



Chesapeake Bay Watershed 2024 Environmental Literacy Report

Maryland

Results from the ELIT Survey

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BACKGROUND

Study Purpose & Methods

ELIT Background & Purpose

The Chesapeake Bay Environmental Literacy Indicator Tool (ELIT) was developed to monitor the capacity and progress of public school districts toward meeting the environmental literacy goal stated in the 2014 Chesapeake Bay Watershed Agreement. The goal was to:

Enable every student in the region to graduate with the knowledge and skills to act responsibly to protect and restore their local watershed.

Three outcomes are stated in the agreement:

1. **Students:** Increase age-appropriate understanding of the watershed through meaningful watershed educational experiences (MWEEs) and rigorous, inquiry-based instruction, with a target of at least one MWEE in elementary, middle, and high school, depending on available resources.
2. **Sustainable Schools:** Increase the number of schools that reduce impact of buildings and grounds on their local watershed, environment, and human health through best practices, including student-led protection and restoration projects.
3. **Environmental Literacy Planning:** Develop a comprehensive and systemic approach to environmental literacy for all students, including policies, practices and voluntary metrics that support environmental literacy goals and outcomes.

The ELIT contributes to monitoring public school districts' progress toward these outcomes, collecting data about:

- School district preparedness to implement a comprehensive and systemic approach to environmental literacy education (Outcome 3);
- Student participation in MWEEs during the school year (Outcome 1);
- School district needs to support further improvements in environmental literacy education.

The ELIT tool used in 2024 was identical to the tool used in 2022.

The ELIT is administered biennially to all local education agencies (LEAs) in six jurisdictions in the Chesapeake Bay Watershed. **This report presents results from all responding LEAs in Maryland.**

ELIT Data Collection

Data Collection Procedure

The ELIT is administered every two years as an electronic survey. It is intended to be completed by a single representative from the administration of each LEA (school district) who is able to report on district-wide activities. Additional data that are more reliably obtained through non-survey means (e.g., student enrollment) are identified from external sources and merged with the survey responses.

Past ELIT data were collected in 2015, 2017, 2019, and 2022. There was a one-year pause in data collection during the COVID-19 pandemic.

The Chesapeake Bay Program Education Workgroup organized data collection in 2024. Representatives from each state's education office led distribution of the survey to LEAs within their jurisdiction. ELIT data collection targets only public school districts. This report does not contain data about private or charter schools.

Data Collection Timing & Details

The 2024 ELIT asked districts to report on the status of activities for the 2023-24 school year. The ELIT survey opened for responses in August 2024 and remained open for responses through early December 2024.

This analysis and report present results from across the entire jurisdiction.

Additional Information about Data

The most significant challenge of the ELIT is obtaining a strong response rate from 680 LEAs across six jurisdictions. As more LEAs report their activities into this dataset, the Chesapeake Bay Program has a more accurate understanding of the status of environmental literacy regionwide.

To maximize ability to generalize about conditions across the region, ELIT results include all data submitted in the current year's survey, as well as available data from prior ELIT surveys, within two years. **In this report, results include all responses to the 2024 ELIT, as well as data from any LEA that responded in 2022, but did not update their records in 2024.** The underlying assumption is that changes for non-reporting districts are likely minor in just two years.

In some analyses, we constrain the dataset to only those districts who provided data in *both* recent years – 2024 and 2022 – to offer the most accurate reporting of patterns of change at the district level.

About Rounding: In tables and graphs throughout this report, we display distributions with whole number percentages. In some tables and graphs, percentages may appear to add up to slightly more or less than 100%. This is due to variation when rounding decimals.

2024 ELIT Response Rate

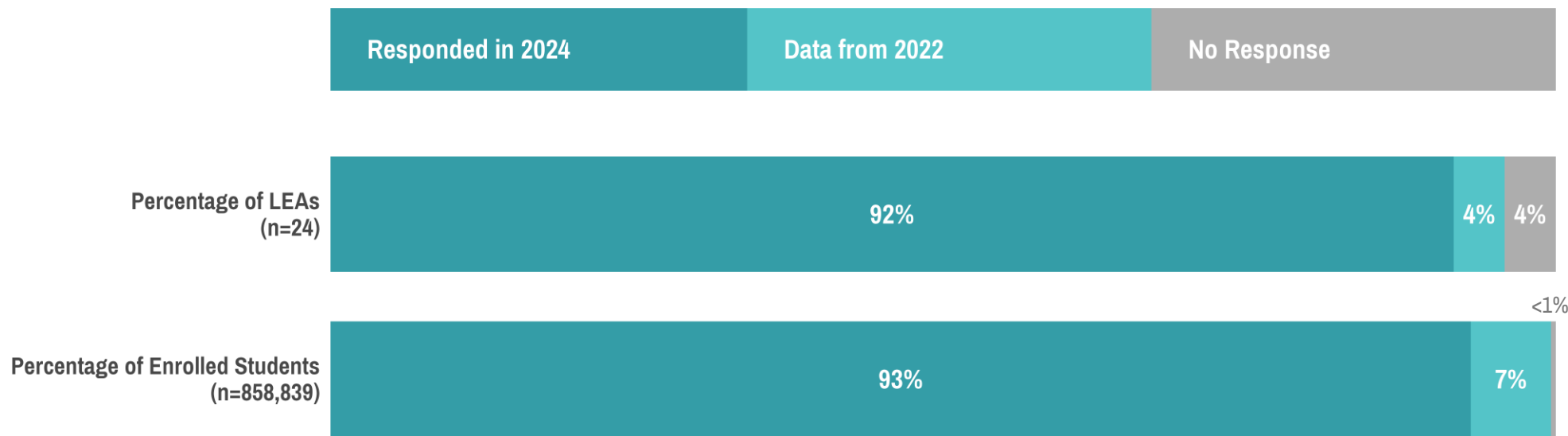
22 out of 24 LEAs in Maryland completed the ELIT survey in 2024. This constituted a response rate of 92% of all districts, and it represented 93% of enrolled students in the state.

In addition to these new responses, Maryland had 2022 data from one LEA, which was carried forward and included in analysis for the 2024 ELIT result. With these recent (but not updated) data included, the 2024 ELIT results for Maryland represent 96% of all LEAs and over 99% of all enrolled students.

Maryland was very successful at encouraging LEA responses to the ELIT in 2024, as they have been in past years. With the inclusion of the 2022 data to supplement the updated 2024 data, the analysis in this report should provide a clear and up-to-date picture of the status of environmental literacy efforts in school districts statewide.

Note: the very small gray bar in the graph below (associated with percentage of enrolled students) represents the enrollment numbers for the one non-responding district in the state. That district accounts for less than 1% of all enrolled students in Maryland.

ELIT Response Rate: Percentage of all LEAs and of Enrolled Students across Maryland in 2024



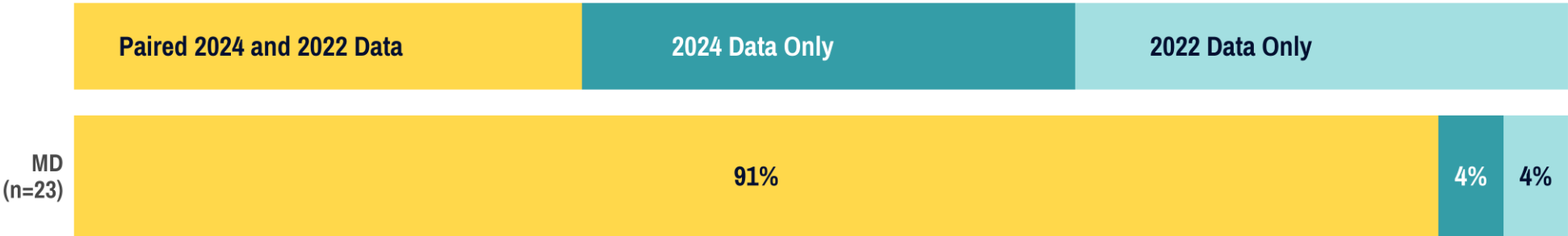
Availability of Paired Year-to-Year Data

Of the responses available in the current dataset, all but two of the LEAs have provided data in both 2024 *and* in 2022. The availability of these paired, year-to-year responses enables a robust view of the change in environmental literacy practices in the past two years.

In the analyses that follow, we use this paired dataset to explore the degree to which changes have occurred between the last two years of ELIT surveys. By isolating comparisons to districts that responded in both current and previous years, we can eliminate “noise” in the data that may be due to changes in *which* districts responded (or not) in a given year. While a smaller dataset, these analyses allow the jurisdiction to see the actual movement of a given district between years.

Repeat ELIT Respondents: Availability of Paired 2024 and 2022 Data

The dataset used for the 2024 analysis includes data from 23 LEAs. The yellow segments show the proportion of districts for which we have paired data from both 2024 and 2022 ELIT collection. The remaining segments (teal) indicate districts for which we only have one year's data (either 2024 or carried-forward data from 2022).



Staff Responsible for Sustainable Schools

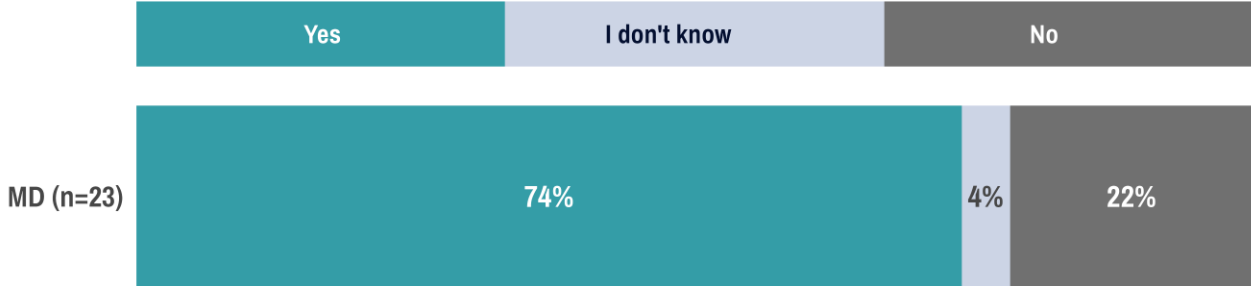
A strong majority (74%) of the responding LEAs indicated that their district has dedicated staff responsible for sustainable schools.

