Chesapeake Bay Region 2022 Environmental Literacy Report

Results from the ELIT Survey

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J. Sickler CONSULTING

PREPARED BY

Jessica Sickler & Michelle Lentzner

J. Sickler Consulting

PREPARED FOR

Chesapeake Bay Program Education Workgroup

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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 was modified in 2022 to reduce the reporting burden on school districts. In this revision, questions about sustainable school practices were eliminated, as relevant data can be obtained through other means.

The ELIT is administered biennially to all local education agencies (LEAs) in six jurisdictions: the District of Columbia, Delaware, Maryland, Pennsylvania, Virginia, and West Virginia. This report presents results from all LEAs included in the survey in these jurisdictions.

ELIT Data Collection

Data Collection Procedure

The ELIT is typically 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-points 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, and 2019. Collection was paused in 2021, due to the substantial impacts on school districts due to the COVID-19 pandemic. Collection resumed in 2022 to assess where the region stands in the wake of these impacts on education systems.

The Chesapeake Bay Program Education Workgroup organized data collection in 2022, and 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 2022 ELIT asked districts to report on the status of activities for the 2021-22 school year. To support this, the ELIT survey opened for responses in May 2022. The survey remained open for responses through the spring and summer. In response to demand from several states and LEAs for more time to complete the survey, the deadline for completion was extended through the end of November 2022.

Five of the jurisdictions (DC, Delaware, Maryland, Pennsylvania, and Virginia) endeavor to survey all of their public school districts – whether the LEA is within or outside of the Chesapeake Bay watershed. West Virginia, however, only distributes the survey to the eight LEAs that fall within the watershed. **The analysis and report here presents results from across the entire region surveyed**, which includes LEAs both inside and outside of the watershed in all jurisdictions except for West Virginia (685 LEAs in total).

Additional Information about Data

The most significant challenge of the ELIT is obtaining a strong response rate from 685 LEAs across six jurisdictions. As greater numbers of LEAs report their activities into this dataset, the Chesapeake Bay Program has a more accurate understanding of the status of environmental literacy activities across the region.

The 2019 dataset, which is included in this report when comparing results year-to-year, was a combined dataset that included all 2019 responses, as well as appending any 2017 data from districts that had not updated their responses in 2019. The underlying assumption was that changes in status within non-reporting districts was likely minor over the course of two years (as ELIT change tends to be incremental). This provided a more robust picture of the region at that time.

In 2022, because the last ELIT was three years ago, and in those three years there were many, major shifts in all aspects of education systems, we did not append this year's data with any historic data. All data are only what was reported this year.

2022 ELIT Response Rate: By Total LEAs

256 LEAs in the 6 jurisdictions completed the ELIT survey in 2022. This constituted a response rate of 37% of all districts in the region.

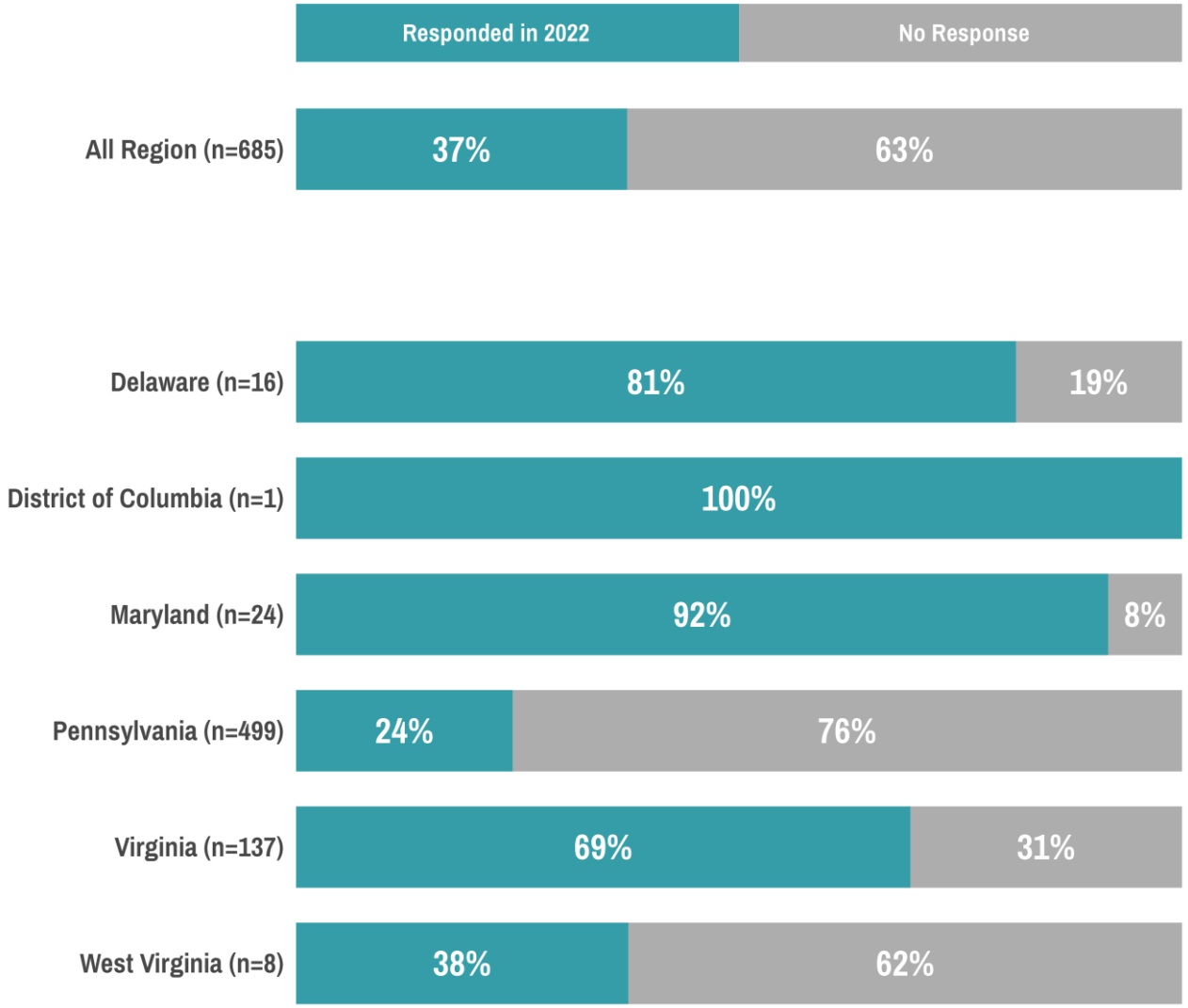
As has historically been the case, the main differentiating factor in response rate was state. The District of Columbia, with a single public school district, was the only state to obtain a 100% response rate. Maryland, as has been true historically, also had a very high response rate of 92%.

Well over half of LEAs in Virginia and Delaware responded to the 2022 ELIT. Representation was lower in West Virginia and Pennsylvania.

State-by-state variation is largely consistent with the merged 2017 and 2019 response rates. This report aggregates across the region, but interpretation of results should consider it is biased toward what is occurring in states with high response rates.

ELIT Response Rate: Percentage of LEAs, by state, responding to the ELIT in 2022

Percentages reflect the proportion of all LEAs in the jurisdiction that responded to the ELIT.
WV is the exception; in that state, only LEAs that are within the Watershed are invited to particpate in the ELIT.



2022 ELIT Response Rate: By Total Enrollment

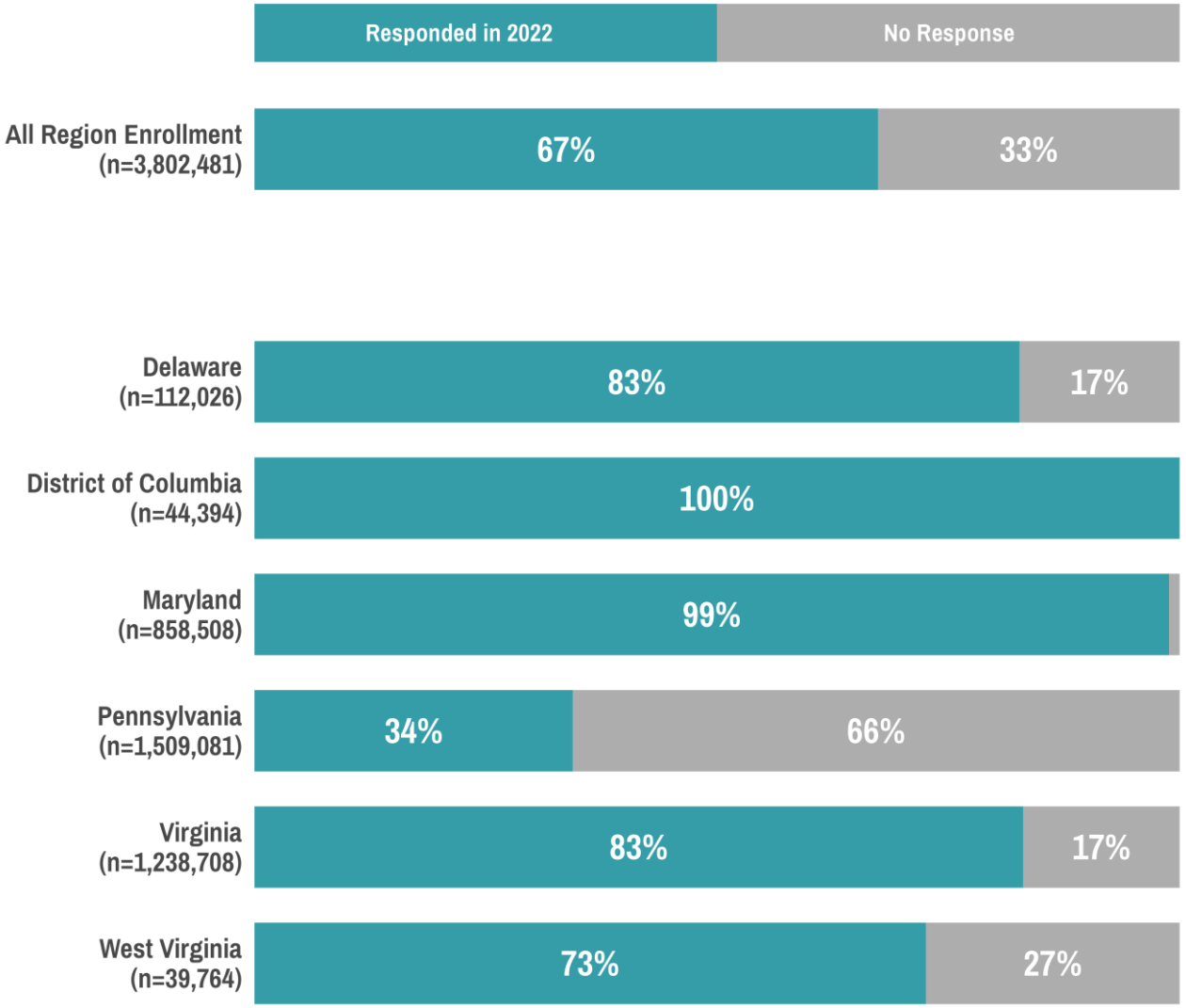
When considering response rate as a percentage of the number of students enrolled in each LEA, the 2022 ELIT data represents 67% of all students in the region.

Virginia and Maryland each host large numbers of students – over 1 million and nearly 900,000, respectively. Because these states also had high response rates from districts, the overall dataset provides strong representation of the learning environments experienced by students in these states. Pennsylvania, in comparison, contains more students than the other states, but the lower response limits the degree of representation in this report.

This also underscores how differently LEAs are organized. Maryland's 858,000 students are contained in 24 districts, while Pennsylvania's 1.5 million students are spread across 499 LEAs. The number of districts within a state does not fully account for response rate (i.e., Virginia successfully collected data from more than 60 districts), but it does indicate that data gathering is a more challenging task for less centralized educational systems.

ELIT Response Rate: Percentage of Total Enrolled Students at Responding LEAs

Percentages show the proportion of all enrolled students within the region ateending LEAs that responded to the ELIT. WV is the exception; in that state, only LEAs that are within the Watershed are invited to particpate in the ELIT.



