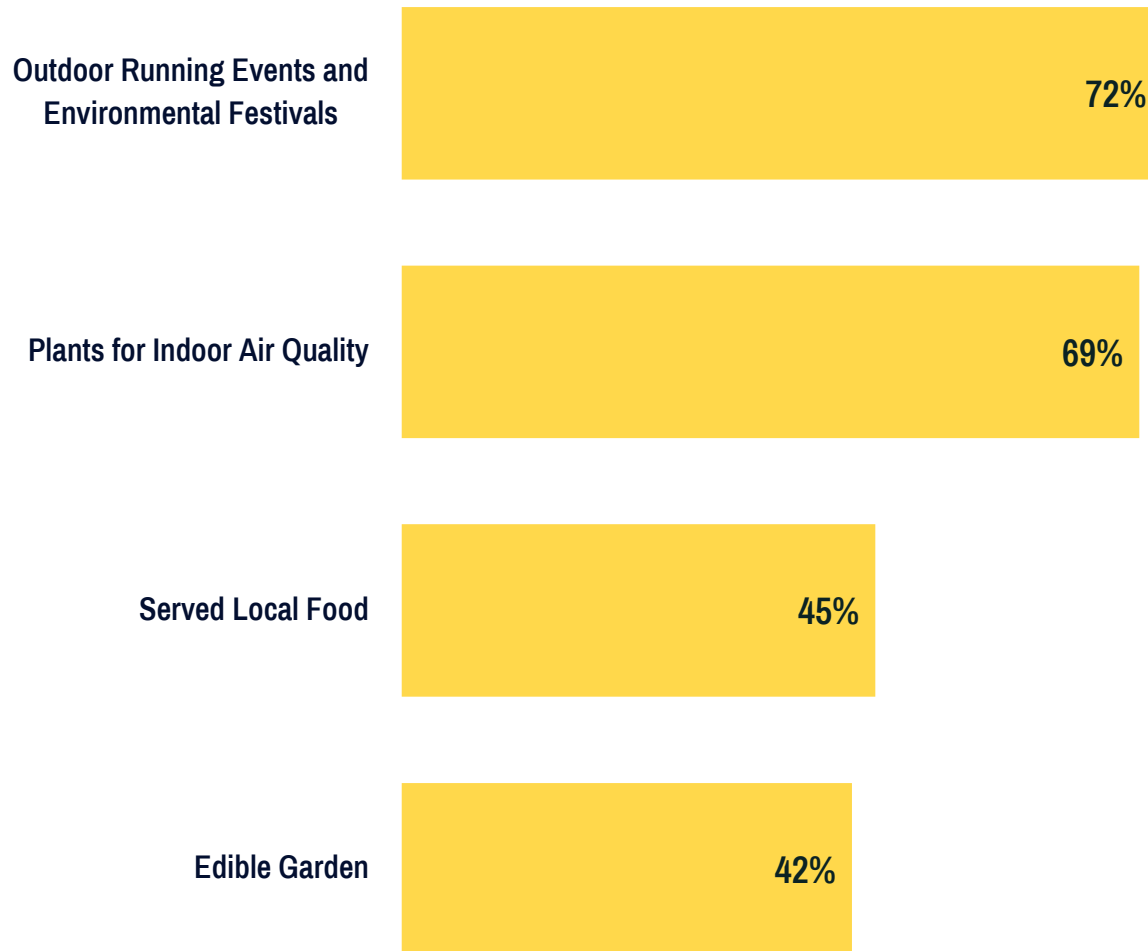## Self-Reported Rates of Environmental Learning Structures

A school was counted in the percentages below if they entered any number above zero in a question quantifying that practice, indicating they had participated to some extent. (n=155)

Practice	Percentage
School Yard Used for Learning	94%
Outdoor Classrooms	72%
Outdoor Environmental Art	46%
Interpretive Signage	31%
Trails and Pathways	25%
Tree ID Tags	13%
Boardwalk and Bridges	6%

Nearly all schools reported using their school yard as a learning space at least once per year, while nearly 3 in 4 have outdoor classrooms.