The 2024 ELIT did not engage in a full inquiry of sustainable schools practices, to reduce the burden on districts where data may be gathered elsewhere. Only one question was asked, which was to gauge if the district had dedicated staff responsible for sustainable school efforts.

Maryland reported a high rate, with 17 of 23 LEAs confirming that they had staff responsible for sustainable schools.

Sustainable Schools: Presence of Support Staff

Responses to the question: Does your LEA have a staff lead or team responsible for coordinating sustainable schools efforts?



RESULTS



**Preparedness to Implement
Environmental Education**

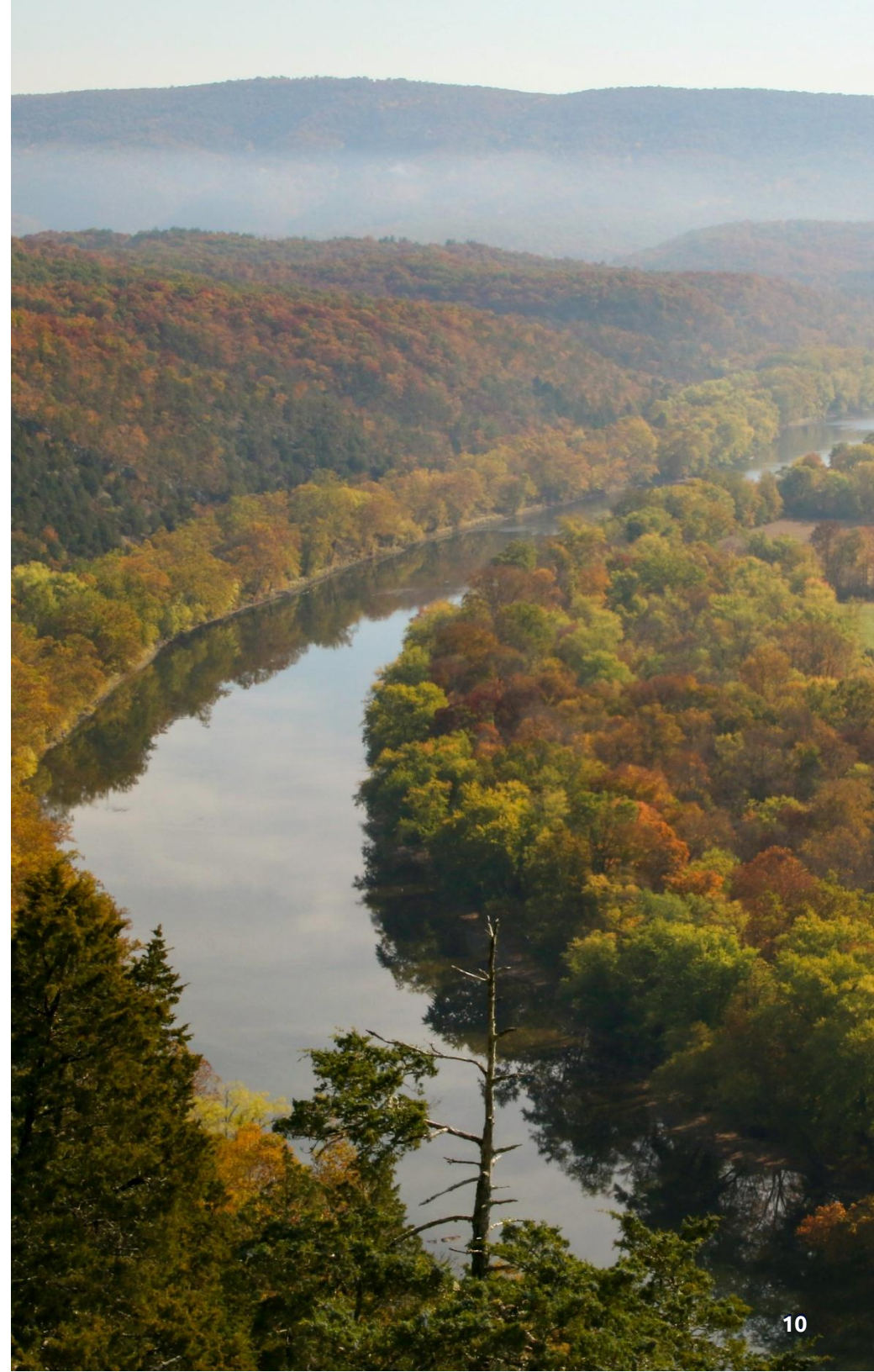
Measurement Overview

To assess each LEA's current capacity to implement a comprehensive and systemic approach to environmental education (EE), respondents considered six elements (below) and indicated for each whether it was:

- Not in place
 - Partially in place
 - Fully in place
- The response for each element was scored with a value of 0, 1, or 2, respectively. These values were summed to arrive at a total preparedness score for the district.

Six Elements Used to Determine LEA Preparedness for EE:

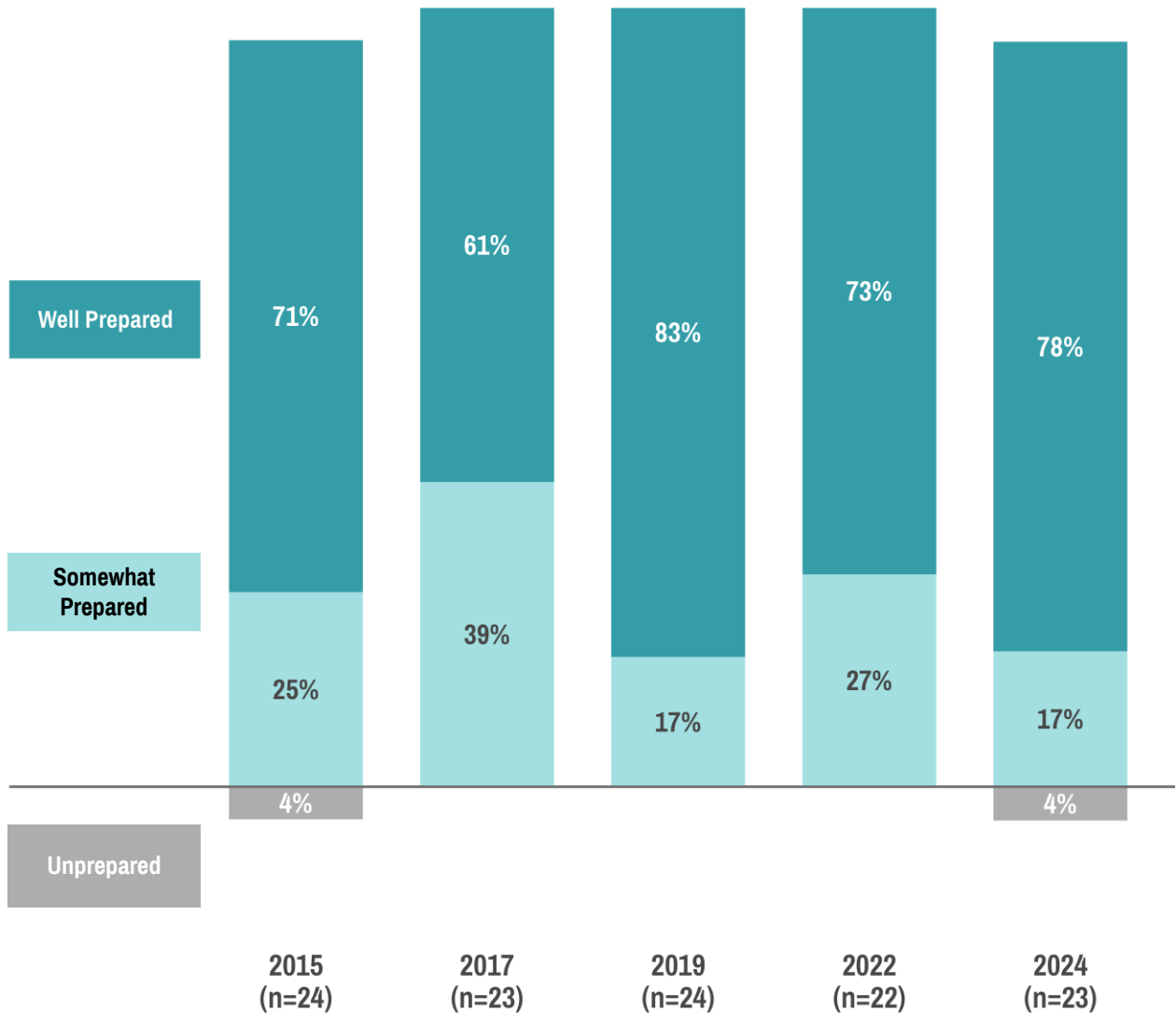
- a) An established program leader for environmental education (providing effective, sustained, and system leadership).
- b) An integrated program infusing environmental concepts into appropriate curricular areas.
- c) Regular communication among staff responsible for environmental education curriculum and program implementation.
- d) A support system in place that enables teachers and administrators to engage in high quality professional development in content knowledge, instructional materials, and methodology related to environmental education.
- e) A plan to ensure opportunities for all students to engage in meaningful watershed educational experiences (MWEEs) at the elementary, middle and high school levels.
- f) Established community partnerships for delivery of environmental education, including implementation of MWEEs.