Availability of Paired Year-to-Year Data

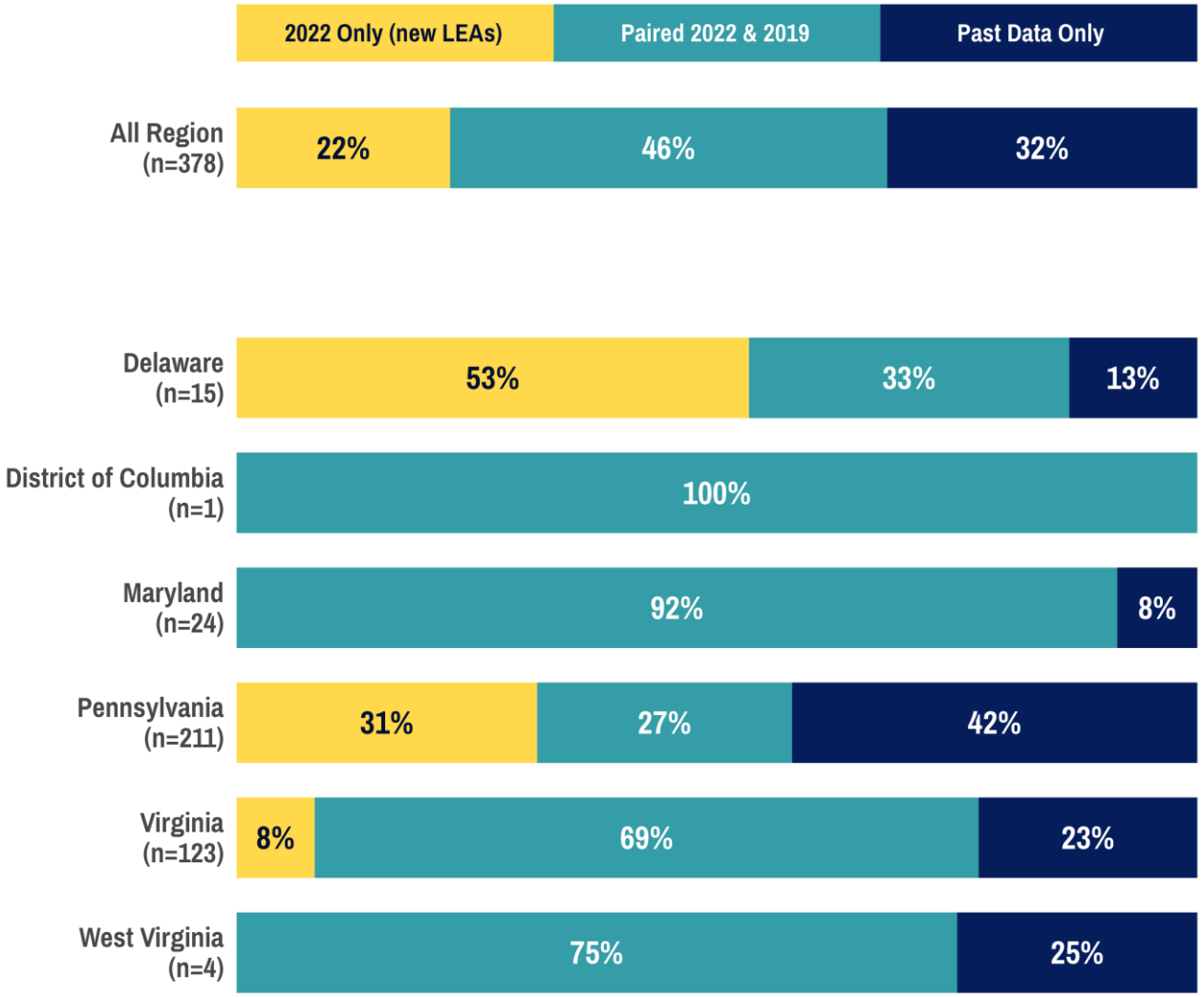
Over half of the responding LEAs in 2022 were repeat respondents, who provided updated data from prior responses in 2019/17. These data support analysis of direct areas of year-to-year change.

In the analyses that follow, we examine change over time for each measure, aggregating all data from a given year. To examine patterns of change, we further explored the smaller dataset of districts with paired data from the 2022 and 2019 reporting (see p.5 for detail about the 2019 dataset). This finer-grained analysis is meant to explore the degree to which aggregate changes may have been influenced by fluctuations in the population of districts that responded to the ELIT survey. By isolating comparisons to districts that responded in both current and previous years, we can look at the number of districts who reported increases or decreases in indicators in the past three years.

As the figure to the right shows, the majority of districts in Maryland, West Virginia, Virginia, and the District of Columbia are paired, meaning consistency in which LEAs responded. Delaware and Pennsylvania had greater variation, with the most brand-new respondents.

Repeat ELIT Respondents: Availability of Paired Year-to-Year Data

This graph considers the full, historic dataset of ELIT responses, in which 378 LEAs have responded at some point. Segments of the graph show the proportion of districts that were entirely new to ELIT reporting this year, those that have responded at both periods, and those who responded previously, but did not update their data in 2022



Staff Responsible for Sustainable Schools

Just over half of the responding LEAs indicated that their district does not have dedicated staff responsible for sustainable schools.

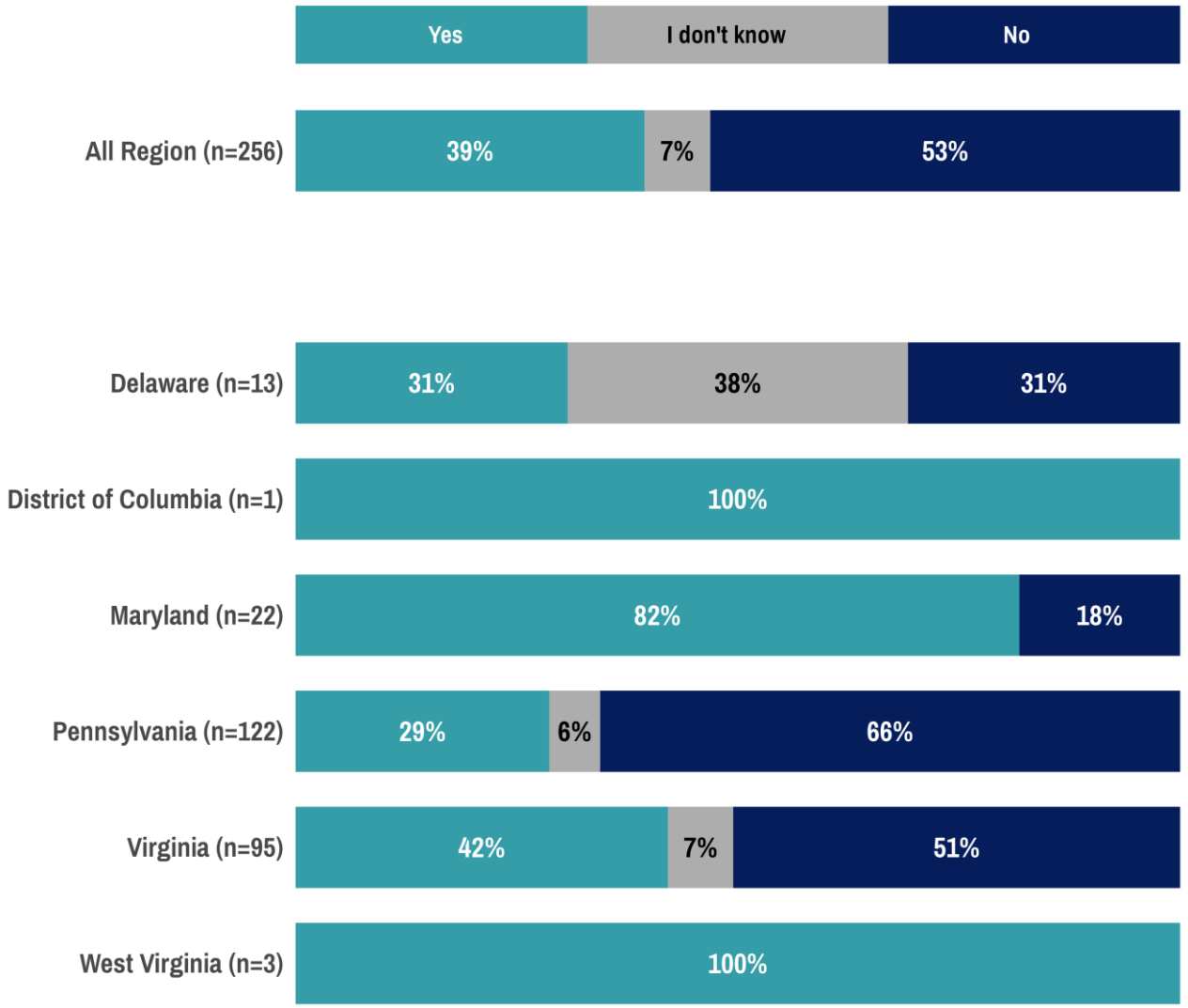
The 2022 ELIT did not engage in a full inquiry of sustainable schools practices, to reduce the burden on districts where data may be gathered elsewhere. Only one question was asked, which was to gauge if the district had dedicated staff responsible for sustainable school efforts.

West Virginia and District of Columbia were the only two states in which all LEAs reported having staff responsible for sustainable school efforts. Maryland also reported a high rate, with 18 of 22 LEAs confirming that they had staff responsible for sustainable schools. In Virginia, nearly half of LEAs had a dedicated staff person in this role.

Pennsylvania and Delaware had markedly lower rates of staff dedicated to sustainable school activities. In Delaware, this rate is particularly unclear, as one-third of the LEA representatives who were responding to the ELIT reported they were unsure whether or not the district had staff dedicated to this effort.

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 to Implement EE

The majority of responding LEAs are somewhat prepared to implement high quality environmental education (EE).

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:

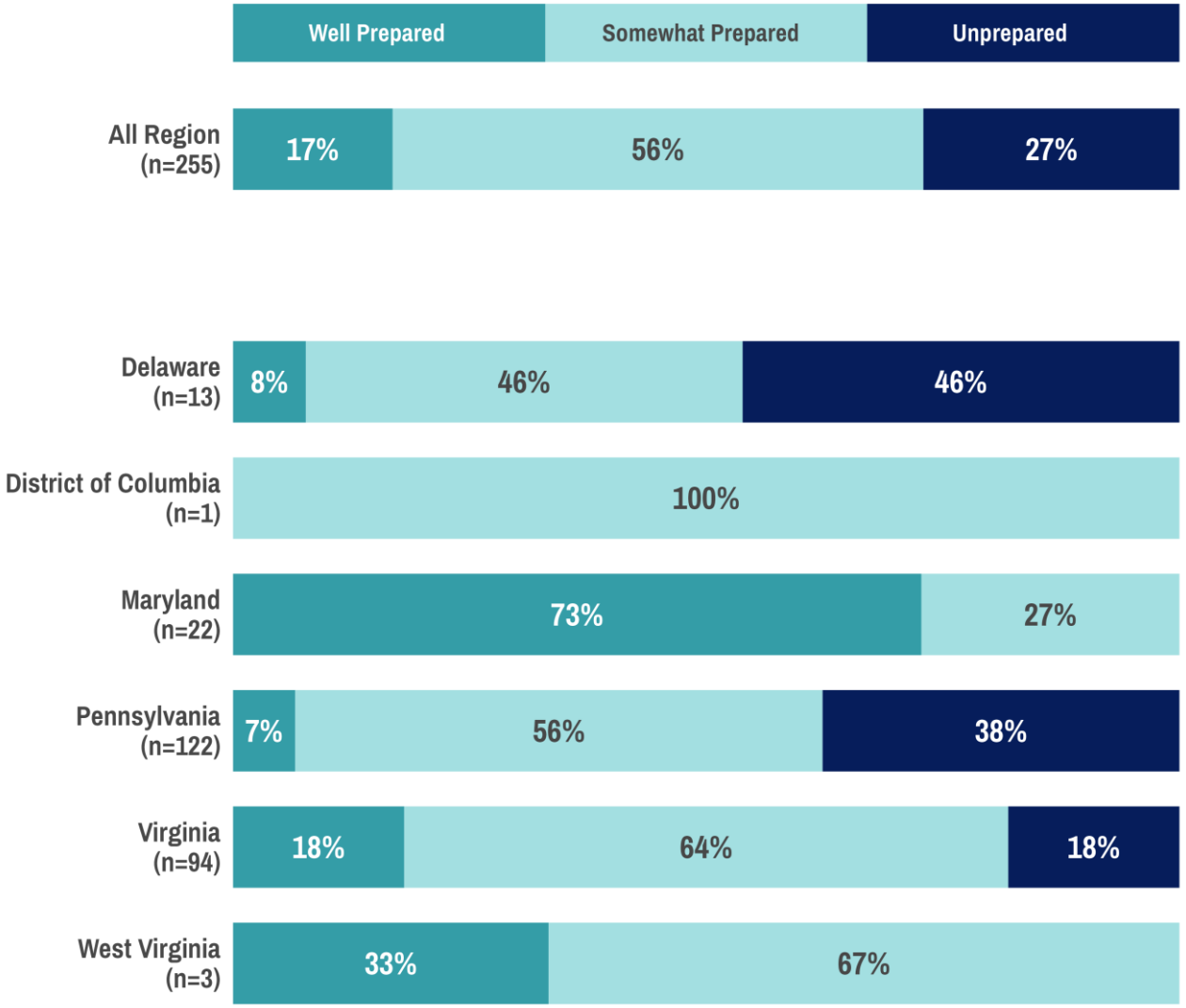
- Well Prepared: scores from 9-12
- Somewhat Prepared: scores from 4-8
- Not Prepared: scores from 0-3

Preparedness varied a great deal between the states. Maryland saw the majority of its districts scoring as well prepared, with Virginia and West Virginia having smaller proportions. Pennsylvania and Delaware saw only 7% and 8% of LEAs at the well-prepared level, respectively.

West Virginia showed notable growth in this area; in 2019, that state had the highest rate of districts scoring as unprepared, which shifted to higher preparedness in 2022. However, there are very few responding districts from this state (3 out of 8 surveyed).