Outdoor environmental art was moderately reported, with just lass than half of schools having some sort of artwork outside, totaling an estimate of 1,490 artworks across all schools.

The other environmental learning structures included in the reporting survey had somewhat lower use by schools. Nearly one-third of schools reported having interpretive signage, totaling a reported 301 signs across all schools. A quarter of schools reported having trails and pathways, for an estimated total of 64,520 sq. ft. among all schools.

Overall, these patterns have stayed stable since 2021, and may indicate that getting students outside during learning time is an easily accomplished goal, while doing larger-scale outdoor projects such as paths and signage may face a range of constraints for schools.

Specific Practices: Water Conservation

More than three quarters of schools reported collecting litter to prevent it from getting into and polluting waterways. This was, by far, the most common water conservation practice employed.

More than one-third of Green Schools indicated that they had a rain garden or bioretention area planted to reduce runoff. In their self-reported estimates, they had installed a total of 116,578 sq. ft. of garden area for this purpose.

All other water protection actions were reported by fewer than one-third of schools, which included retrofitting plumbing, painting storm drains, installing rain barrels, no-mow zones, and stream cleaning.

Larger changes were reported by schools less frequently, such as erosion control projects, turf reduction, impervious surface reduction, riparian buffers, and green roof installation. These types of projects require substantial funding and planning, and be initiatives directed by a school system/district, rather than an individual school. This may pose a barrier for many schools, and the survey is not built to dig into that detail.

Reported Rates of Water Conservation Across Green Schools

A school was counted in the percentages below if they entered any number above zero in a question quantifying that practice, indicating they had participated to some extent. (n=155)

Practice	Percentage
Trash Bags of Litter Collected	77%
Raingarden/Bioretention Area Planted	36%
Retrofitted Sinks, Toilets, Showers	30%
Painted Storm Drains	29%
Rain Barrels Installed	24%
No-Mow Zone Installed	22%
Stream Cleaning	21%
Erosion Control Project (other than Riparian…	16%
Turf Reduction	12%
Impervious Surface Reduction	8%
Stream Bank Planting (Riparian Buffers)	8%
Green Roofing Installed	5%
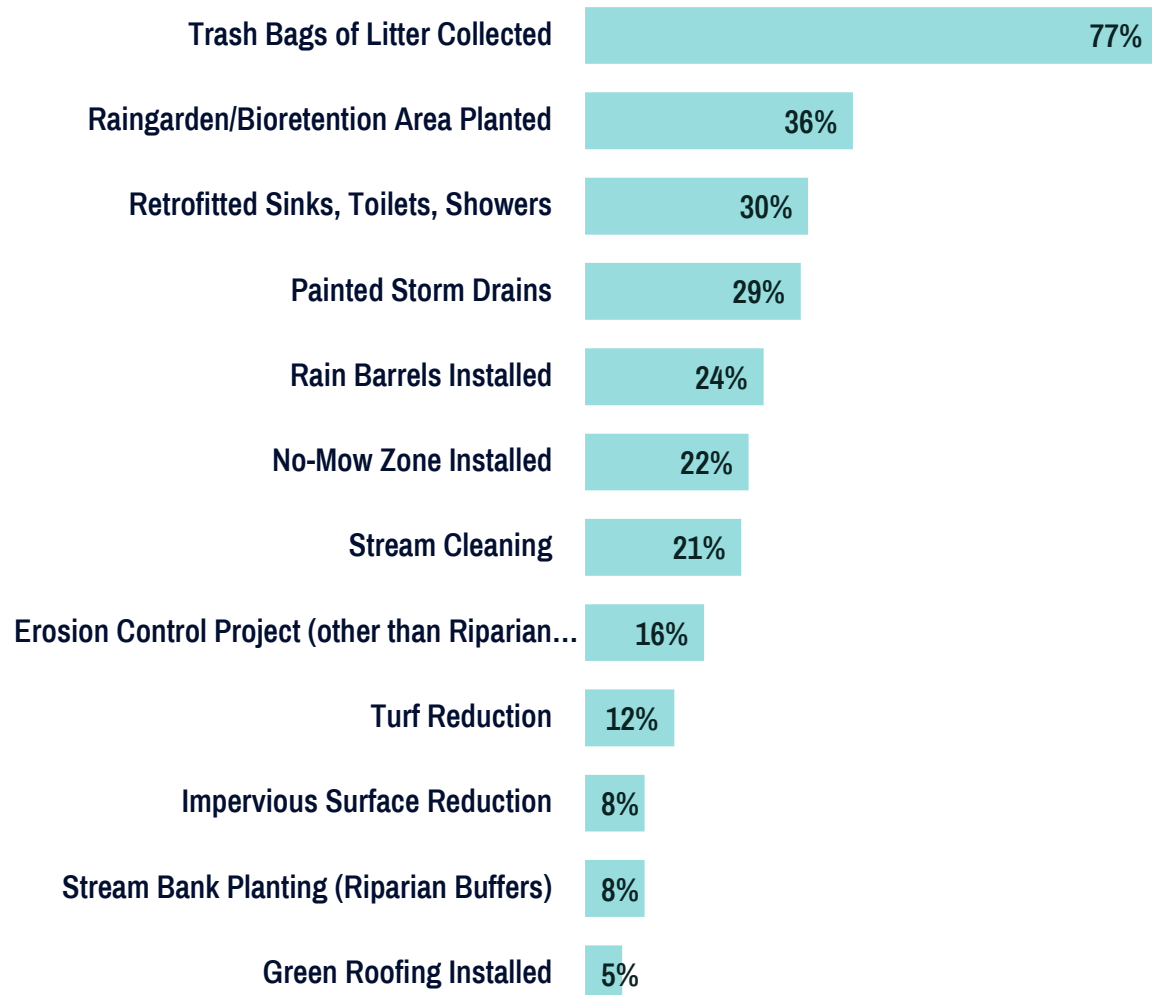
Specific Practices: Community Science