LEA Preparedness: Trends Over Time

Changes in Environmental Literacy Preparedness Over Time (2015-2024)

State-wide preparedness levels in each of the ELIT years' reporting. Divergence illustrates the change in proportion of districts reporting any level of preparedness. Number of reporting districts may vary from year to year.



78% of Maryland LEAs were well prepared to implement high quality environmental education in 2024.

Responding LEAs rated how fully their district has implemented the six indicators of planning and infrastructure for high quality EE. Total preparedness scores, across all indicators, were grouped into three levels of preparedness:

- Well Prepared: scores from 9-12
- Somewhat Prepared: scores from 4-8
- Not Prepared: scores from 0-3

In 2024, 22 LEAs in Maryland scored as either somewhat or well prepared; only one district fell into the unprepared category.

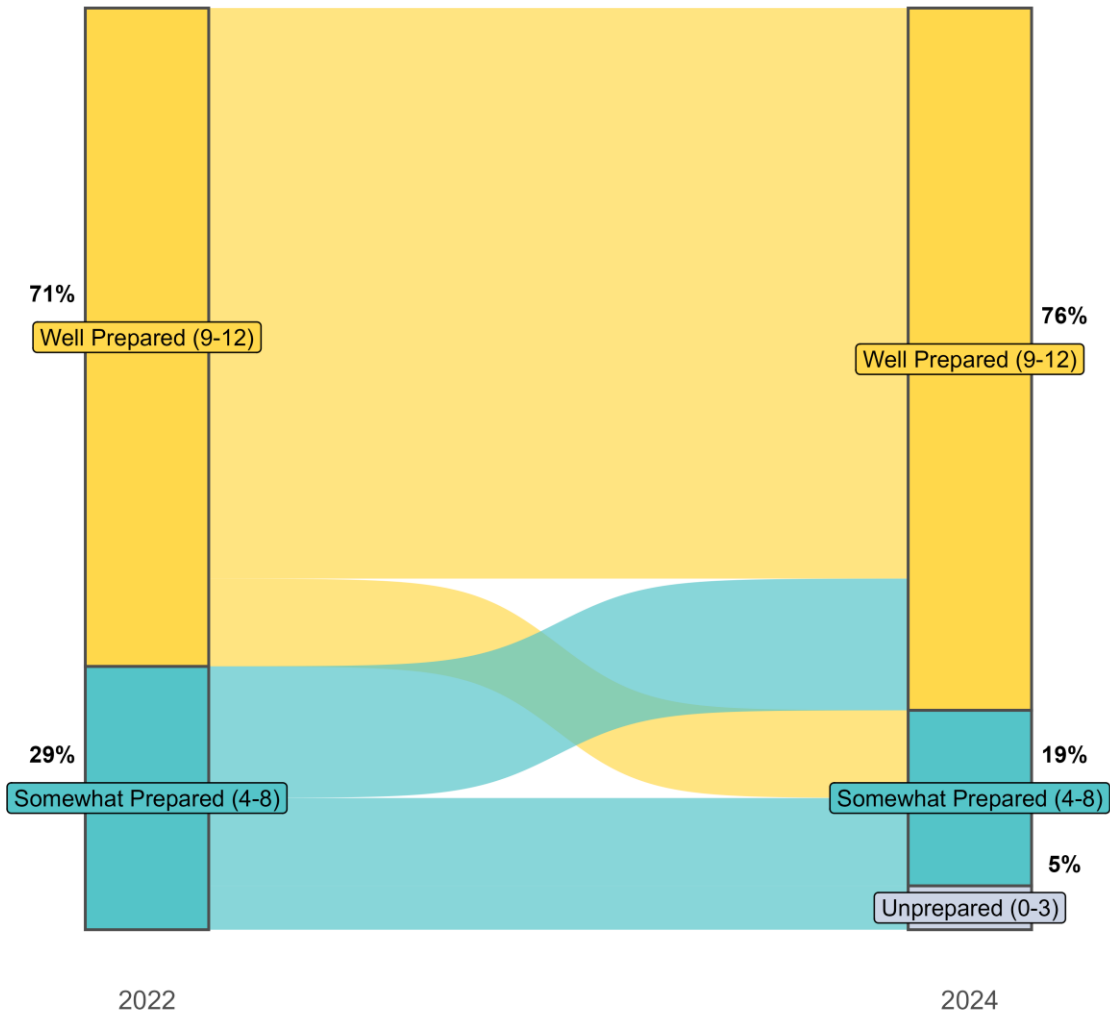
When we look at results from this indicator over time, we see that 2024 shows some degree of a rebound of districts reporting that they are well-prepared, compared to 2022. The indicator is very close to its peak performance in the 2019 dataset.

On the next page, we examine changes for just districts with paired 2022 and 2024 data, which provides a more nuanced look at changes that occurred.

LEA Preparedness: District Changes from 2022 to 2024

ELIT Preparedness: Pathways of Change between 2022 and 2024

This graphic shows how the planning level of individual school districts changed between the 2022 and 2024 ELIT. It includes only districts that responded to the survey in both years (n=21).



When we look only at districts for which we have reported data in both 2022 and 2024, we see that more LEAs reported being well prepared in 2024 – with an increase of 5 percentage points.

This analysis provides a clear picture of year-to-year change and pathways of movement in the metric by tracking each individual district that reported status in both years. Most districts maintained their level of preparedness over the two years. An equal number of districts rose to higher levels of preparedness and fell to lower levels of preparedness.

This graph highlights that 3 districts moved up from “somewhat prepared” to “well prepared”, while 2 districts moved in the reverse direction. Additionally, 1 district moved from “somewhat prepared” in 2022 to “unprepared” in 2024.

When we look at the raw, total preparedness score (used to assign the levels) of all LEAs with paired data, **the average total score decreased from 9.38 in 2022 to 9.19 in 2024**. This indicates an overall trend of school districts reporting slightly fewer preparedness items in place since 2022.

Breaking Down the Elements of Readiness

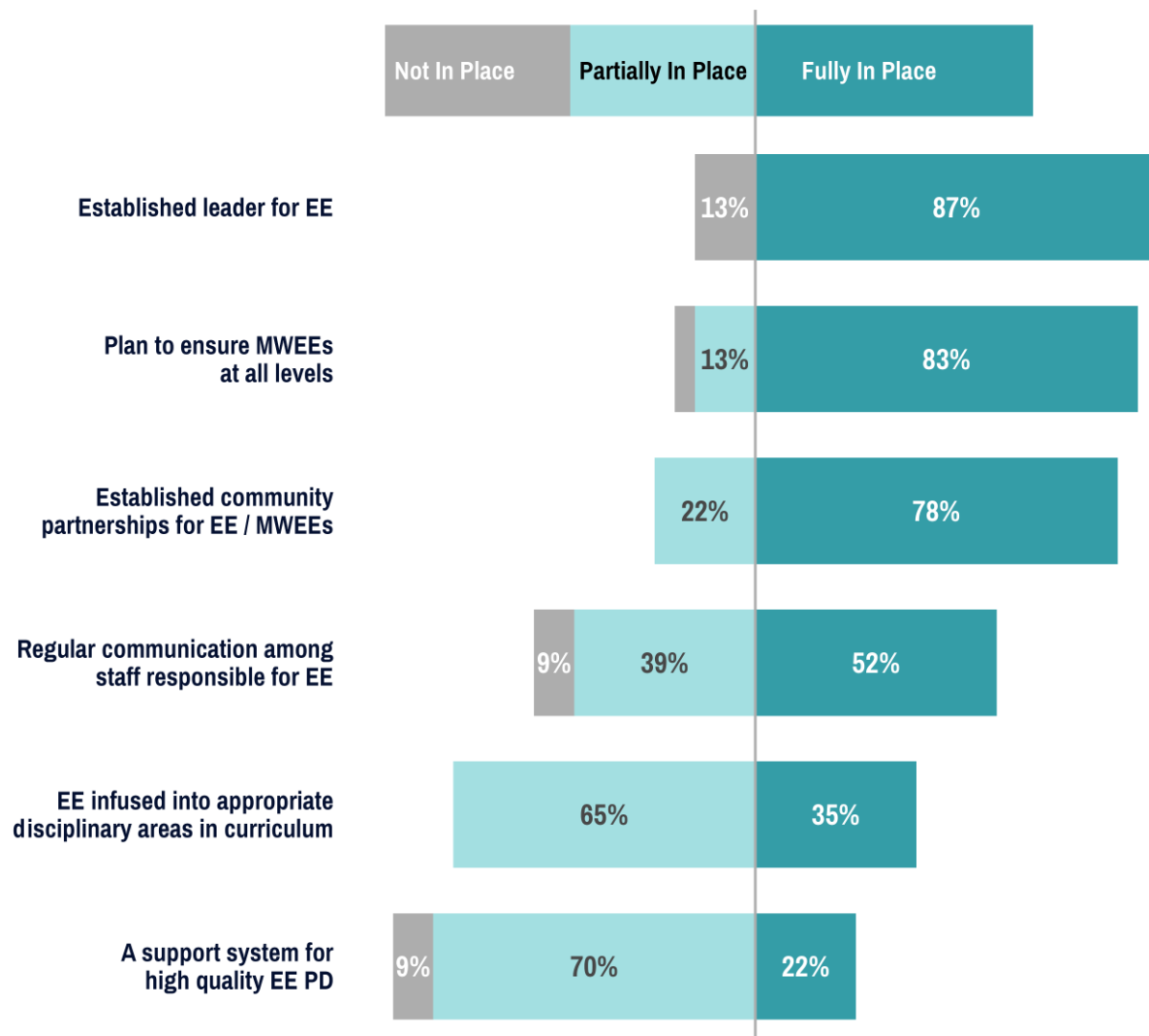
More than 70% of Maryland LEAs reported having an established leader and community partnerships for EE, as well as a plan to ensure MWEEs at all levels.