Self-Reported Levels of Preparedness to Implement Environmental Education

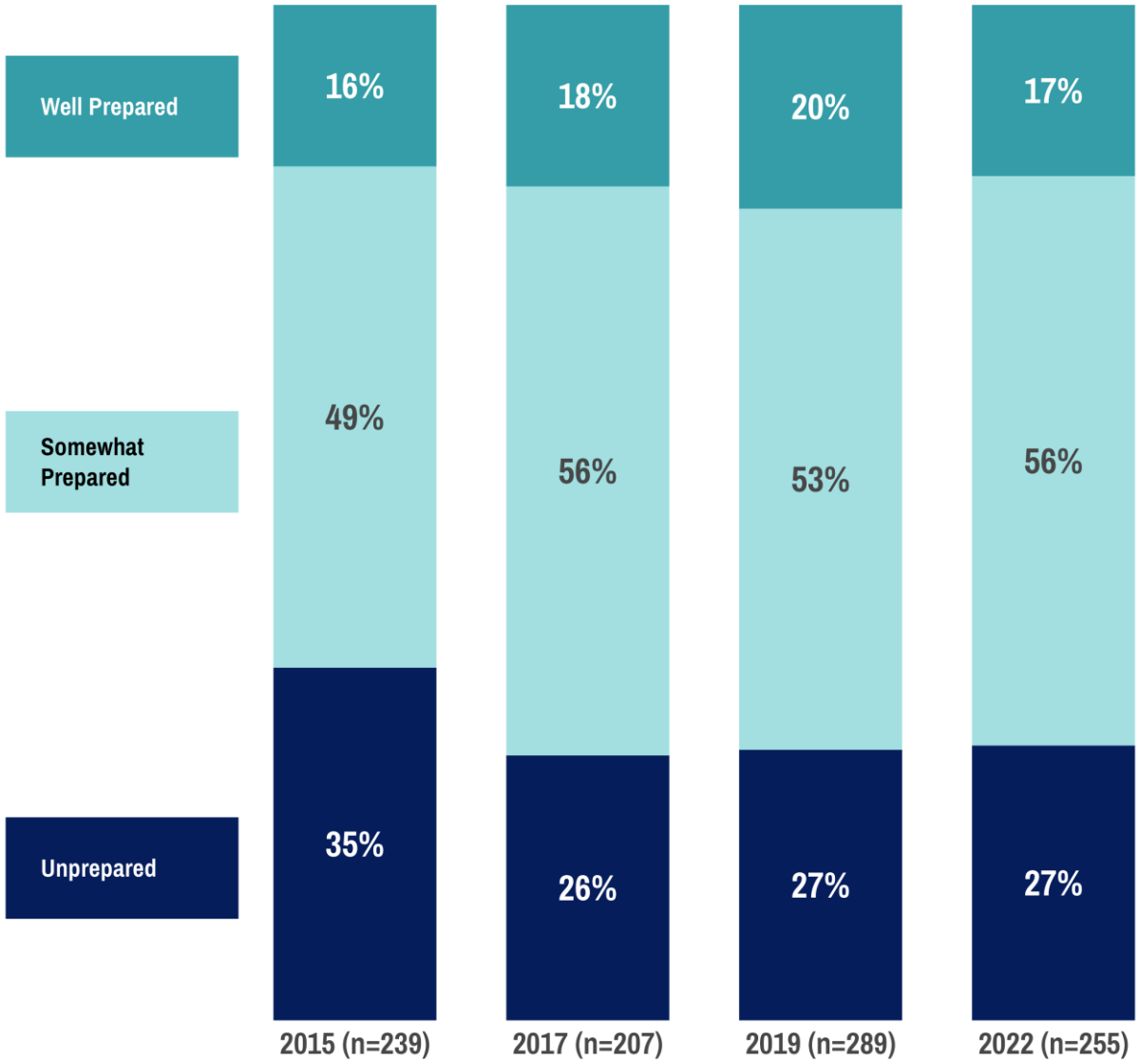
Levels of preparedness is based on a total preparedness score, which derives from answers to six elements of preparedness for EE evaluated by the ELIT.



LEA Preparedness: Trends Over Time

Changes in Environmental Literacy Preparedness Over Time (2015-2022)

Region-wide preparedness levels in each of the ELIT years' reporting.



The percentage of LEAs scoring as well-prepared to implement environmental education decreased slightly in 2022, ending close to 2017 levels, after steady increases in past years.

The percentage of LEAs scoring as unprepared stayed the same between 2019 and 2022, while the rate of well-prepared LEAs fell slightly. This put more LEAs in the "somewhat prepared" category in 2022.

Overall, rates of unprepared LEAs across the region have remained fairly constant since 2017, while the percentage of well-prepared LEAs has shifted slightly over time. The positive trend in well-prepared LEAs from 2015 to 2019 seemed to end in 2022, with only 17% of LEAs qualifying as well-prepared.

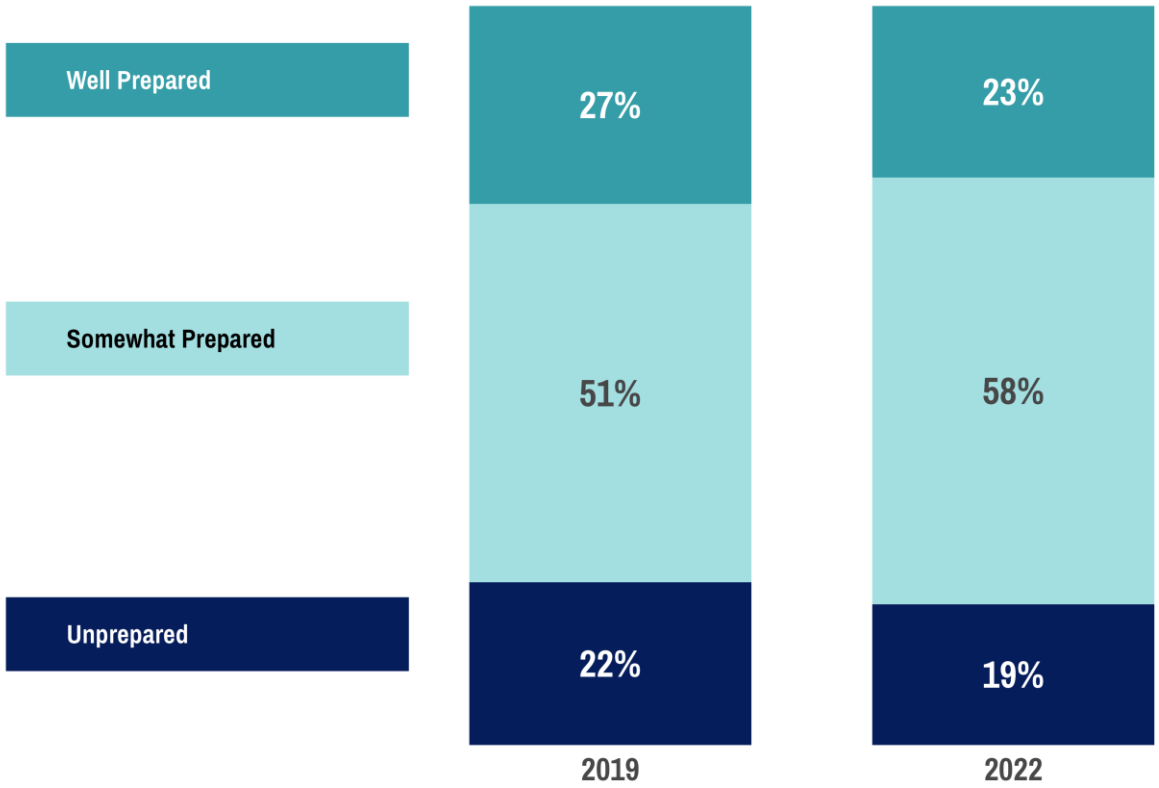
When we look at the raw, total preparedness score (used to assign the levels), there was a very slight decrease in the total score, from an average of 5.49 in 2019 to 5.42 in 2022. This further confirms that there has been only a very slight downward shift in this indicator, regionwide.

On the next page, we examine changes for just districts with paired 2019 and 2022 data.

LEA Preparedness: Changes between 2019 and 2022

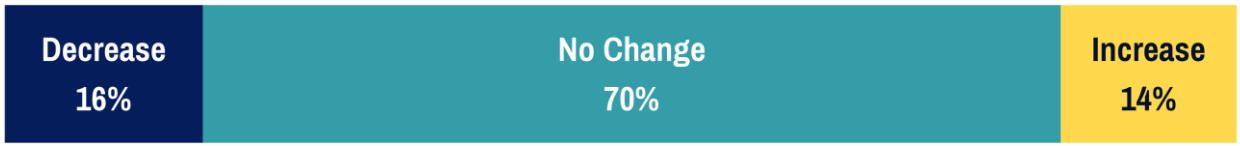
Changes in Environmental Literacy Preparedness 2019-2022 (Paired Data Only)

Region-wide preparedness levels over the past two years, limited to data from LEAs where there was data from the past two ELIT years (n=168).



Comparing Paired 2019 and 2022 Data

Changes in preparedness within individual LEAs for which we have paired data (n=168).



When we look only at districts for which we have data in both 2019 and 2022, we see that the changes were similar to the aggregate – reductions in the number of well prepared and unprepared districts, with a much bigger increase in somewhat prepared districts.

Overall, there seemed to be movement toward the middle of the preparedness scale, with a general balance of districts moving from lower to higher levels of preparedness. When we look specifically at the direction of change within a district's two years of responses, 70% of districts stayed at the same level. And similar numbers of LEAs increased and decreased. This suggests that shifts seen in the aggregate may reflect real conditions within LEAs, rather than being only the result of different (and less-prepared) districts responding in 2022.

When we look at the raw, total preparedness score (used to assign the levels) of all LEAs with paired data, **the average total score stayed the same, at 6.13**. This may indicate that while some LEAs fell from well-prepared to somewhat-prepared, others were able to increase their score significantly, resulting in a break-even.

Breaking Down the Elements of Readiness

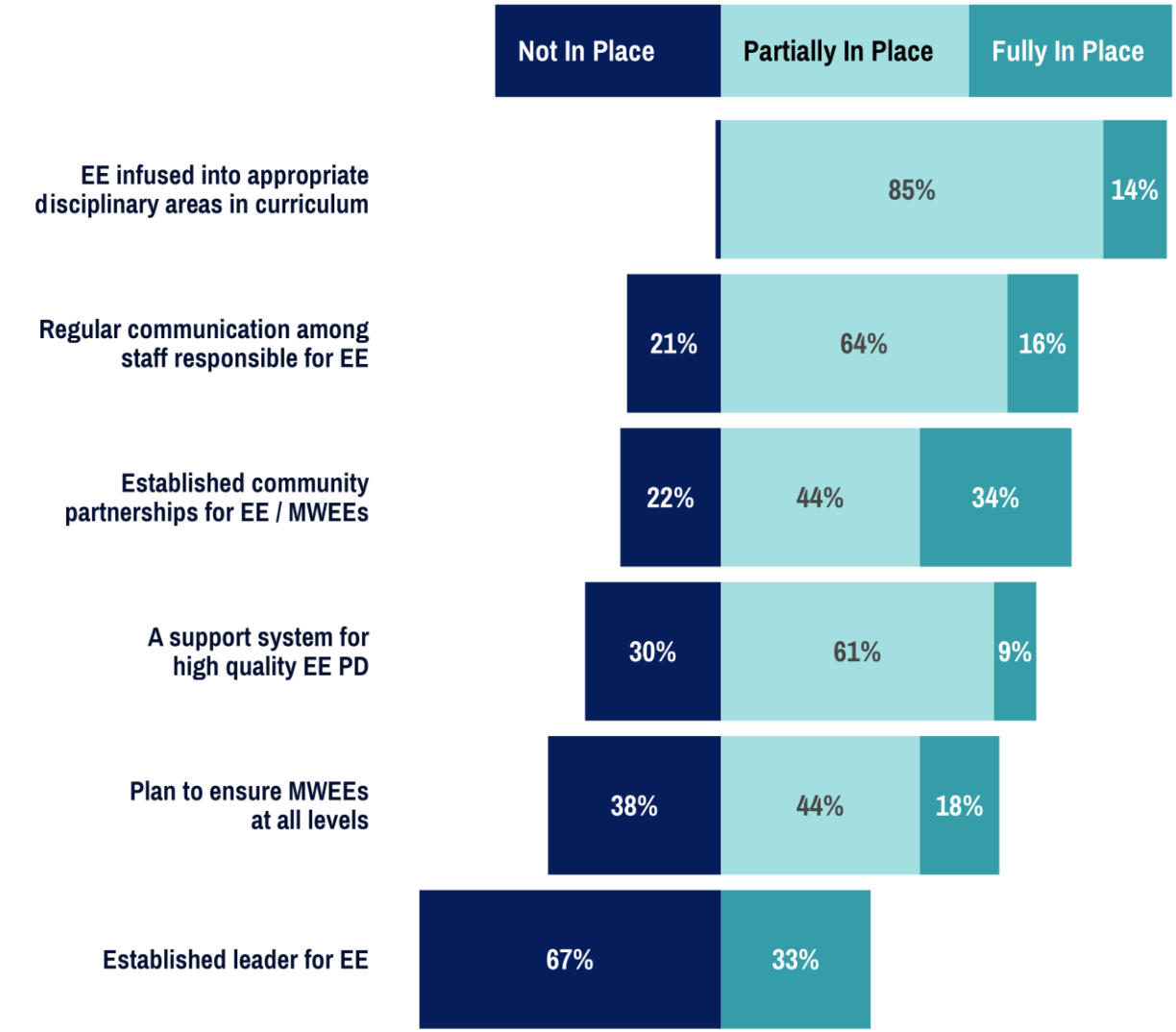
EE integration into curricula is the most common element of planning and infrastructure that is fully or partially in place among LEAs. Having established partners and a leader for EE are the most common elements to be fully in place.

The breakdown of readiness within each element in the preparedness indicator show trends in LEA strengths and challenges for planning. Similar to 2017 and 2019, creating an integrated program that infuses environmental topics across the curriculum is the area in which the greatest number of LEAs have made progress (85%), with another 14% of LEAs having fully achieved this. Only 1% of districts had done nothing in this area. Establishing community partnerships for EE is the area LEAs have had greatest success at fully accomplishing (34%), with only 22% reported no partnerships for EE.

The next page shows a breakdown of these elements, comparing what has been done within the three sub-groups (well-prepared, somewhat prepared, or unprepared). It suggests that an EE leader, community partners, and integrating EE across the curriculum are areas in which districts make early strides toward greater preparedness.