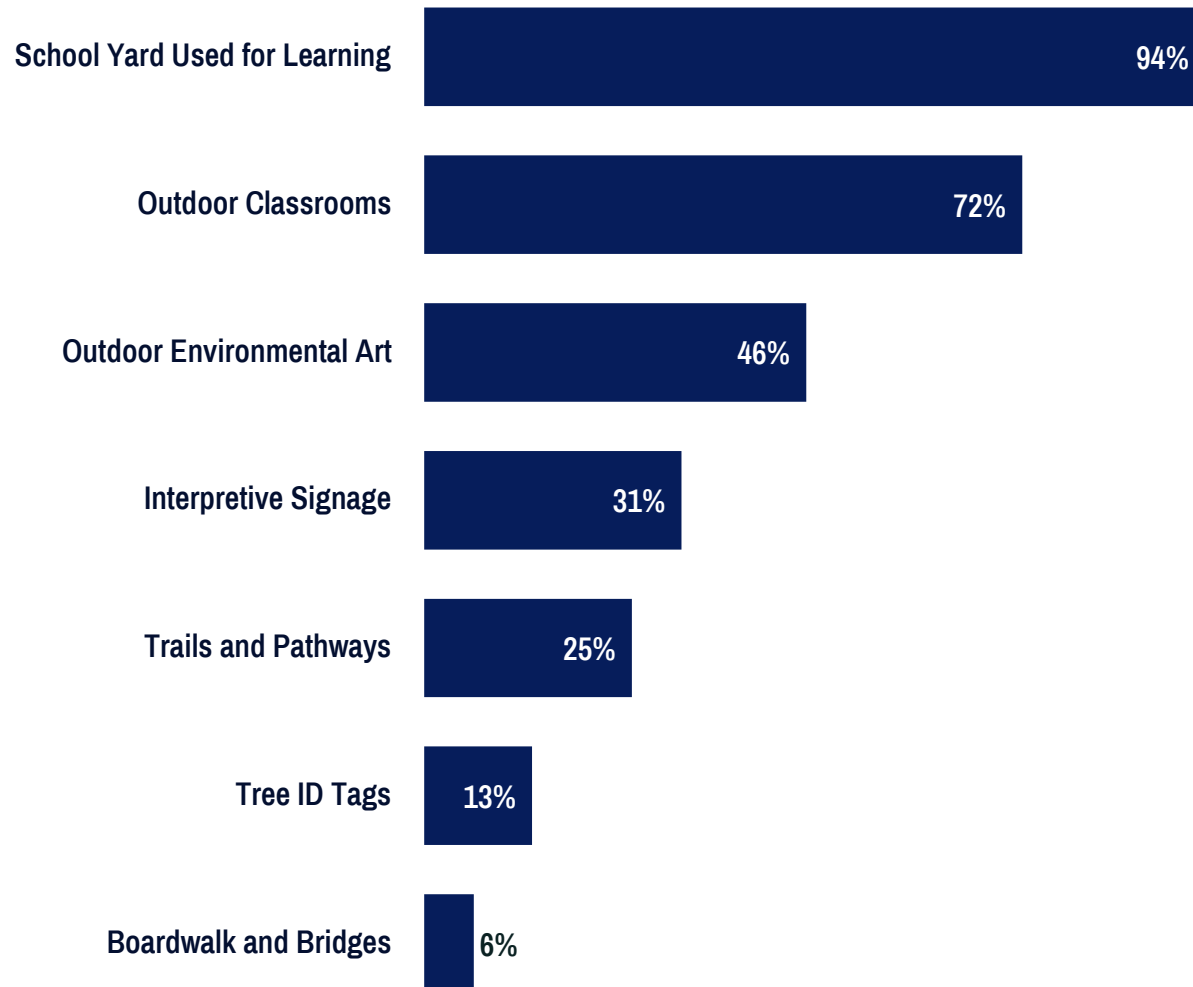## Self-Reported Rates of Community Science Projects