The breakdown of readiness within each element in the preparedness indicator show some trends in districts' strengths and challenges for planning. Similar to past years, creating an integrated program that infuses environmental topics across the curriculum is the area in which the greatest number of LEAs have made some progress (65%) with more than a third having fully achieved this element. This was the only area of slight change from 2022, with an increase of 3% of LEAs that had this component fully in place.

The next page further breaks down these data, by comparing the results within the three subgroups (well-prepared, somewhat prepared, or unprepared). It suggests that establishing an EE leader, integrating EE across the curriculum community partners, and integrating EE across the curriculum are areas in which less-prepared districts make early strides toward greater preparedness.

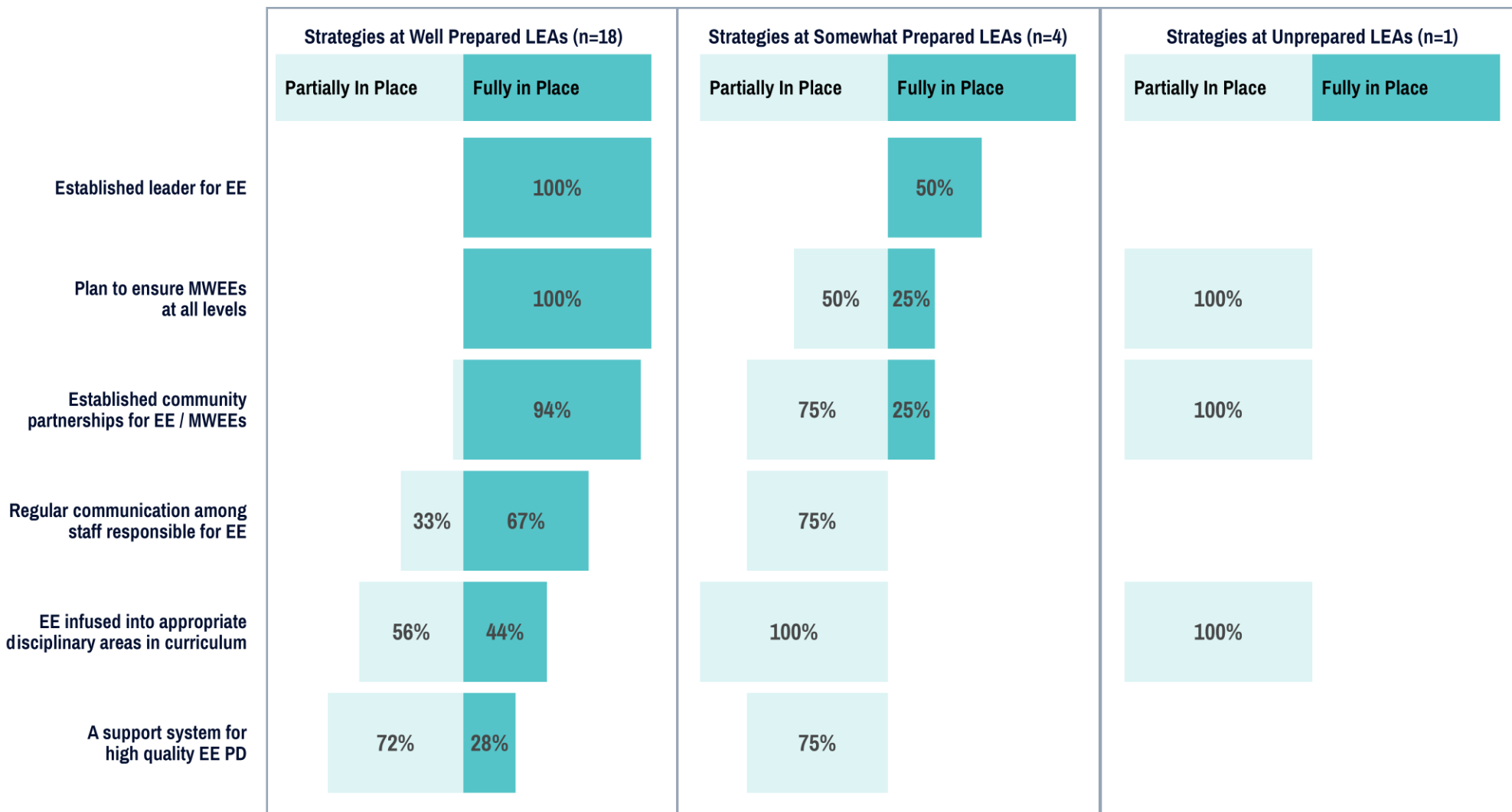
Degree of Readiness for Each Element of LEA Planning and Infrastructure.

Distribution of ratings to individual items in the planning indicator by all LEAs in Maryland (n=23)



Elements Fully or Partially in Place

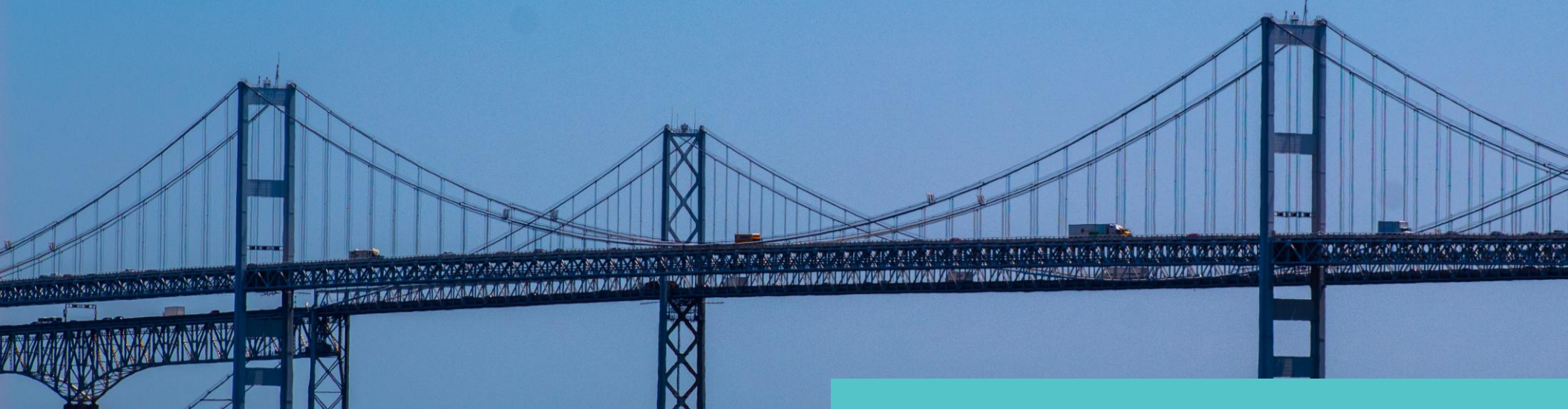
Comparing Strategies between Levels of Preparedness



RESULTS

Student Participation in Meaningful Watershed Educational Experiences (MWEEs)





RESULTS: STUDENT PARTICIPATION IN MWEEs

Measurement

To assess the level of student participation in MWEEs within each LEA, respondents were asked to assess the presence of MWEEs within curricular offerings within each grade level (K-12), considering if they were system-wide or isolated to schools or classes. (See detail, right.) Respondents were given a reminder of the complete definition of a MWEE before the questions.

Although respondents reported at individual grade levels, analysis aggregated these data to report results by grade band (elementary, middle, or high school). The aggregation grouped each LEA into one of three levels within each grade band:

- At least one system-wide MWEE provided in the grade band;
- Some MWEE programming in the grade band, but not system-wide;
- No MWEE programming provided in the grade band.

For elementary (K-5) and middle school (6-8) grades, respondents indicated whether the district had:

- A system-wide MWEE experience for students in this grade
- Some schools or classes in this grade participate in MWEEs
- No evidence that students in this grade participate in a MWEE

For high school, MWEEs are more likely to correspond to a course than a grade level. Therefore, respondents reflected on courses at the high school level, indicated if the course was required or elective and whether the district had:

- A system-wide MWEE experience for students in this course
- Some schools or classes participate in MWEEs for this course
- No evidence that students in this course participate in a MWEE

The MWEE level was computed based only on courses that were indicated to be graduation requirements (i.e., needed for all students).