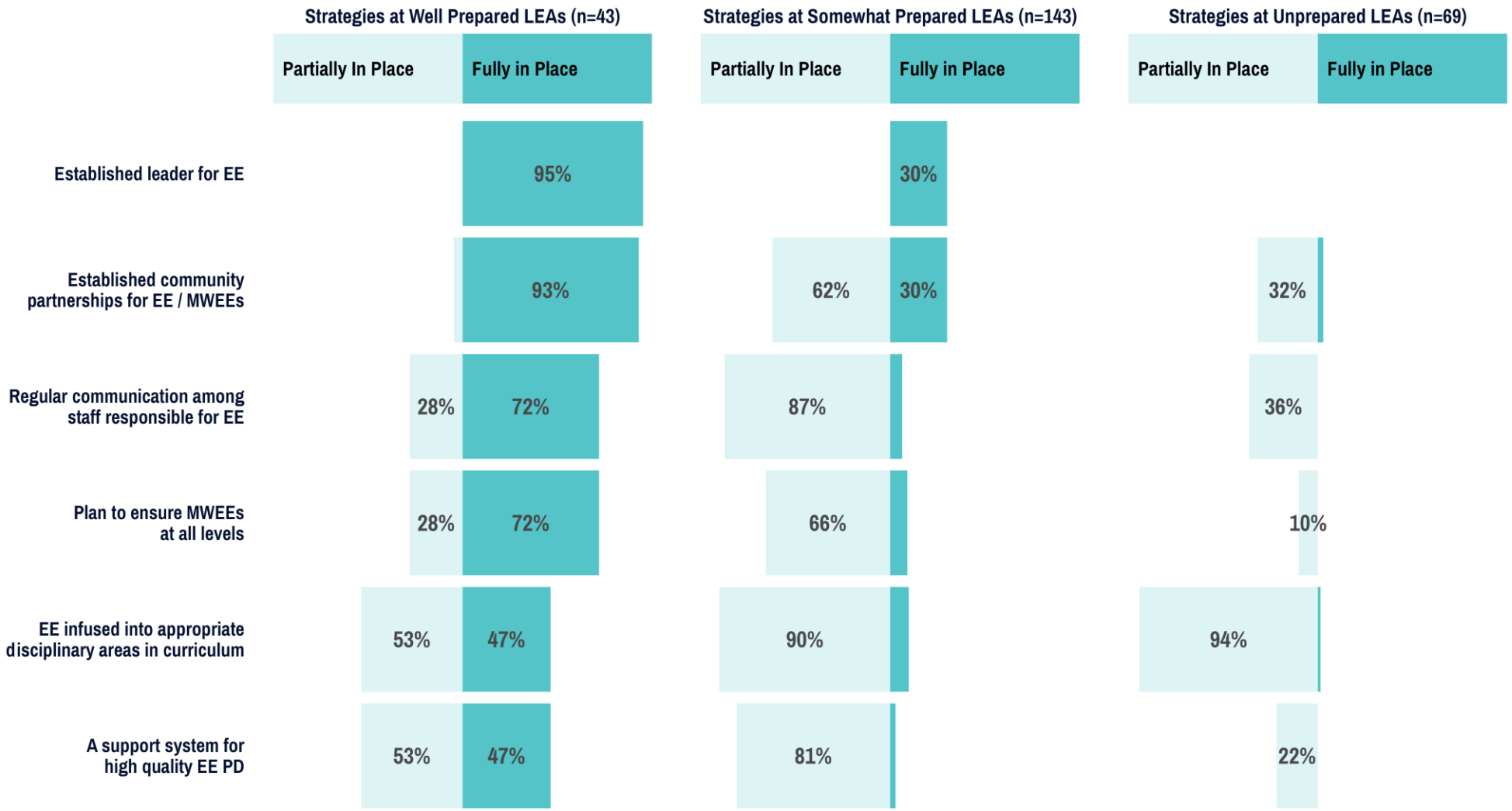
Degree of Readiness for Each Element of LEA Planning and Infrastructure.

Distribution of ratings to individual items in the planning indicator by all LEAs in Region (n=256)



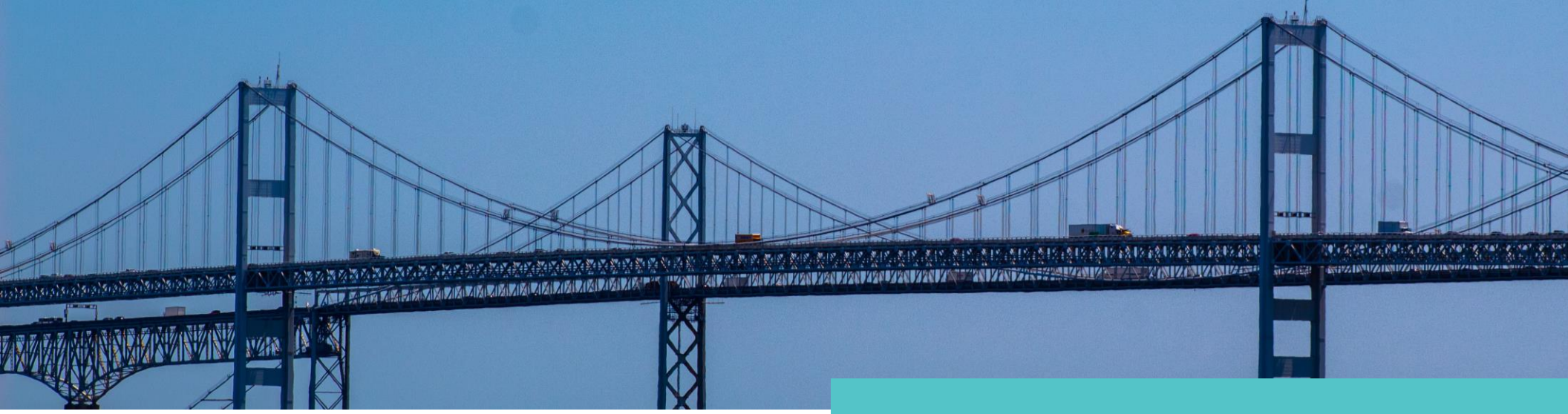
Elements Fully or Partially in Place

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).

Elementary: Student Participation in MWEEs

27% of responding LEAs in the region have a system-wide MWEE in place at the elementary grade levels.

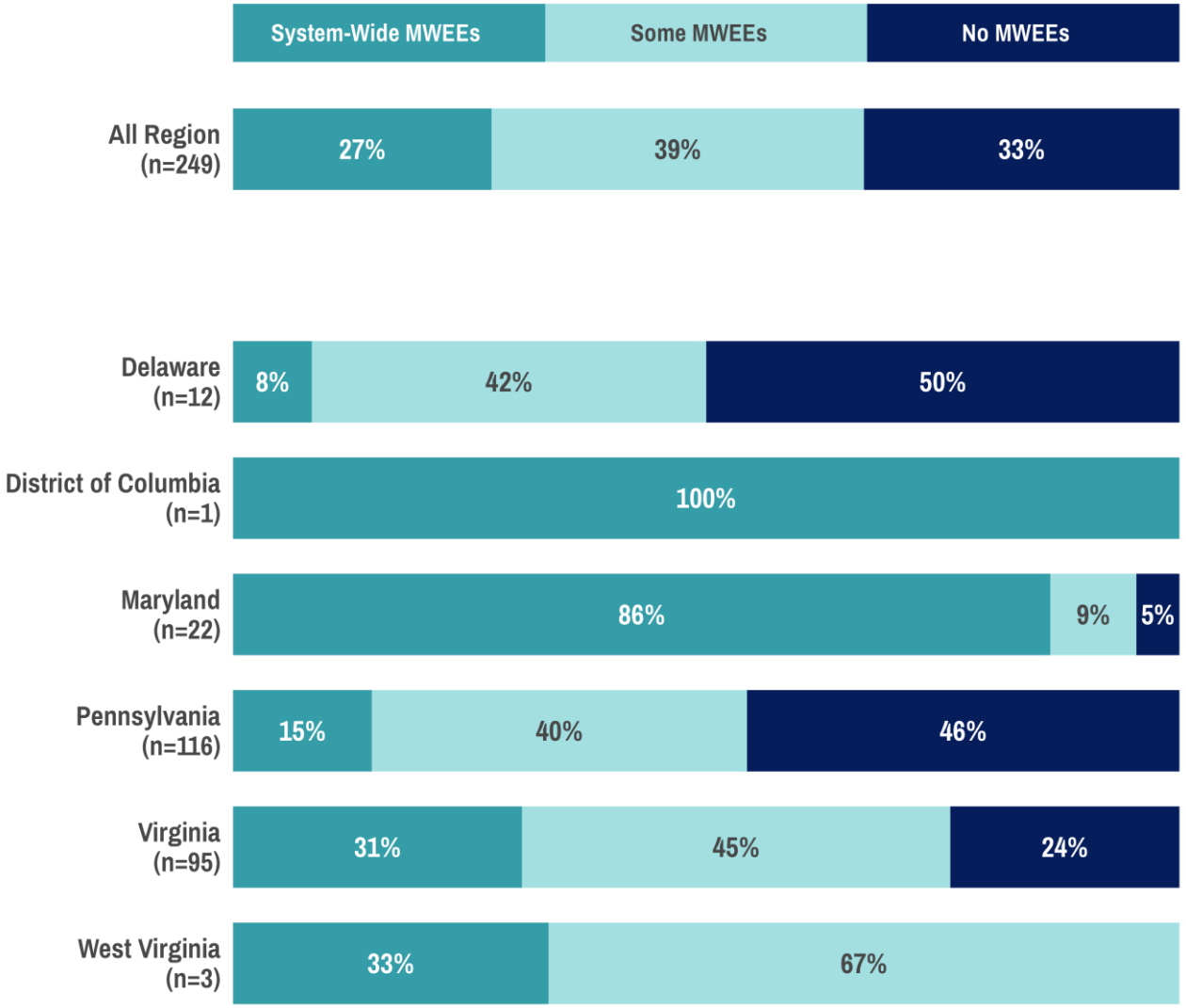
As with preparedness scores, there was substantial variation between the states in the prevalence of MWEEs in elementary school. Again, Maryland demonstrated state-wide success in this indicator, with 86% of districts having a system-wide MWEE for elementary students. The District of Columbia, with only one district, reported having a system-wide MWEE at the elementary level. Virginia reported nearly one-third of districts had a system-wide MWEE. These data are consistent with state patterns from 2019 and 2017.

Responding districts in Delaware and Pennsylvania had the greatest prevalence of no MWEE availability at all in elementary grades. Around one-quarter of Virginia's respondents similarly reported a lack of MWEE offerings in elementary school.

The state-by-state patterns were fairly consistent with prior years.

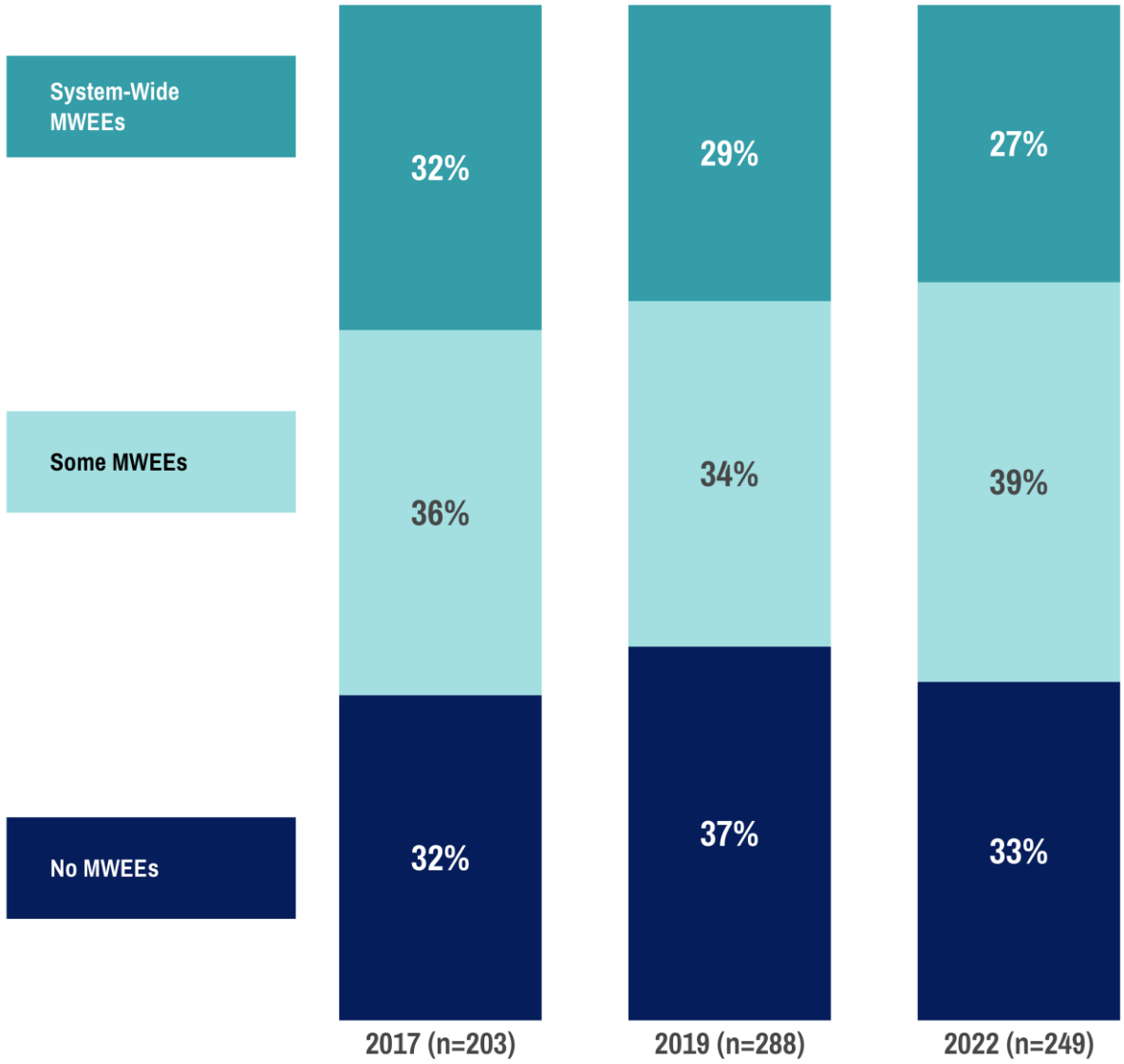
Elementary Grades: MWEE Availability among LEAs within the Region

Rates of availability by state in 2022. If a district reported there was a system-wide MWEE at any grade level(s) in K-5, they were scored as having "System-Wide MWEEs"; "No MWEEs" indicates no MWEEs at any grade in the band.



Elementary MWEEs: Trends Over Time

Changes in MWEE Availability in the Region: Elementary Grades (2017-2022)



Looking at all ELIT responses, the rate of system-wide MWEE availability for elementary grades decreased slightly in 2022, while there was a bigger uptick in the rate of districts with some MWEEs in place.

The progress in this indicator was mixed in 2022. While the rate of system-wide elementary MWEEs did decrease, it was only a small decrease. But at the same time, there was a reduction in the proportion of districts without MWEEs and a bigger increase in the proportion with some MWEEs (if not system-wide).