A school was counted in the percentages below if they entered any number above zero in a question quantifying that practice, indicating they had participated to some extent. (n=155)

Monitor water runoff on school grounds — 28%

Poster campaign to share results — 26%

Soil improvements through vegetation analysis — 26%

Reduce heat island effects — 15%

Eliminate mosquito breeding grounds — 14%
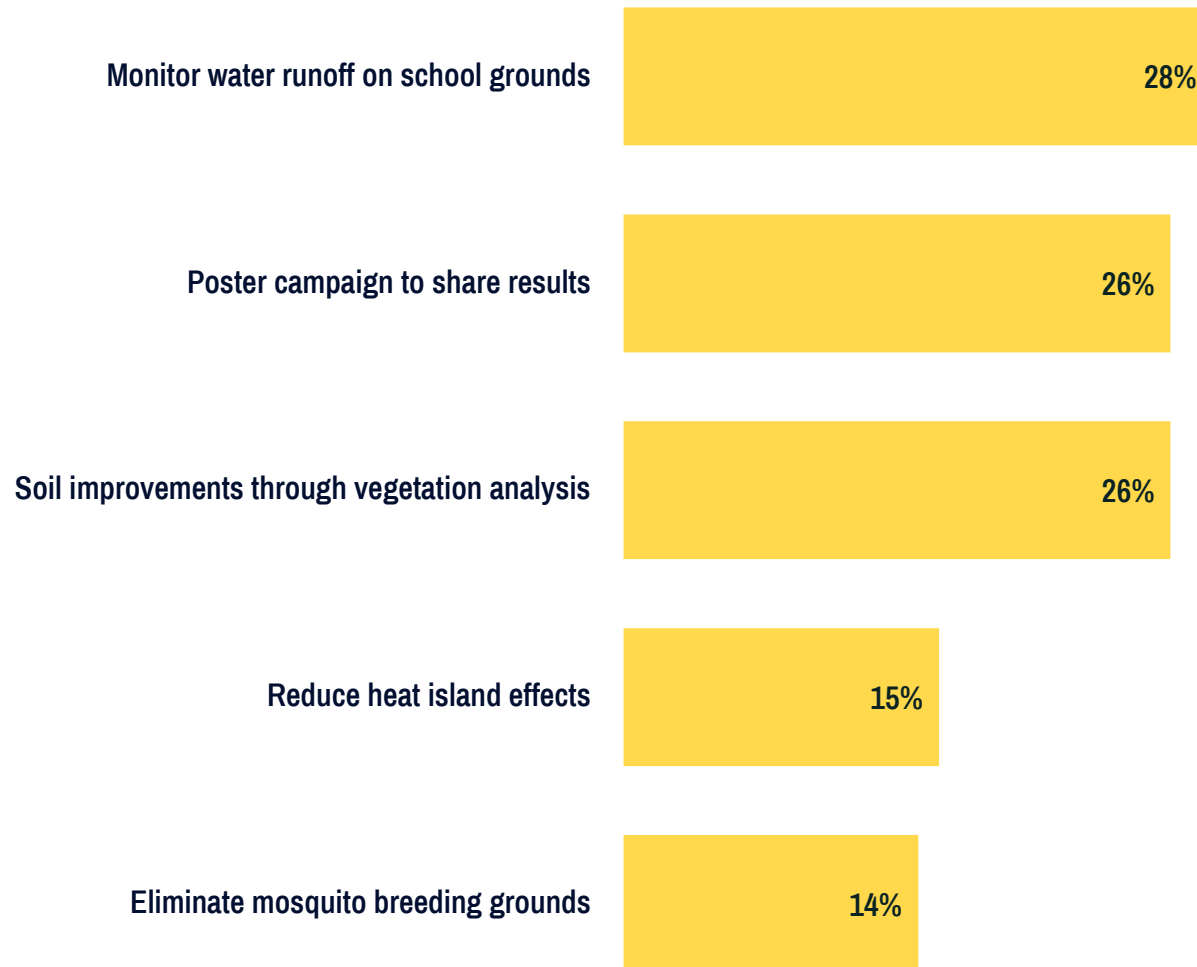
Overall, practices surrounding community science initiatives were not widespread among Green School applicants in 2022-23. This is a relatively new category of reporting in the metrics survey, and may be less familiar to some schools.

Just over a quarter of schools reported making efforts to monitor and provide solutions to modify water runoff on school grounds, having a poster campaign to share results from a community science project, or analyzing trees and vegetation in order to improve soil quality.

Projects that involved increasing green space to reduce heat island effect and coming up with solutions to reduce or eliminate mosquito breeding grounds were less common among schools.

Summary: Self-Reported Green Practices in 2022-23

Total	Green Practice Measure	Total	Green Practice Measure
3,061,015	Lbs. of recycled materials per year	**50,220**	Feet of Streams cleaned