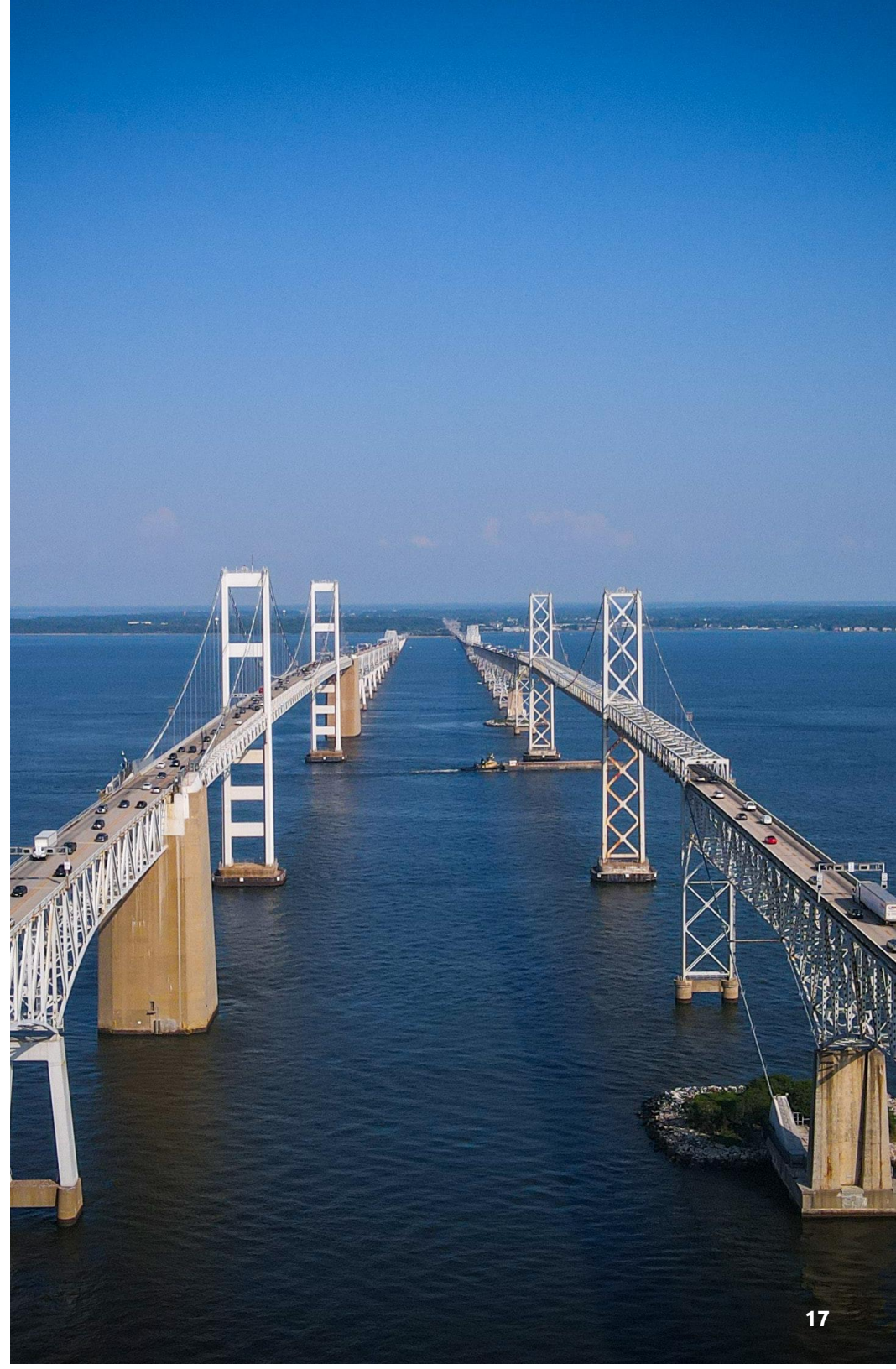
HS MWEE Measurement

The method for gathering data about high school MWEEs in 2024 was identical to the method used in 2022. However, the 2022 method was a shift from past years, as described below.

Early ELIT surveys received feedback that there may be inaccuracies in how high school courses were reported, particularly regarding clarifying whether MWEE reports were clearly limited to *required* courses (a critical element to be “system-wide”). For example, an AP course might be listed as a system-wide MWEE; but as AP courses are electives, it indicated that early ELIT reports may have conflated requirements and electives.

In 2022, the question provided LEAs with an inventory of specific, common subjects, including: biology, chemistry, physics, Earth/environmental science, history, government/civics, geography, algebra I, algebra II, geometry, language arts, literature, health/physical education, AP science, AP English, AP math, AP history, with space for write-in courses. LEA representatives reported the presence of MWEEs in each of these courses (system-wide, some schools, no evidence) – *regardless* of if it was required or elective. This allowed LEAs to focus on course topics.

A secondary question provided the same list of subjects and asked them to indicate which courses were graduation requirements. Analysis used this response to distinguish if each MWEE rating (above) pertained to a requirement (for the indicator) or an elective.



Student Participation in MWEEs

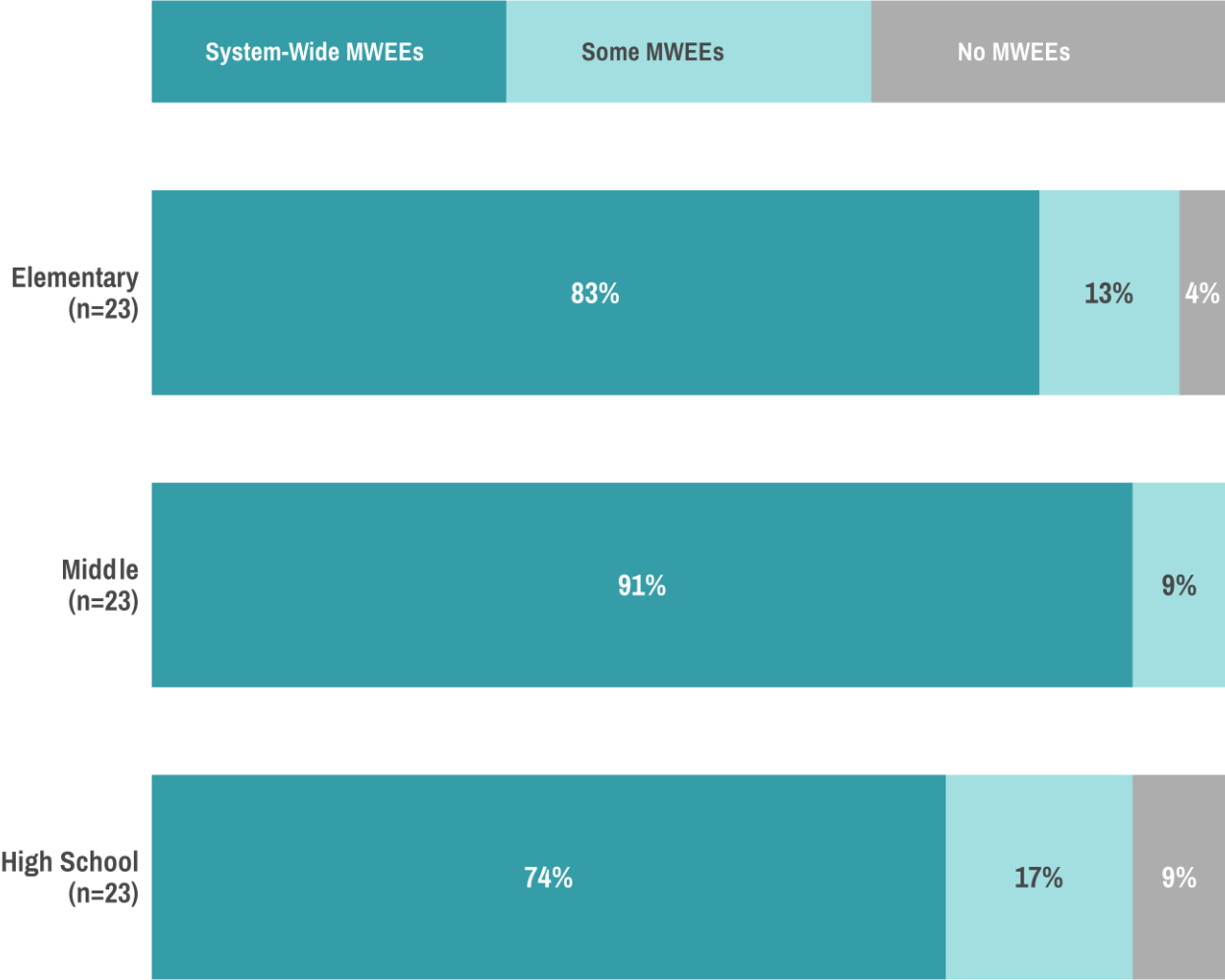
System-wide MWEEs were present across all grade bands in a majority of LEAs; rates were highest in the middle school grade levels.

Maryland demonstrated state-wide success in this indicator, with 91% of districts having a system-wide MWEE for middle school students, and 83% having one for elementary students. System-wide MWEEs were slightly less common for high school students, although only two LEAs reported not providing any MWEEs at the high school level.

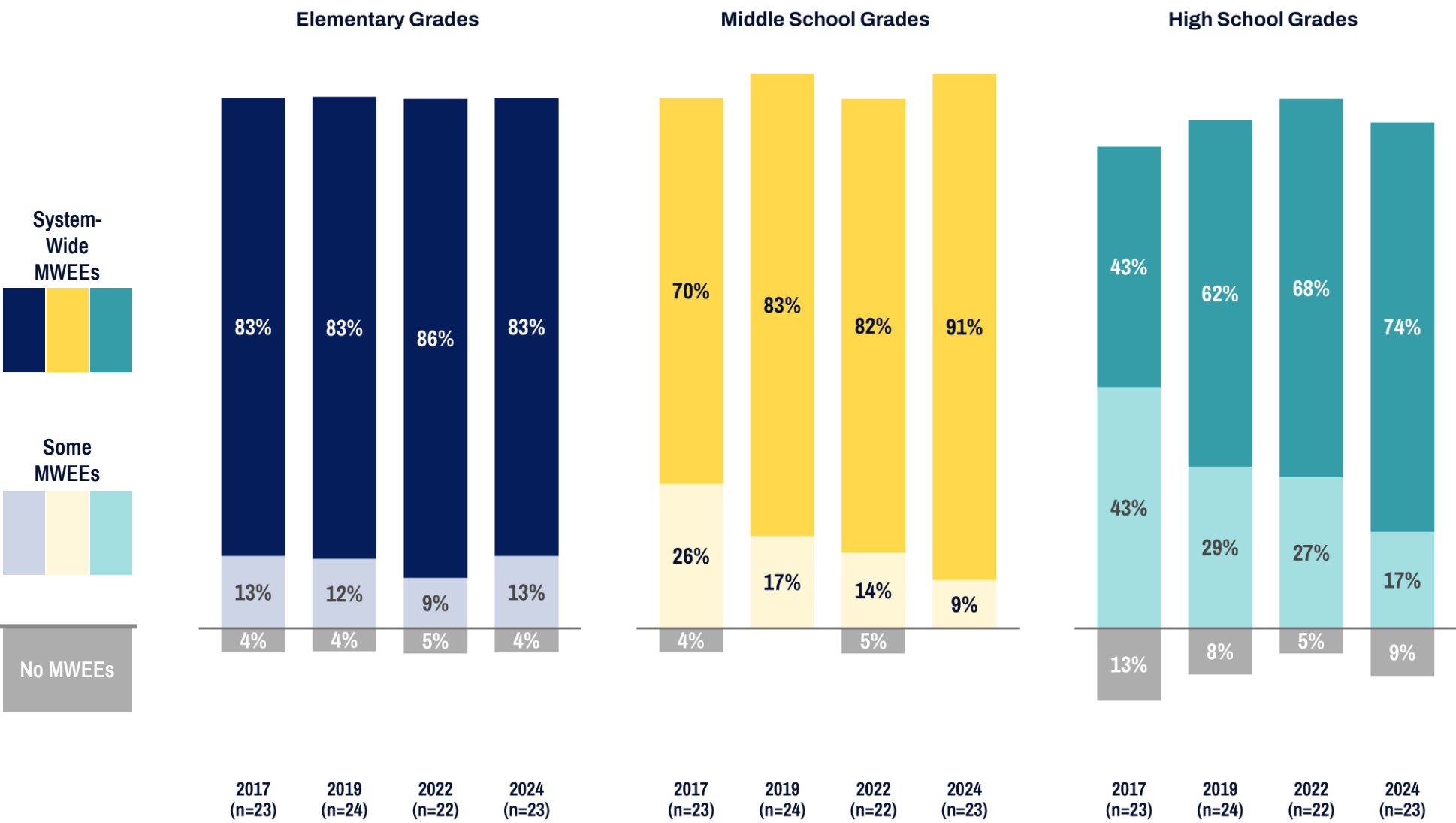
On the next page, results from ELIT years 2017 through 2024 are compared. Overall, rates of system-wide MWEEs have varied. In 2024, the data showed an increase in the rate at middle school and high school grades, and a slight decrease in the rate of system-wide MWEEs in elementary grades.