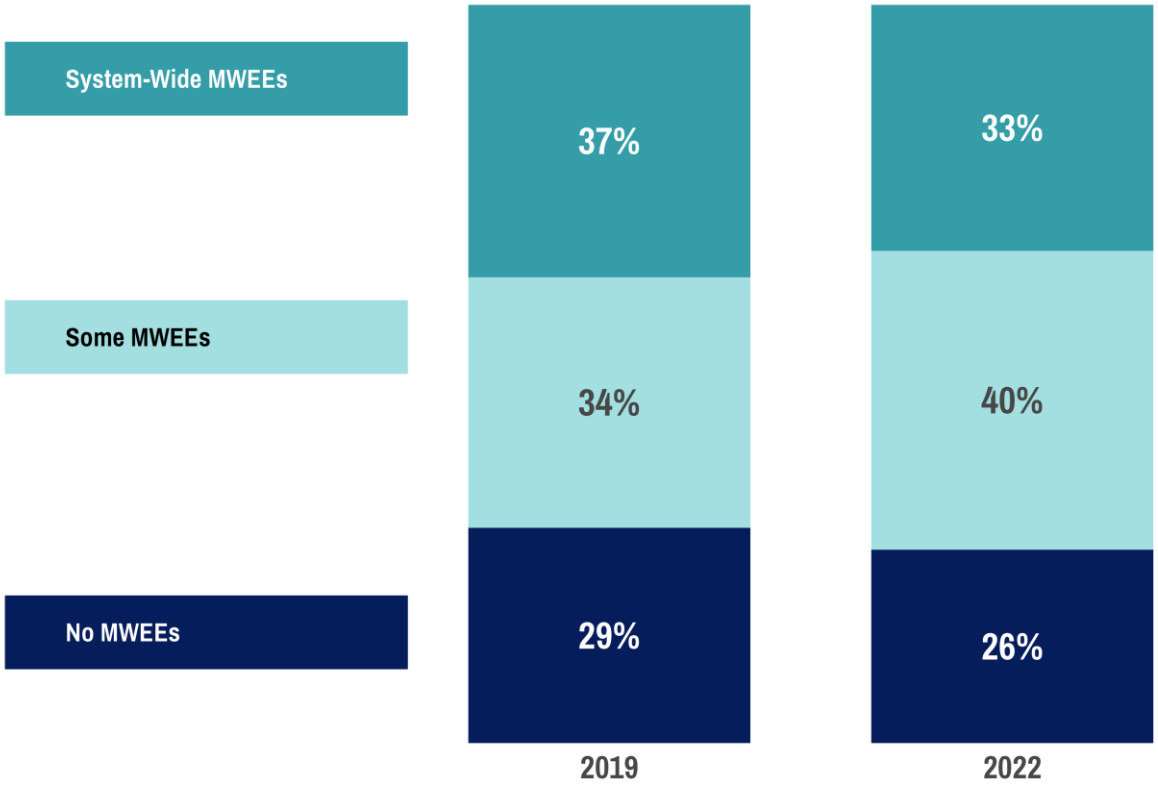
The trend of progressive increases in the number of LEAs reporting that no MWEEs were available at the elementary level between 2017 and 2019 seemed to end in 2022, rates of LEAs reporting no MWEEs at the elementary level returned to roughly the rates of 2017, albeit with fewer LEAs reporting system-wide MWEEs.

On the next page, we examine the data only from districts who provided both 2019 and 2022 responses, to explore if new respondents to the ELIT may be affecting the aggregate indicator.

Elementary MWEEs: Changes between 2019 & 2022

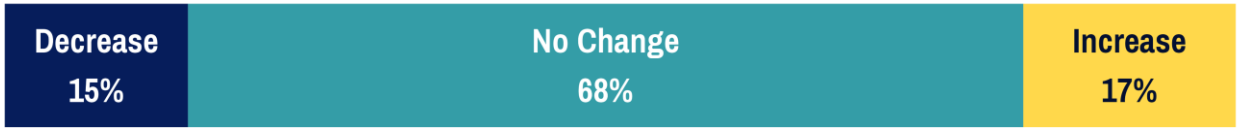
Changes in Student MWEEs at ES Grade Levels 2019-2022 (Paired Data Only)

Region-wide prevalence of ES MWEE levels over the past two years, limited to data from LEAs where there was data from the past two ELIT years (n=168).



Comparing Paired 2019 and 2022 Data

Changes in MWEE levels within individual LEAs for which we have paired data. (n=168)



When looking only at LEAs with paired 2019 and 2022 data, the changes in system-wide MWEE availability for elementary grades mirrors the patterns of the larger dataset – decreases in the frequency of system-wide MWEEs, but a bigger increase in the frequency of some MWEEs.

These data indicate that there was a substantial loss in the prevalence of system-wide MWEEs at the elementary grades – the decrease in the full data set was not due to new respondents. On the positive side, there was also a decrease in the number of districts reporting no MWEEs at all in elementary grades.

When we looked at the direction of change within the paired dataset (e.g., whether each district increased or decreased their MWEE level between 2019 and 2022), we saw that 68% had no change in level from the previous survey, and similar numbers moved up and moved down the scale of implementation.

Middle School: Student Participation in MWEEs

28% of responding LEAs in the region have a system-wide MWEE in place at the middle school grade levels.

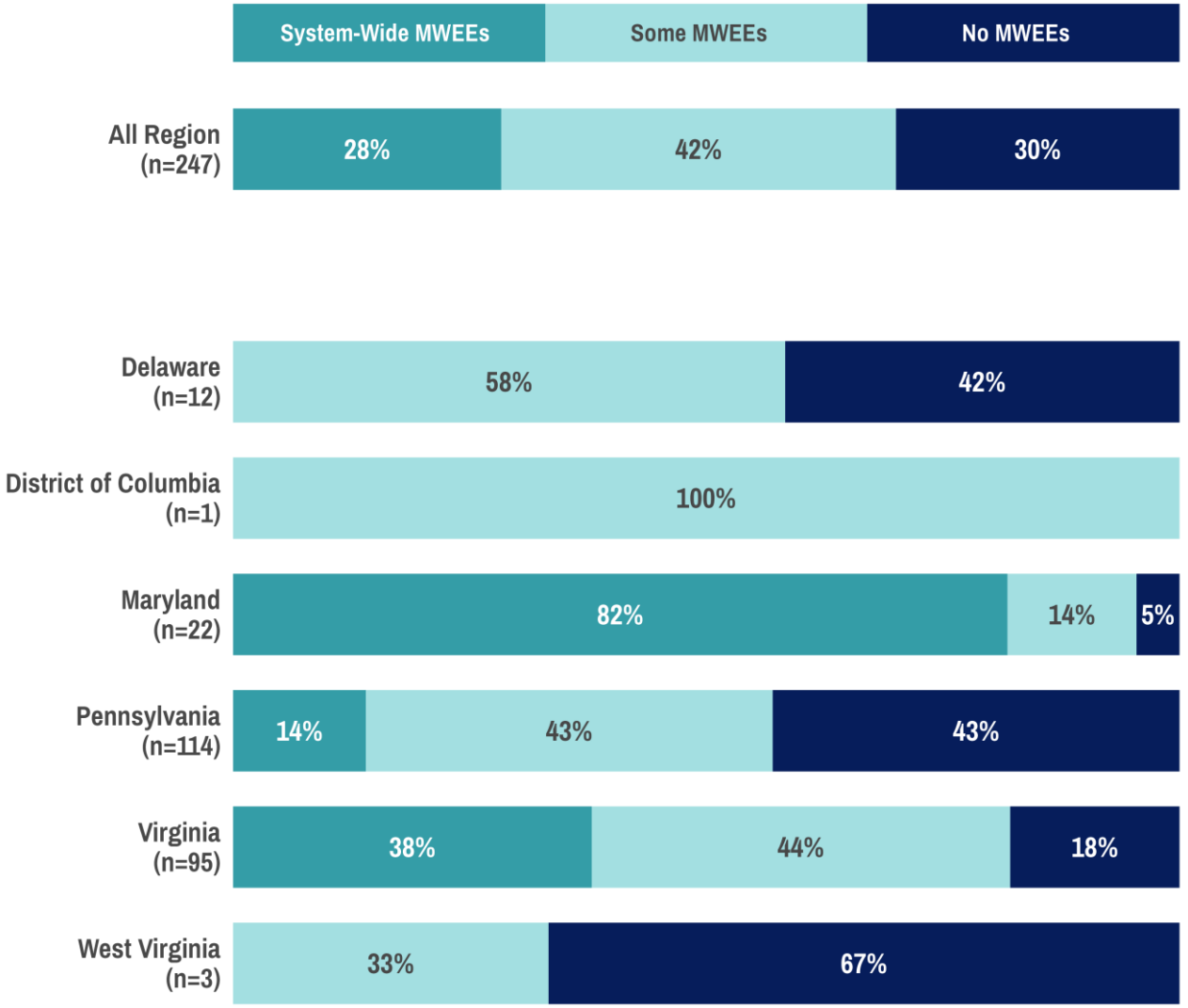
The overall breakdown of the availability of MWEEs in middle grades was very similar to the patterns seen for elementary grades, although there are slightly fewer LEAs reporting no MWEEs at the middle school grades.

At the state-level, Maryland had the strongest penetration of system-wide MWEEs at the middle school level. Virginia reported slightly more system-wide MWEEs for middle grades, as compared to elementary. A majority of LEAs in Delaware have some MWEEs for middle school, but nothing system-wide.

More than 40% of responding districts from Pennsylvania, Delaware, and West Virginia reported no MWEE programs at all for middle school students. DC Public Schools has some MWEE availability to middle school students, but it is not system-wide.

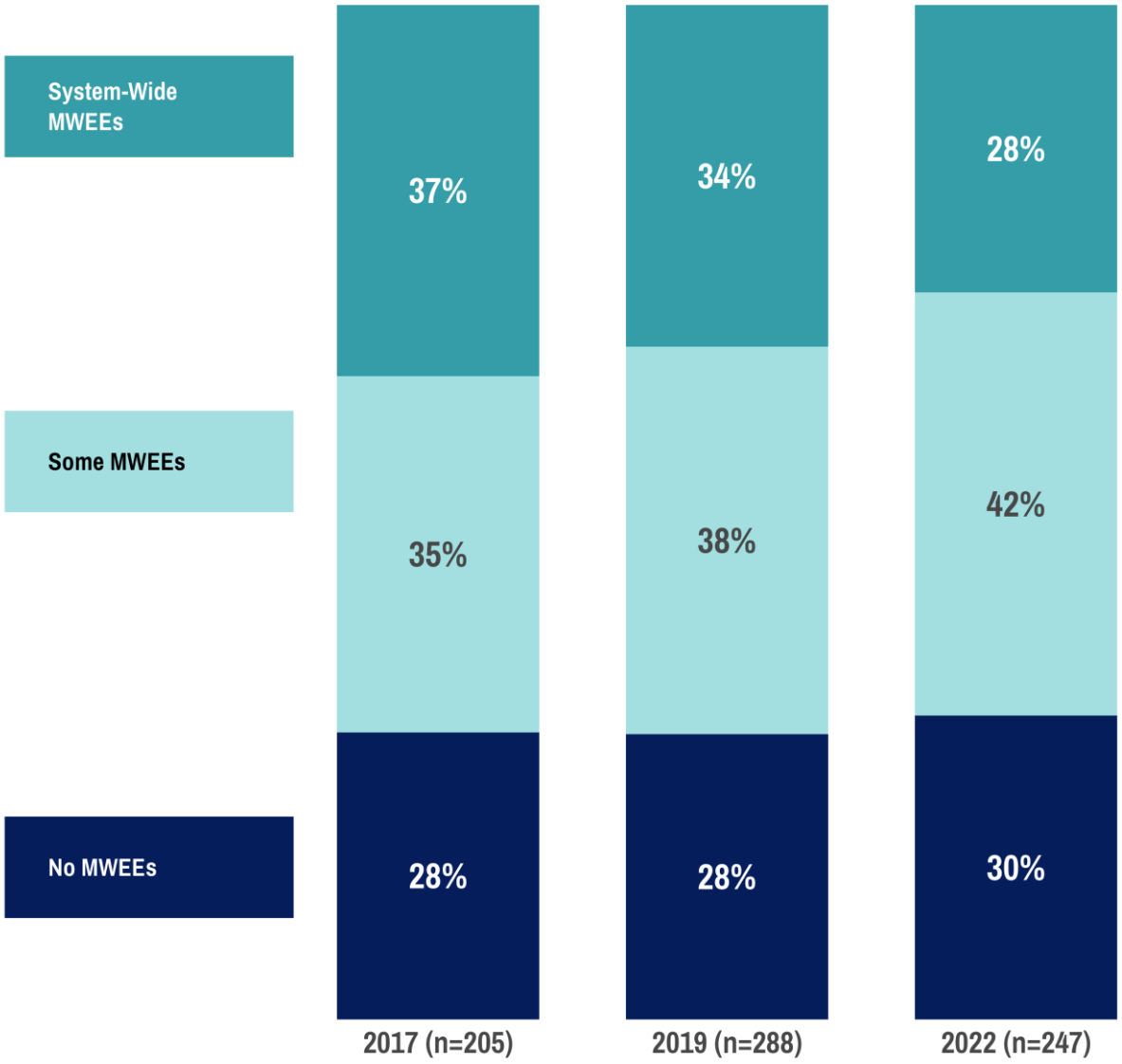
Middle School Grades: MWEE Availability among LEAs within the Region

Rates of availability by state in 2022. If a district reported there was a system-wide MWEE at any grade level(s) in 6-8, they were scored as having "System-Wide MWEEs"; "No MWEEs" indicates no MWEEs at any grade in the band.



Middle School MWEEs: Trends Over Time

Changes in MWEE Availability in the Region: Middle School Grades (2017-2022)



There has been a progressive decrease in the rate of system-wide MWEE availability for middle school grades since 2017.