56,941	Lbs. of food waste reduced per year	**56,845**	Trash Bags of Litter collected
61,284	Lbs. of organic waste collected per year	**177,227,256**	Kilowatt-Hours of Energy conserved
420	Outdoor Running Events & Festivals held per year	**17,627**	De-lamped Lightbulbs
1,498,156	Sq. Feet of Native Habitat restored	**2,798**	Classrooms using daylighting most days
691	Outdoor Classrooms	**1,514**	Native Plants and Shrubs planted
1,490	Pieces of Outdoor Environmental Art	**806,745**	Sq. Feet of Invasive Plants removed
360,683	Gallons of water conserved	**54**	No-Idling Zones
31,480	Sq. Feet of Stream Bank Planting & Erosion Control	**1,729**	Retrofitted toilets, sinks, and showers
169,087	Sq. Feet of No Mow Zone	**13,175**	Sq. Feet of Edible Gardens installed

Note: Metrics come from schools' self-reported measures or estimates of total indicators included in the survey; reported at the time of application for award or re-award. For the purposes of this reporting, neither MAEOE nor the evaluators verify or adjust the totals reported by schools (using their numbers verbatim). Data from several indicators, as noted on the previous pages, are greatly affected by estimates given by a single school that are extremely and implausibly high, often accounting for 90% or more of the total reports for that indicator.