MWEE Availability among LEAs within Maryland in 2024

Rates of availability across all responding LEAs. If a district reported there was a system-wide MWEE at any grade level(s), they were scored as having “System-Wide MWEEs”; “No MWEEs” indicates no MWEEs at any grade in the band.



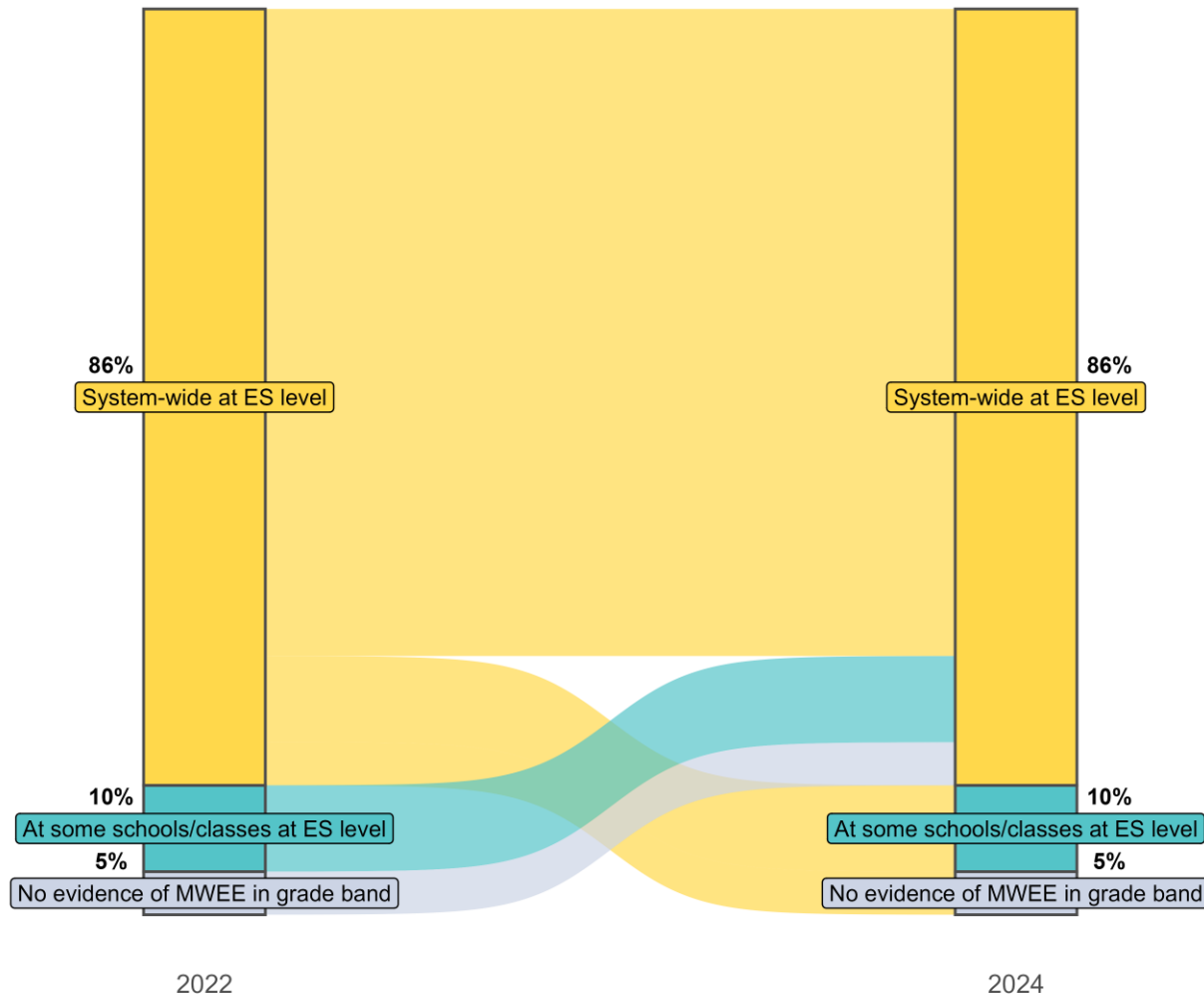
MWEEs by Grade Band: Change Over Time



Change in Elementary: Paired 2022 and 2024 Data

ES MWEEs: Pathways of Change between 2022 and 2024

This graphic shows how the presence of MWEEs of individual school districts changed between the 2022 and 2024 ELIT. It includes only districts that responded to the survey in both years (n=21).



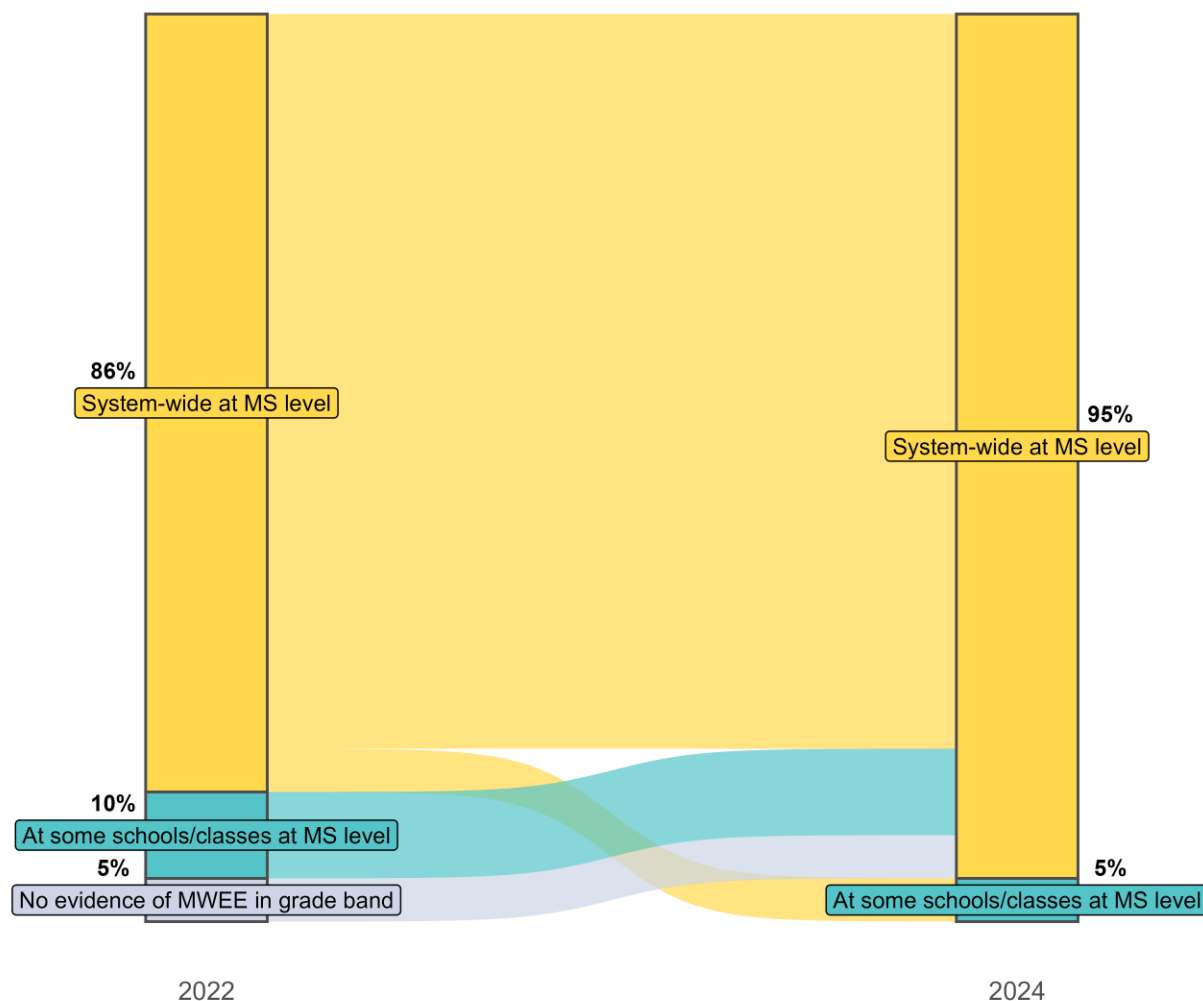
Exploring the subset of LEAs for which we have year-to-year data, we see that the overall proportion of MWEE use in elementary grades was identical between 2022 and 2024. Within that, however, there were some shifts in the presence of MWEEs within individual districts.