The prevalence of system-wide MWEEs in middle school decreased by about six percentage points between 2019 and 2022. The data may suggest that districts that used to offer system-wide MWEEs may have not been able to maintain that level of delivery. But, given the equal increase in the use of some MWEEs, LEAs appear to have not lost MWEEs from these grades entirely.

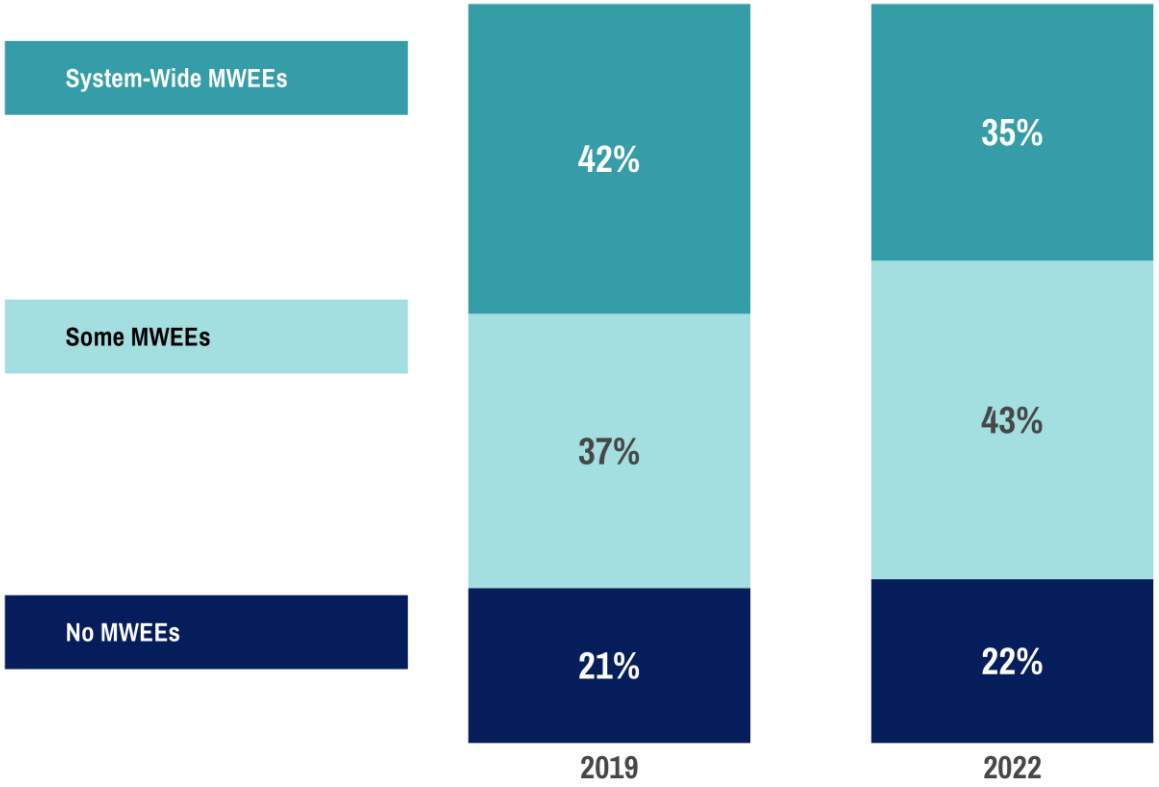
The proportion of districts reporting no MWEEs in middle school only increased very slightly in 2022. It is generally positive news that this portion of the indicator has stayed relatively stable, with only this minor increase in 2022.

On the next page, we examine the data only from districts who provided both 2019 and 2022 responses, to explore if new respondents to the ELIT may be affecting the aggregate indicator.

Middle School MWEEs: Changes between 2019 & 2022

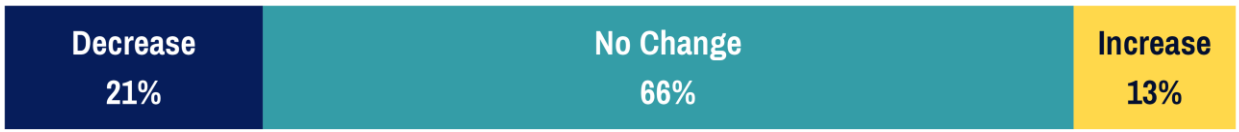
Changes in Student MWEEs at MS Grade Levels 2019-2022 (Paired Data Only)

Region-wide prevalence of MS MWEE levels over the past two years, limited to data from LEAs where there was data from the past two ELIT years (n=167).



Comparing Paired 2019 and 2022 Data

Changes in MWEE levels within individual LEAs for which we have paired data. (n=167)



Among LEAs with paired 2019 and 2022 data, the changes in system-wide MWEE availability for elementary grades mirrors the patterns of the larger dataset – and is perhaps more pronounced. There is a substantial decrease in the rate of system-wide MWEE availability for middle school grades.

Within this paired dataset, the rates of no MWEE availability in middle school grades stayed nearly stable (with only a slight increase). In concert, the number of LEAs reporting some MWEE availability went up substantially.

When we examine how individual LEAs changed between the two years (e.g., whether they increased or decreased their level), we see that far more districts fell to a lower level (21%) than increased to a higher level (13%). This supports the interpretation that there has been a contraction of MWEE availability in middle school over the past three years.

In fact, while rates of system-wide MWEEs are still higher overall in the paired data, the decreases seen in the paired data are more substantial than in the overall dataset.

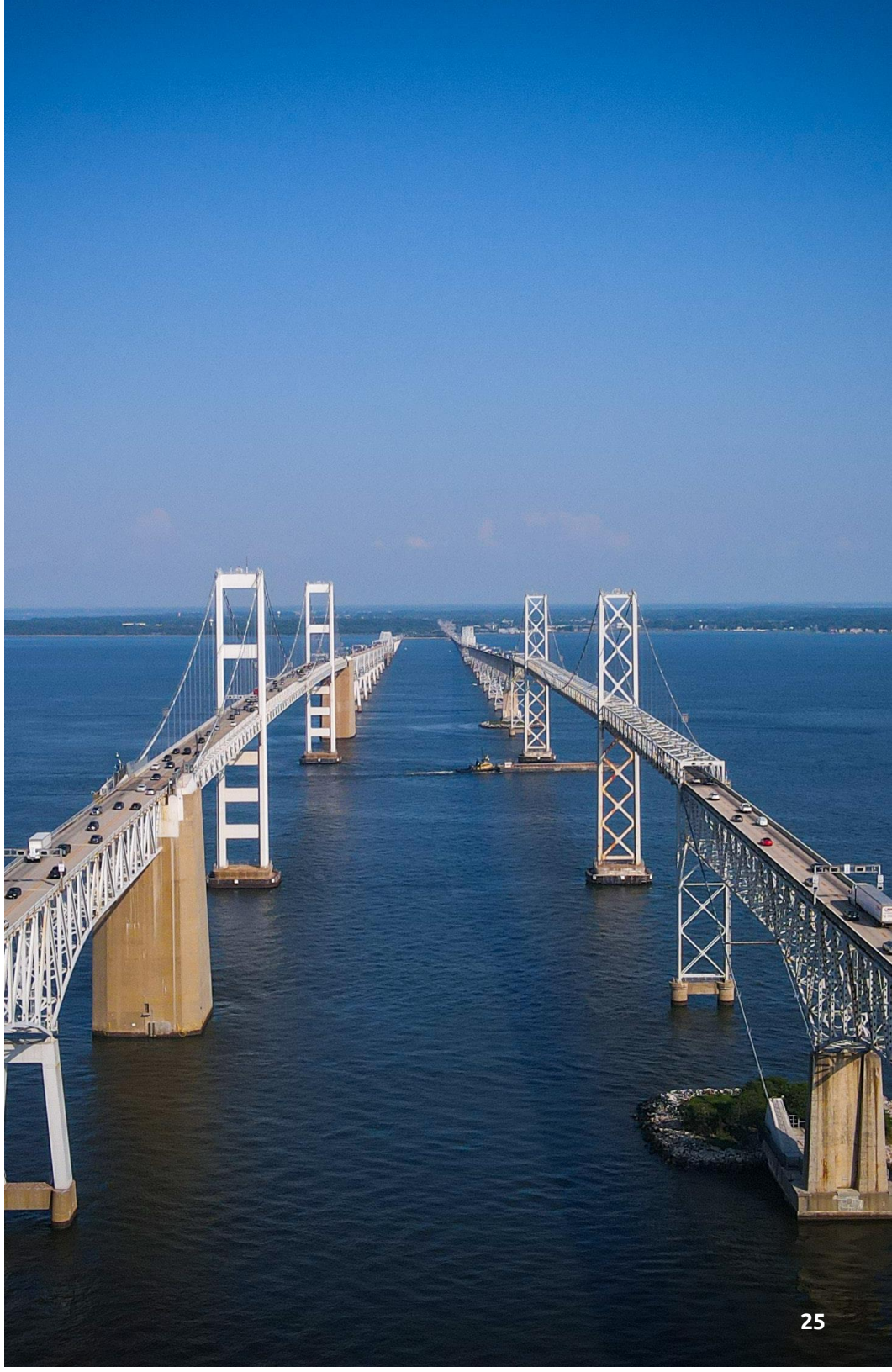
HS MWEE Measurement

A change was made to how data about high school MWEEs was collected in 2022, in an effort to make it easier on LEAs and improve accuracy of what was reported.

In past years' ELIT survey, data suggested there may be inaccuracies in how courses were reported, particularly regarding clarifying whether MWEE reporting was clearly limited to *required* courses (a critical part of being considered system-wide). For example, an AP course might be listed as a system-wide MWEE, which indicates the task of focusing on requirements and electives separately was difficult for LEAs to do.

In 2022, the question was streamlined, providing LEAs with an inventory of more specific 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 core subjects (without AP items) 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. Of note, 11 early survey respondents from Virginia saw an incorrect version of this question; they could only select one required course. These data were carefully reviewed, and this error potentially affected the MWEE score of just 3 districts. These districts were removed from analysis of MWEE scores to not artificially deflate results.



High School: Student Participation in MWEEs

22% of responding LEAs have a system-wide MWEE in place at the high school grade levels.

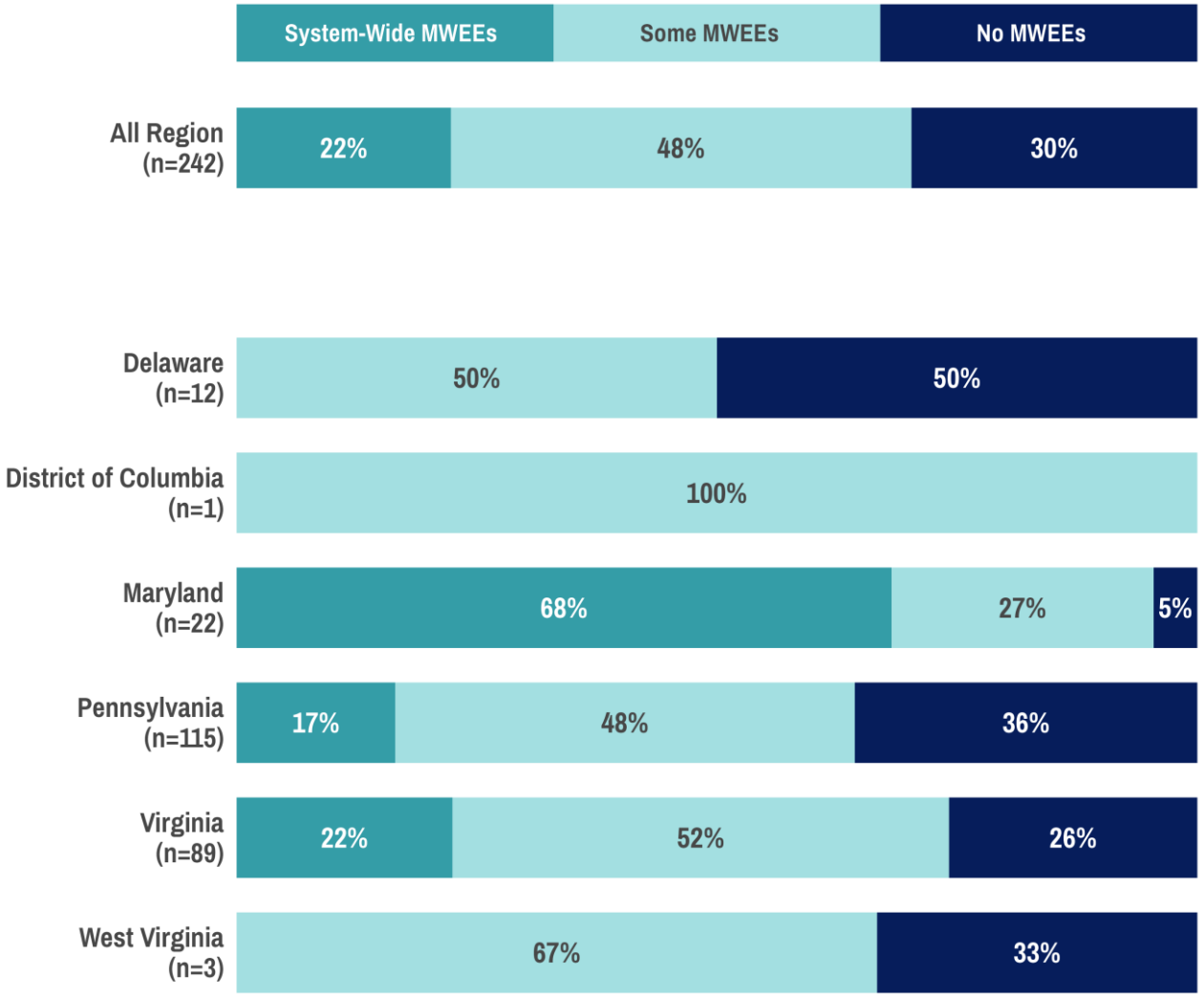
The overall breakdown of availability of MWEEs in high school had some similar patterns to the younger grades, but system-wide MWEEs are less common at high school. The nature of high school, which centers more on individualized course selection, may make achieving truly system-wide MWEEs more difficult.