Disparities within Self-Reported Numbers in Practices

There have been dramatic ranges of environmental metrics reported by schools every year; but the breadth of the range of responses in 2022-23 was even more dramatic than in past years, with some wildly high estimates. This underscores there are major limits to the reliability of self-reported numbers.

The table shows the lowest and highest values provided by a single school in response to several quantified environmental metrics in the MDGS application. A few different factors could be at play for different green practices, but all data indicate that schools struggle to report accurate data about the extent of their green practices. The value of these quantified impact metrics is, as a result, questionable.

Year-round practices with hard-to-gauge units (such as kilowatt-hours or square feet) have the widest ranges of self-reports. It is not clear what led a school, for example, to report saving over 170 million kWh. Similarly, schools that entered very low quantities (e.g., 1, 5, 10) may have simply been signifying that they took action but were not able to quantify the impact in the units requested.

Low Estimate	High Estimate	Green Practice
1	172,800,000	Energy Saved per Year (Kilowatt-Hours)
1	1,306,800	Native Habitat Created (Sq. Feet)
3	750,000	Removal of Invasive Species (Sq. Feet)
3	587,212	Recycled Materials per Year (Lbs.)
6	566,280	Erosion Control (Sq. Feet)
5	90,000	Water Saved per Year (Gallons)
1	57,600	No Mow Zone (Sq. Feet)
1	54,078	Rain Gardens (Sq. Feet)
2	20,000	Recycled Electronics
5	19,200	Turf Reduction (Sq. Feet)
1	18,665	Organic Waste Collected per Year (Lbs.)
1	15,000	Trails & Pathways (Sq. Feet)
3	12,700	Food Waste Reduced Per Year (Lbs.)

CONCLUSIONS

Discussion & Implications

Progress toward Goals

As anticipated, the first year after the end of COVID-era grace periods resulted in some decrease in the overall number of Green Schools. However, the decrease was largely mitigated by strong set of applications from 33 new Green Schools in 2022-23.

There was a slight decrease in the overall progress toward the goal of having 50% of schools in Maryland awarded as Green Schools. In 2023, the percentage fell from 2022 levels, but still remined higher than the percentage reported in 2021. As anticipated, with the end of the automatic extensions granted during COVID, about 66 previously awarded schools fell into lapsed status, which will require them to re-start the application process.

This result was discouraging but expected. It will be important in 2024 for the program to continue its efforts at growth, with the "backlog" of schools that were not able to rebound their programs after COVID mostly moved out of the system.

The three main takeaways about evidence of achievement this year are summarized to the right.

1

34% of MD schools are Green Schools.

This metric fell in 2023, but it remained higher than the metric computed in the first year of evaluation (2021). Moreover, within public schools, the program was able to maintain close to the same levels of awardees as in 2022, which is very close to the 50% goal, with **43% of all public schools currently Green Schools.**

2

Steady Growth in Three Counties

Over the past three years, including 2023, when across-the-board decreases were anticipated, MDGS has maintained steady, positive growth in the reach of Green Schools in three counties – Prince George's, Montgomery, and Kent Counties. While these were not entirely the prioritized far eastern and western counties, the progress in this year of declines was very encouraging.

3

PD & Grants Support MDGS Applicants

An expanded analysis of MAEOE's data about which schools have attended professional development since the start of state funding and received mini-grants this year showed a strong relationship between schools that received this support and those that have achieved Green School awards. 60% of schools that sent a representative to PD sessions have made successful applications, and 42% of grantees this year achieved their awards this year as well.

Potential Threats to Progress

Supporting New & New-ish

The MDGS program showed a strong rebound, post-COVID, in attracting and shepherding new schools to be awarded – with 33 schools added in 2023. This was similar to levels reported in pre-COVID years, which is very encouraging. At the same time, the data suggest that the phases with the greatest likelihood to drop their award status is between the initial award and the first re-application; continuation into the second re-application has not seen much loss. These early stages may be where schools are most at risk of "giving up" on their journey to remain a Green School.