While most LEAs reported no changes in MWEE presence at the elementary grade band since 2022, there was some movement by a few districts. The data showed that an equal number of districts moved upward to having system-wide MWEEs as those that reduced or removed them in the past two years. In two cases, the year-to-year change was dramatic – as they jumped from one end of the indicator's spectrum to the other (positively or negatively).

Change in Middle School: Paired 2022 and 2024 Data

MS MWEEs: Pathways of Change between 2022 and 2024

This graphic shows how the presence of MWEEs of individual school districts changed between the 2022 and 2024 ELIT. It includes only districts that responded to the survey in both years (n=21).



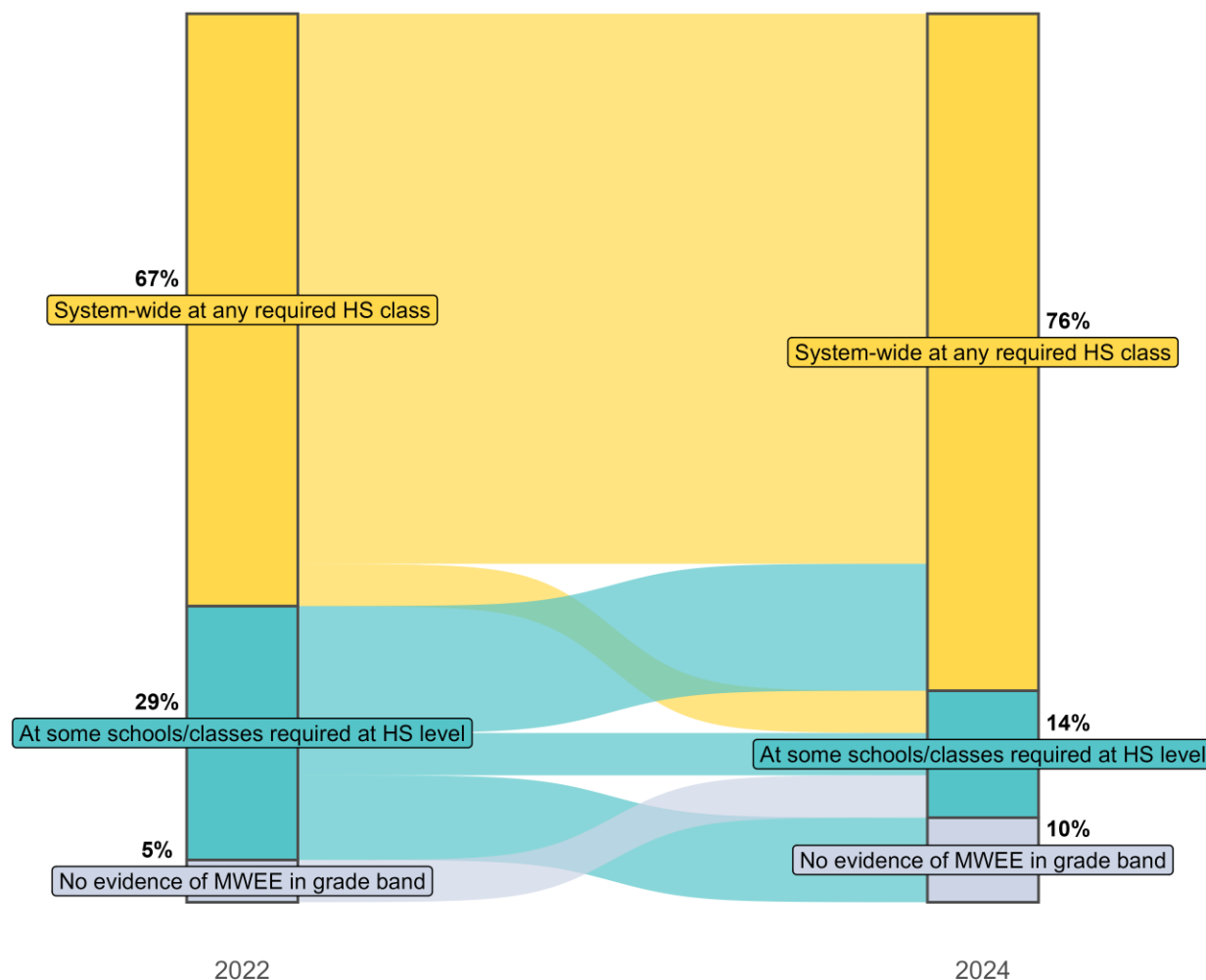
For the subset of LEAs with year-to-year data, we saw a substantial increase in the overall proportion of system-wide MWEEs in middle school – increasing by 9 percentage points in 2024.

While, again, most LEAs reported no change in the use of MWEEs at middle school since 2022, there were a few districts that reported some changes. 3 LEAs increased the use of MWEEs to be system-wide (from having been only partial or existent in 2022). Only one district reduced the use of system-wide MWEEs, dropping down to reporting that they only occur at some schools or classes.

Change in High School: Paired 2022 and 2024 Data

HS MWEEs: Pathways of Change between 2022 and 2024

This graphic shows how the presence of MWEEs of individual school districts changed between the 2022 and 2024 ELIT. It includes only districts that responded to the survey in both years (n=21).



Within the subset of LEAs with paired data, we see that there was also very strong improvement at the high school level with an increase of 9 percentage points in LEAs with system-wide MWEEs since 2022.

Districts that reported system-wide MWEEs at high school in 2022 mostly stayed stable, continuing to report that achievement in 2024. The districts who reported some (but not systemic) MWEEs in 2022, however, tended to change their status in 2024 – a substantial portion moved upward (reporting systemic MWEEs in required courses) and some moved downward (reporting no systemic MWEEs in required courses).

The one district who reported no MWEE use at all in high school in 2022 moved upward to reporting some MWEE presence in 2024.

High School: Required Courses Using MWEEs

Of the 21 LEAs that reported having at least some MWEE experiences within required high school course(s), most MWEE activity was within in science courses.

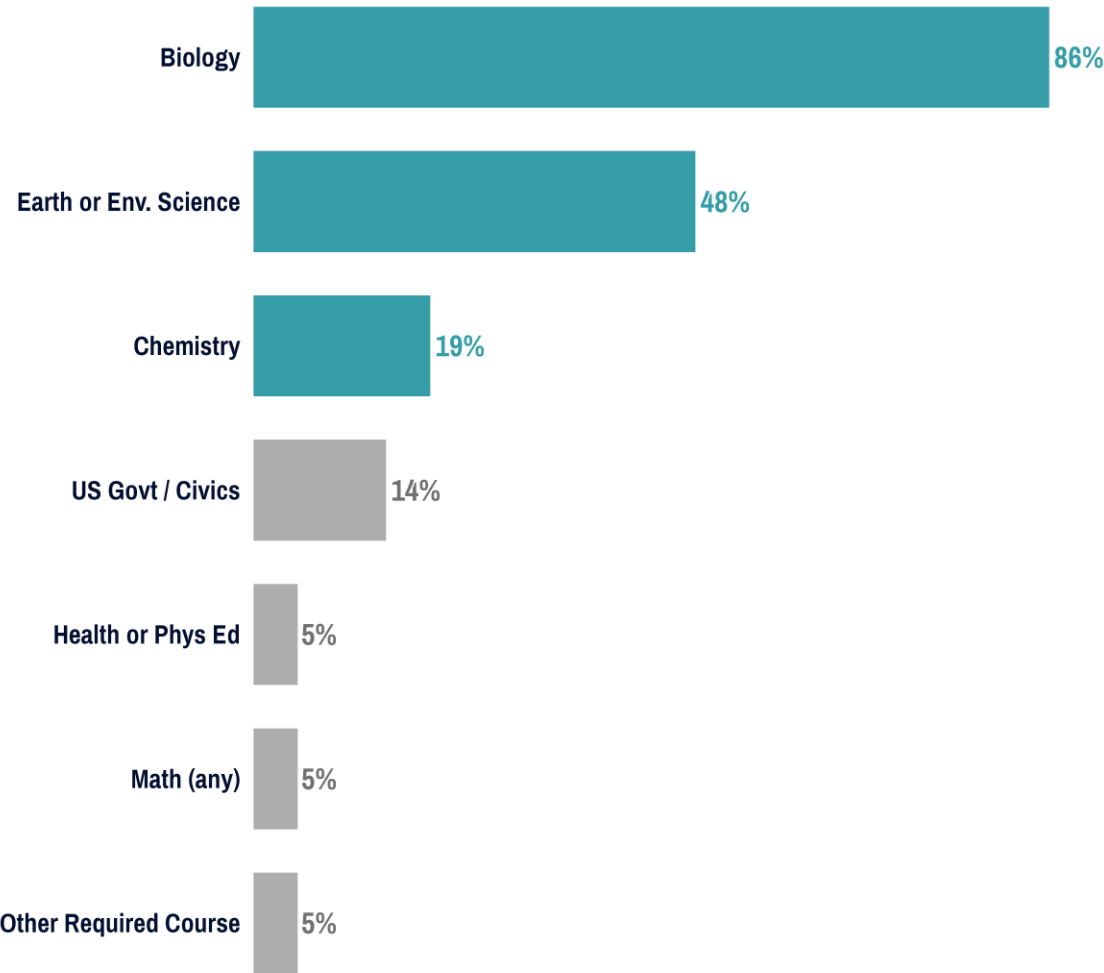
Biology was the most common required subject that incorporated MWEEs – whether in individual courses or system-wide. Earth or environmental science was another common required course for MWEEs to be used at the high school level.