Maryland, for instance, has the highest rate of MWEEs in high school, but it is still lower rate than their rate of system-wide MWEEs in lower grades.

Virginia and Pennsylvania were the only other states with any LEAs reporting a system-wide MWEE at the high school level, both below one-quarter of reporting districts. In Delaware, West Virginia, and the District of Columbia LEAs, MWEEs appear to take place within individual schools or classes, but there are no MWEEs system-wide.

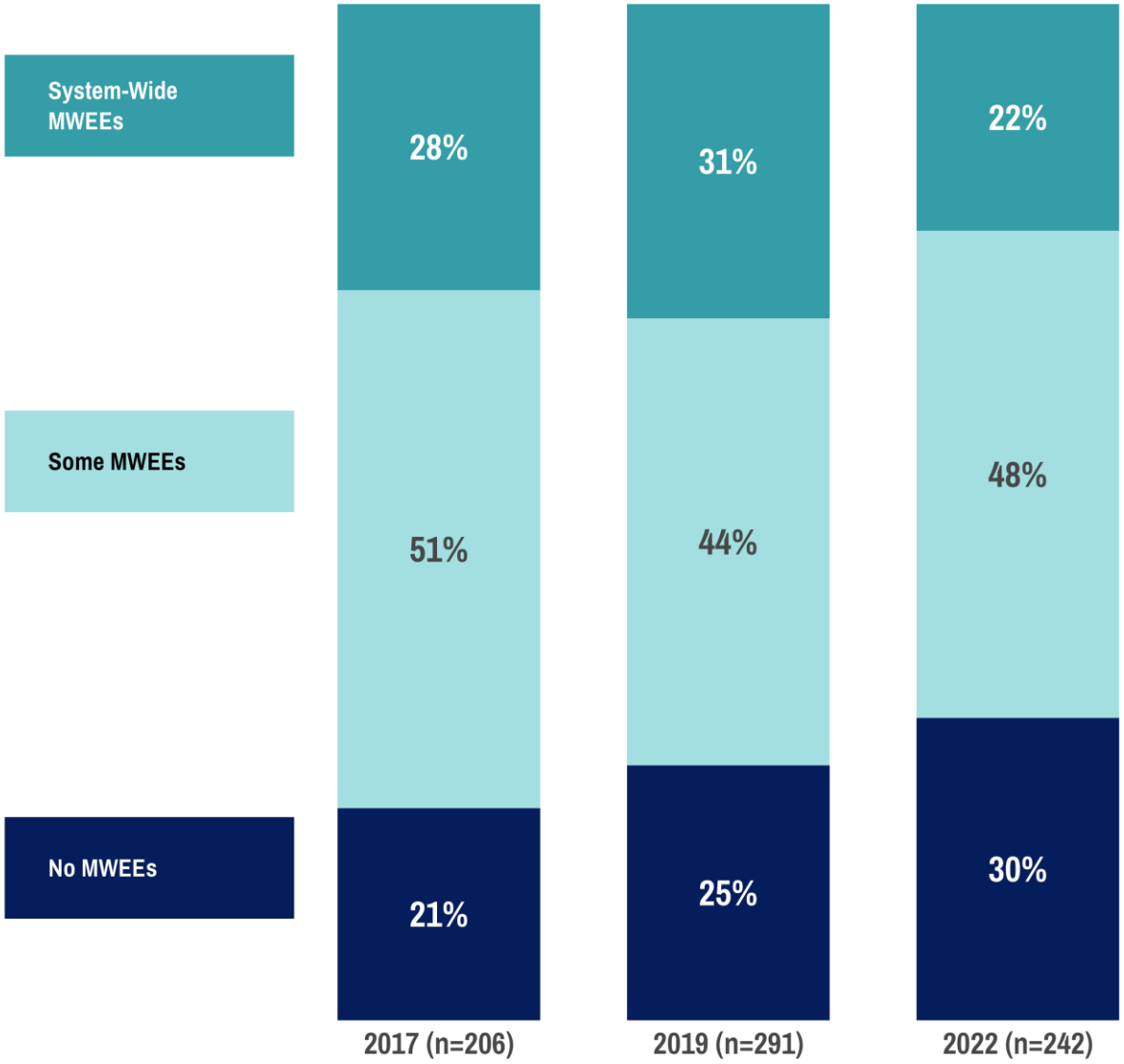
High School Grades: MWEE Availability among LEAs within the Region

Rates of availability by state in 2022. If a district reported there was a system-wide MWEE in any course they also flagged as a graduation requirement they were scored as having "System-Wide MWEEs"; "No MWEEs" indicates no MWEEs in any courses that the LEA indicated were requirements.



High School MWEEs: Trends Over Time

Changes in MWEE Availability in the Region: High School Grades (2017-2022)



There appeared to be a substantial decrease in MWEE availability at the high school grades in 2022, with far fewer system-wide MWEEs and more districts reporting no MWEEs at this grade band.

The number of system-wide MWEEs available at high school regressed to levels even lower than the indicator saw in 2017. Additionally, the rate of LEAs reporting no MWEEs at the high school level also rose relatively substantially. This drop represents the most dramatic change in MWEE availability across all three grade bands in 2022.

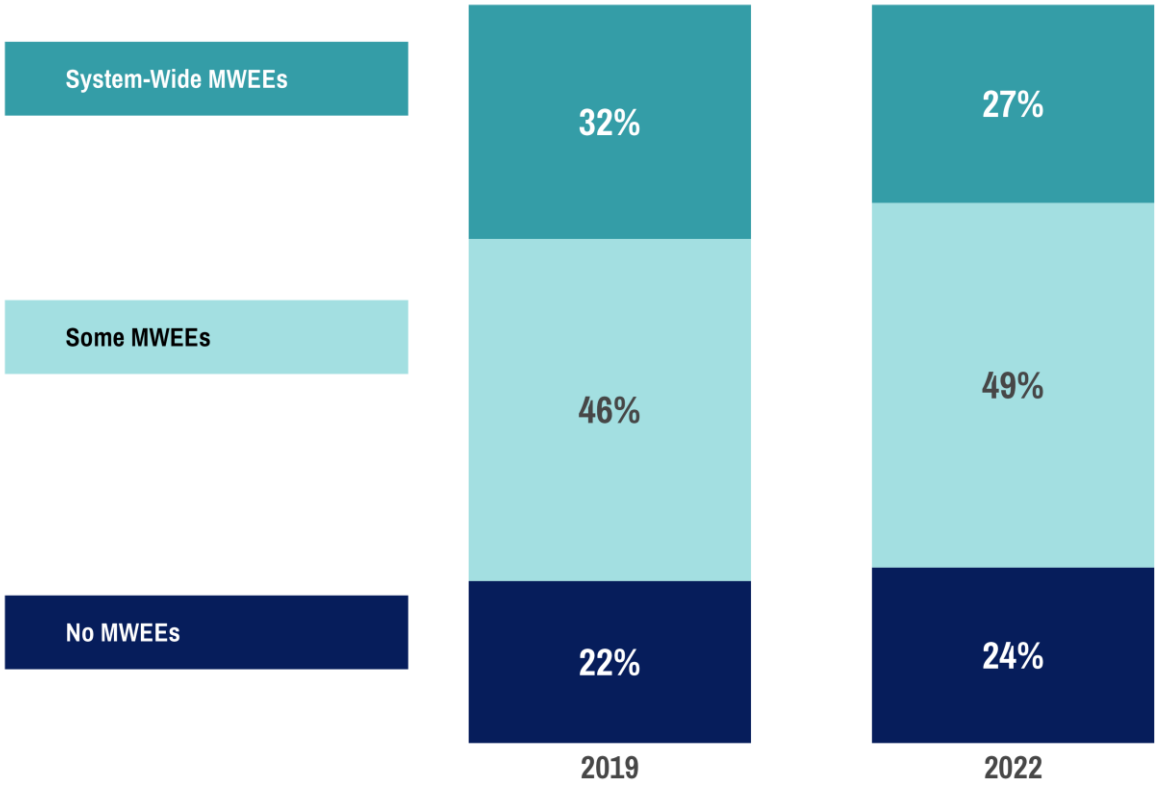
It is important to reiterate here that the high school indicator used a different measurement approach in the 2022 survey, with the question completely revised in an effort to make answering clearer (see page 25). It is possible that the changes to how the question was asked influenced the degree of change seen in the indicator from prior years.

Notably, the number of LEAs that reported no MWEEs at the high school level and the number of LEAs that reported some MWEE availability both increased substantially in 2022, as the proportion of system-wide MWEEs fell.

High School MWEEs: Changes between 2019 & 2022

Changes in Student MWEEs at HS Grade Levels 2019-2022 (Paired Data Only)

Region-wide prevalence of HS MWEE levels over the past two years, limited to data from LEAs where there was data from the past two ELIT years (n=164).



Comparing Paired 2019 and 2022 Data

Changes in preparedness within individual LEAs for which we have paired data. (n=164)

When looking only at the LEAs with paired 2019 and 2022 data, the overall patterns hold, but the decrease in system-wide MWEEs was far less dramatic than in the full dataset.

With the constrained dataset, there was only a decrease of 5 percentage points in the number of LEAs with system-wide MWEEs (compared to a decrease of 9 percentage points in the full dataset). Other patterns were also similar, but less dramatic – with a slight increase in no MWEEs and in some MWEEs.

This suggests that one-time respondents (in either 2019 or 2022) had a larger affect on the trend of the aggregate indicator – with higher reporting of system-wide in 2019 and lower reporting in 2022.

When we examine changes in level of availability among LEAs with paired data, it generally bears out these trends. Slightly more LEAs (4%) decreased to a lower level of MWEE availability than the number that increased to a higher level of MWEE availability.

As noted on the prior page, changes to the way the question was asked could influence these changes.

High School: Required Courses Using MWEEs

Of the 171 LEAs that reported having at least some MWEE experiences within required high school course(s), most tended to be within in science courses.

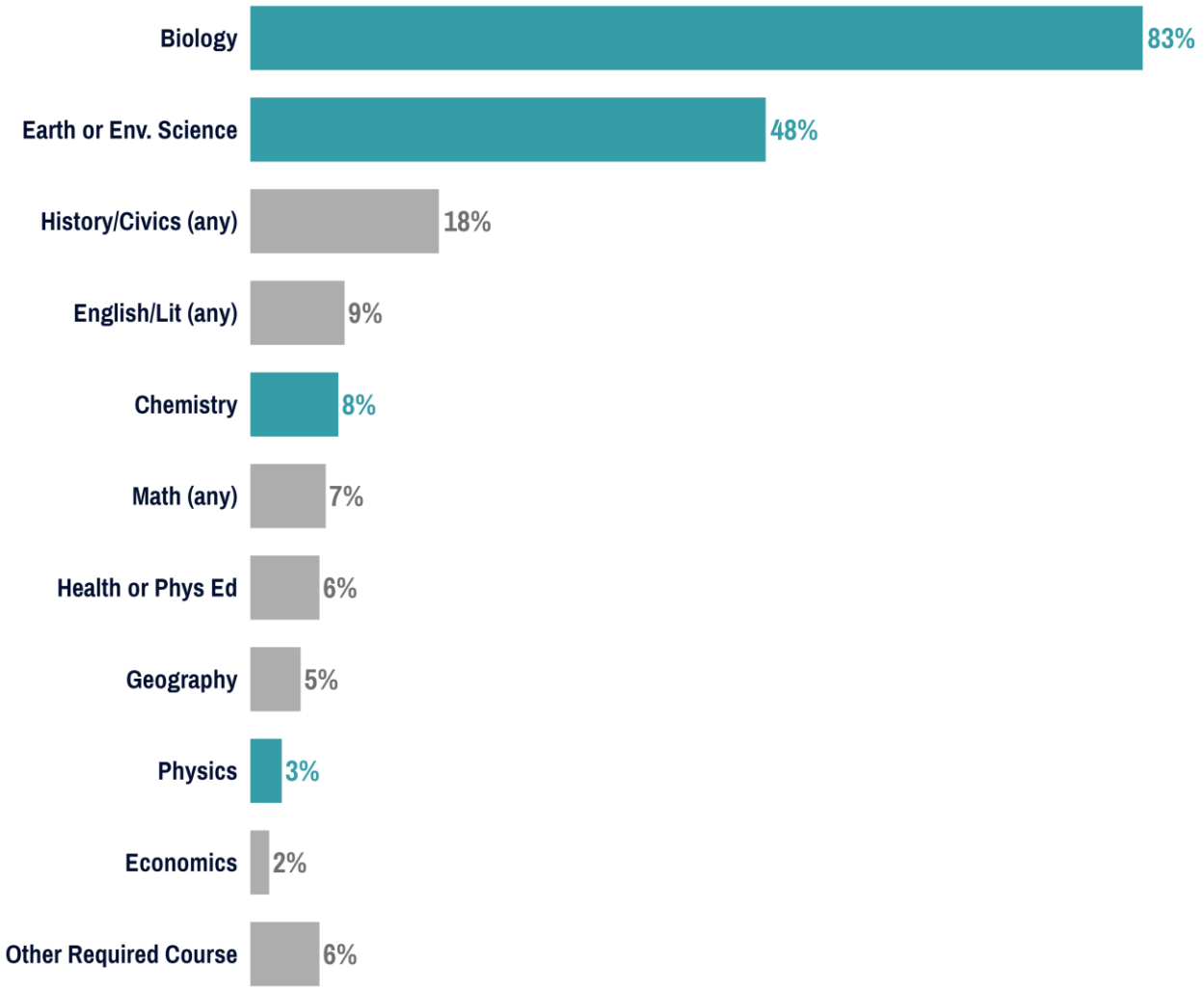
Biology was the most common required subject that incorporated MWEEs – whether in individual courses or system-wide. Environmental science was another common required course for MWEEs at the high school level.

Among required non-science courses, history, civics, and/or government were the most common subject for a MWEE to be present. This graph and analysis has combined these subjects, to see greater patterns; these responses were essentially split between history and government/civics courses. In the handful of write-in responses for other required courses, the most repeated topic named was ecology.