Sustainable School Decisions

In 2023, the MDGS program delayed a planned change that would have required schools at the Sustainable level to resume a cycle of reapplications to maintain their awards and status as Green Schools. In this year's data, all previously awarded Sustainable Green Schools remained in good standing with the program. Should the plan to require a further re-application process go into effect, it seems likely to result in further losses from the existing Green School population. These schools may need very different support than new schools do to encourage them to re-engage in a review process.

Eastern & Rural Schools

Two counties in the Eastern Shore area have continually shown limited engagement or interest in the MDGS program – Somerset and Dorchester. No schools are awarded as Green Schools and there was no participation in PD or mini-grant programs. There were signs of positive movement in Kent County this year. There were also data patterns suggesting that the program has lost some traction in schools in rural areas (not just the Eastern Shore), two findings which may have some relationship as MAEOE thinks differently about the needs of small and rural schools in order to make inroads.

Areas for Strategic Improvement

Rethink Environmental Metrics

Schools seem to be able to report whether or not they took specific environmental impact behaviors in a year, but the data have repeatedly shown that self-reported, quantified metrics of impact (e.g., kWh, sq-feet, number of lightbulbs) are not reliable or accurate. In 2023, reports were even more extreme (high and low) than prior years. This reiterates that schools need support to know how to record, access, or estimate these metrics with accuracy if MAEOE intends to use them as indicators.

Continue Improving Data Quality

As MDGS moved to an electronic application system, opportunities to continue improving data quality are likely – even as data become more complex with more schools added every year. In 2021, MAEOE considered asking applicants to report student involvement in Green School activities; but, as with the environmental metrics, it is essential that any additional questions be carefully designed to support accurate reporting by schools and included in support for prospective applicants.

Urban & Less Affluent Schools

While there was some indication that MDGS had made some traction with less affluent or struggling schools (via Title I or FARM designation), these schools – along with urban schools – continue to be an area for potential program growth. As was noted about rural schools (on the prior page), these schools may have a different set of perspectives about how the MDGS program and environmental education could better align with the priorities, strengths, and needs within these schools.

Implications for Action from MAEOE: Part 1

Strategies to Rebuild after COVID

A big need for the MDGS program is to support schools as they continue the long process of rebuilding post-COVID. There has been high staff turnover due to teacher retirement and teachers leaving the profession. Among those who remain, teachers are tasked with supporting students to achieve academically, while they also try to create their own work-life balance. To address these realities, MAEOE seeks input from educators to develop programs that have cross-curricular benefits. MAEOE aims to find ways to use environmental education to support English Language Arts, Math, and core curriculum, as well as to help teachers use connection with the environment as a way to improve health and well-being.

MAEOE continues to Increase professional development opportunities and to build local networks that can engage to support schools regionally. Central to this are national policy drivers around climate, student achievement, health and well-being, and getting students and teachers outdoors to learn. MAEOE is integrating these initiatives into programming and collaborating with environmental education organizations to deliver on these efforts.

Implications for Action from MAEOE: Part 2

Improving Data & Diversifying Outreach

MAEOE is working with its Evaluation Team and the Green Schools Committee to improve the quality and reliability of the metrics collected as part of the Green School Application. With the rollout of the electronic application, the correlation between the school, student, and community actions reported in each objective and the environmental impacts being reported in the Metrics Survey (environmental indicators) is easier to pinpoint. However, more training for educators, schools, green leaders, and green centers is needed to improve the accuracy of the numbers being reported.

MAEOE continues to develop plans and initiatives to reach less affluent or struggling schools in both rural and urban settings. MAEOE is also collaborating with a network of 45 Green Centers to provide regionally focused training to support schools with the Green Schools application process. This approach will address different, and locally-relevant, perspectives on environmental education and environmental literacy across the state.

J. Sickler
CONSULTING