Among required non-science courses, history, civics, and/or government were the most common subjects for a MWEE to be present. This graph and analysis has combined these subjects, to see greater patterns (responses were essentially split between history and government/civics courses). One district noted another required course that involved MWEEs, which was biogeochemical systems (reported by the district as a graduation requirement).

Note: These data include all responses in the 2024 ELIT dataset (not only those LEAs that reported in both years).

Percentage of LEAs that Provide MWEEs within Each Required Subject (n=21)

Sample is just of LEAs that reported having MWEE(s) in at least one required high school course. Data rely on accurate self-reports that courses are requirements. Teal-colored bars indicate science-focused courses (the most common broad subject area); gray bars indicate non-science courses.



High School: Elective Courses Using MWEEs

13 Maryland LEAs reported offering MWEEs within high school courses they indicated were electives. Most of these were in AP-level science, chemistry, or environmental science courses.

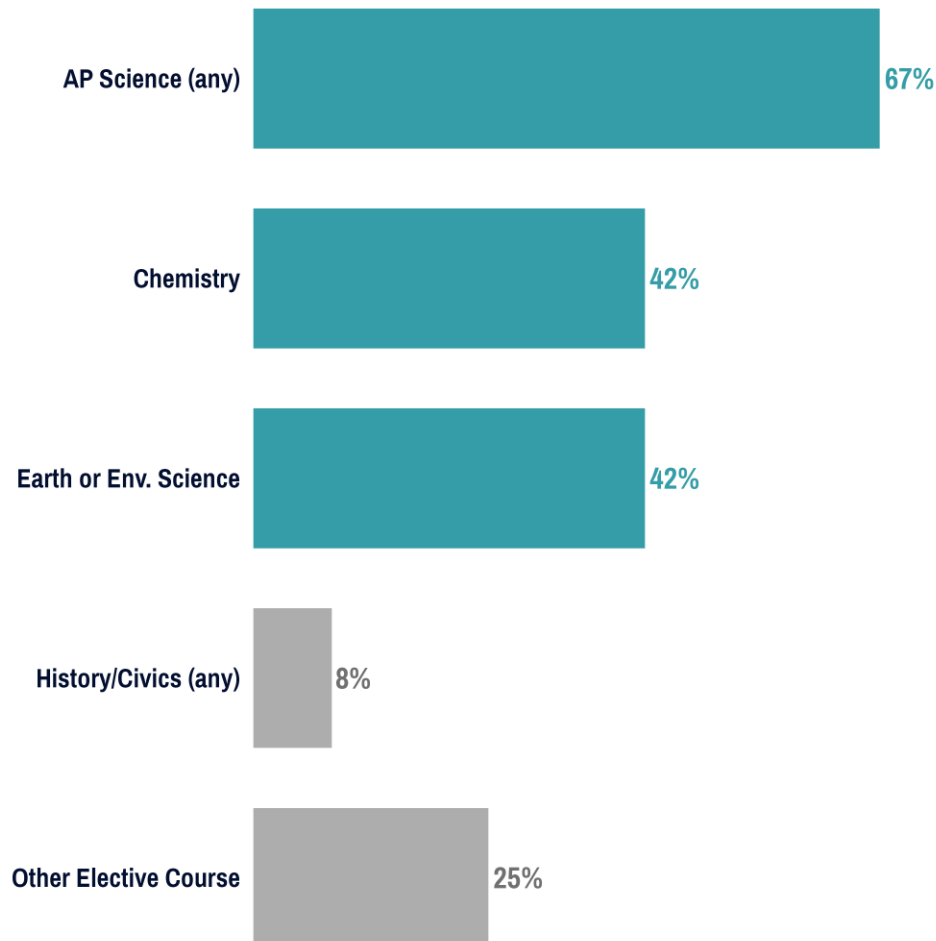
Science subjects within elective courses that used MWEEs were very similar to the patterns seen in required courses (on the prior page), with chemistry and Earth/environmental science being common subject areas, alongside AP-level science courses.

All of the AP Science courses indicated the MWEEs were within AP Environmental Science, specifically. One district wrote-in that a MWEE was used within the AP History Elective of “Human Geography.”

Three districts listed “other electives” that use MWEEs. One of those identified that course as “marine biology;” the others did not specify which elective course(s) used a MWEE.

Percentage of LEAs that Provide MWEEs within Each Elective Subject (n=12)

Sample is just of LEAs that reported having MWEE(s) in at least one elective high school course. Data relies on accurate self-reports that courses are requirements. Teal-colored bars indicate science-focused courses (the most common broad subject area); gray bars indicate non-science courses.



RESULTS

Environmental Education Support Needs



Greatest Needs for EE Support

In Maryland, funding for PD and for transportation were rated as the greatest needs, on average. This was followed closely by needs for funding for programming and supplies.

Funding, followed by PD on various topics, were the highest-rated needs among Maryland districts in this year's dataset. Partnership with EE providers was rated the lowest need. There also seemed to be less need for instructional technology or support from the central office.

Most ratings of need stayed fairly stable between 2022 and 2024. The two greatest increases were for Central Office support and PD to support student-centered investigations, but both were less than a 0.70 difference between the two years.

Three respondents wrote in "other needs" in addition to these items:

"funding for substitute teachers"

"funding for outdoor learning spaces"

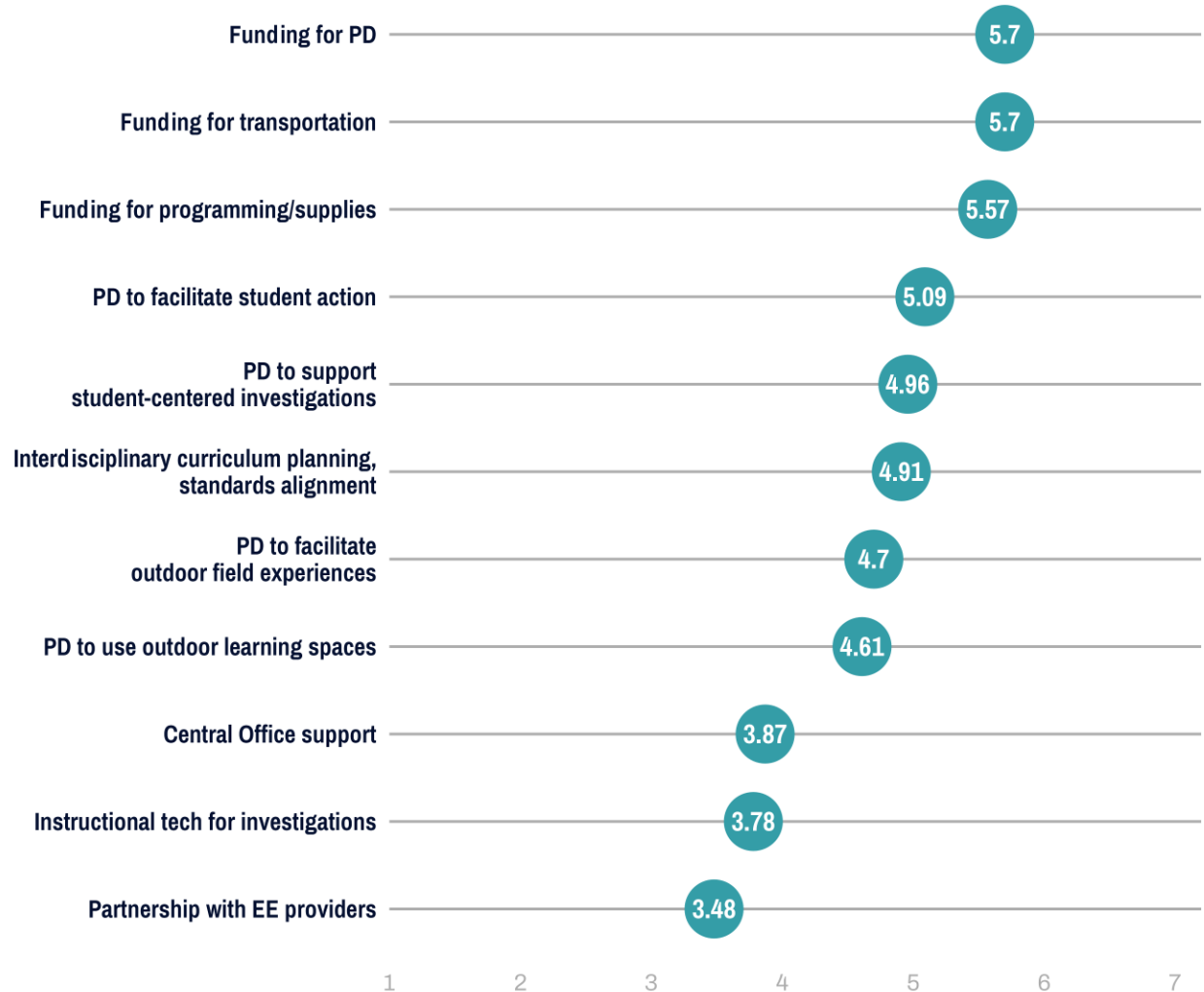
"time"

"funds to support climate change instruction"

"funding for staff"

Average Ratings of Need for Support in Each Area Statewide

Responding LEAs rated their level of need for support in each area from 1 to 7, with 7 being the greatest need. Number of respondents to each item varies because some LEAs skipped items (n=22-23).





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