Reported MWEE use in biology courses was consistent with prior years' data. But rates in most other subjects decreased – notably environmental science. This could relate to the revised approach for asking districts to distinguish requirements from electives; it is possible past data over-reported courses that were not truly graduation requirements.

Percentage of LEAs that Provide MWEEs within Each Required Subject (n=171)

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

154 LEAs reported offering MWEEs within high school elective courses; most of these were in environmental science or AP science courses.

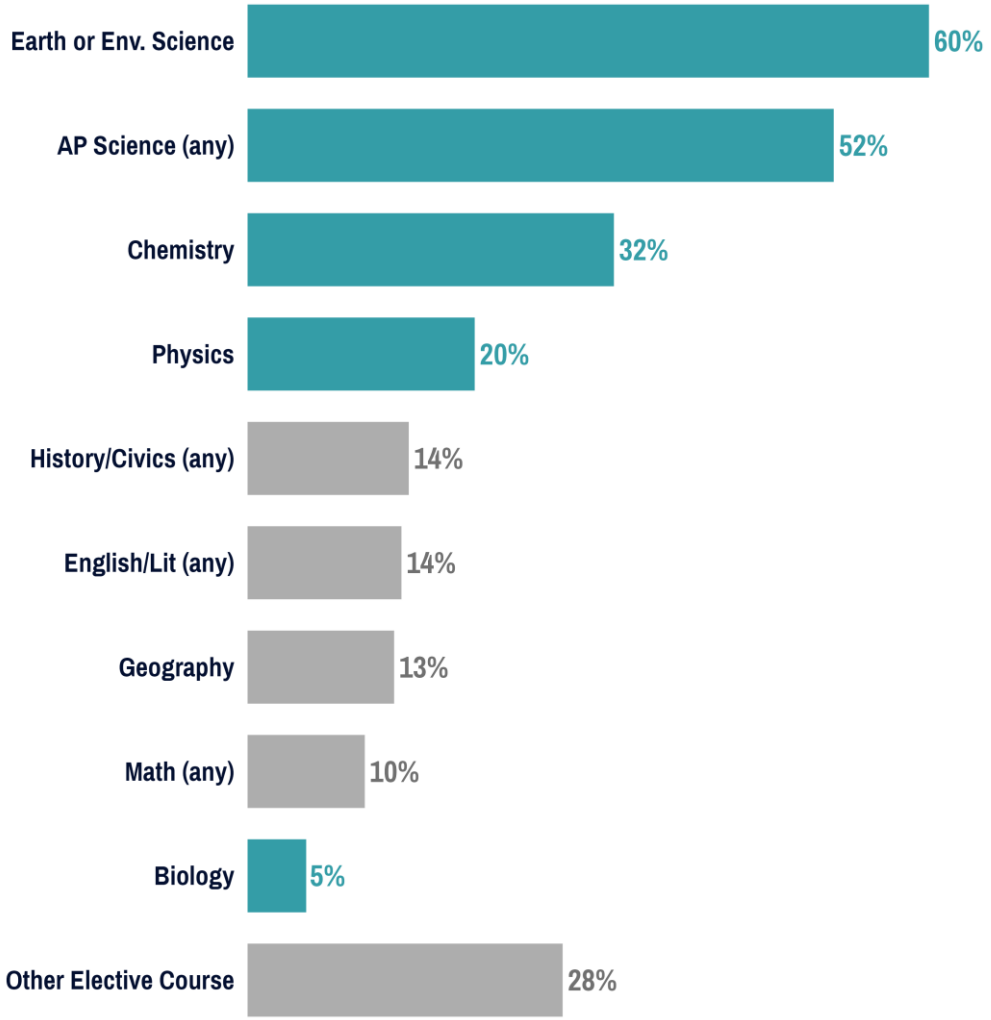
There was a wider range of science-focused electives that used MWEEs than in required courses. For example, respondents who reported MWEEs in an AP science course indicated those included AP environmental science, biology, and/or ecology. (For data collection, districts reported within the overarching category of "AP Science (any)", with the option to add specifics.)

The 2022 data show higher rates of MWEEs present in chemistry and physics elective than in past data gathering. This may be another area in which the new question changed reporting, with fewer districts identifying those as graduation requirement classes.

The "other electives" that use MWEEs included data from health/physical education and economics electives. It also included write-in elective courses, including marine science courses (marine biology, oceanography, aquatic ecology), agriscience, botany, climate, sustainability, and independent research electives.

Percentage of LEAs that Provide MWEEs within Each Elective Subject (n=154)

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

Across the Chesapeake Bay region, the greatest need for EE support was to receive more funding for programming and supplies.

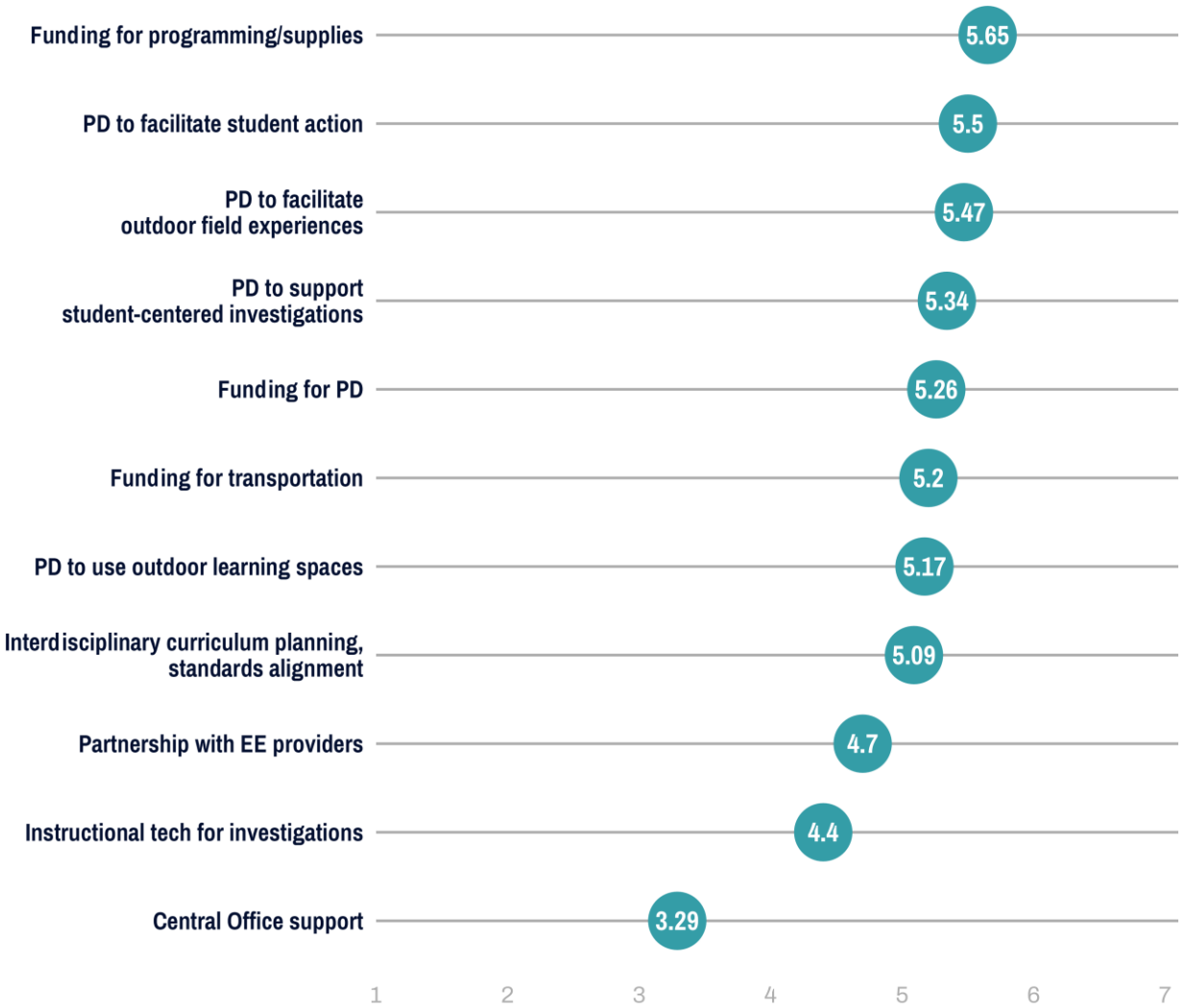
Notably, all of the items focused on funding and professional development (PD) across were rated as the most highly needed across LEAs. Funding for programming and supplies stood out at the top, but PD around facilitation of EE experiences and transportation funding were also quite high. Support from the central office / administration was rated the lowest need, by far. There also seemed to be less need for instructional technology or partnerships.

Note: the items asked were revised for the 2022 ELIT survey; as a result, year-to-year comparison is not possible.

The next page shows state-by-state priorities via the median ratings within the state. With the new set of items, there were differences in patterns of which items rose to the very top of the collective needs within a state. For example, Maryland, Pennsylvania, and DC all highly needed funding for transportation, while Delaware highly prioritized PD support in various areas.

Average Ratings of Need for Support in Each Area, Region-Wide (n=240-242)

Responding LEAs were asked to rate their level of need for support in each area from 1 to 7, with 7 being the greatest need.



Greatest Needs for Support: State-by-State

The seven highest-rated need statements within each jurisdiction

Maryland (n=22)	Median rating
Funding for transportation	7
Funding for PD	6
PD to facilitate student action	5.5
Funding for programs / supplies	5
Curriculum / standards alignment	5
PD for student investigations	5
PD to use outdoor learning spaces	5

Delaware (n=11)	Median rating
PD to facilitate student action	6
PD to use outdoor learning spaces	5
PD to facilitate outdoor field exp.	5
PD for student investigations	5
Partnerships with EE providers	5
Funding for programs / supplies	5
Funding for PD	5

Pennsylvania (n=113)	Median rating
Funding for programs / supplies	6
PD to facilitate student action	6
PD to facilitate outdoor field exp.	6
Funding for PD	6
Funding for transportation	6
PD for student investigations	5
Curriculum / standards alignment	5

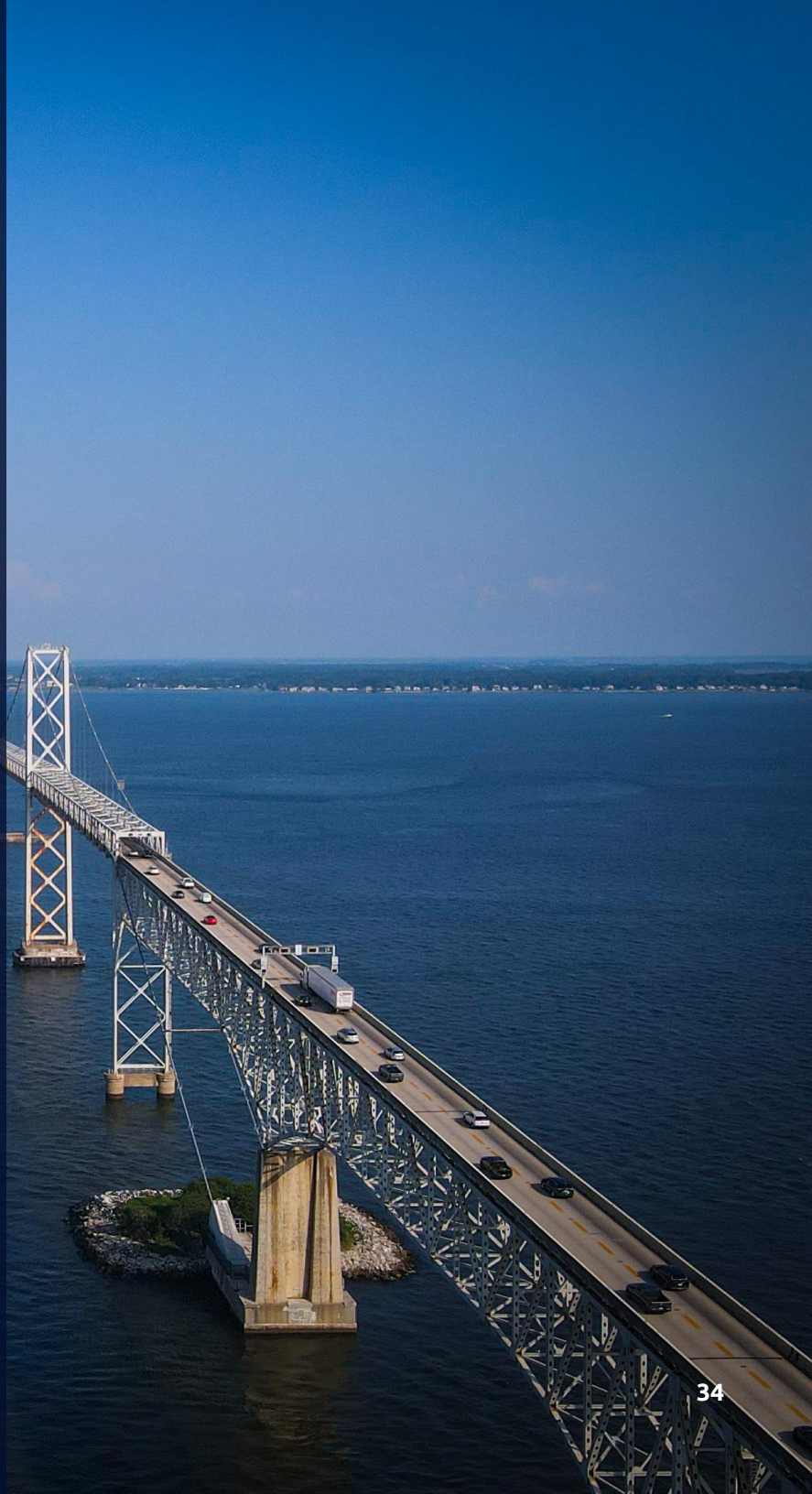
District of Columbia (n=1)	Median rating
Funding for PD	7
Funding for programs / supplies	7
Funding for transportation	7
PD to use outdoor learning spaces	7
Central Office support	5
Instructional tech for investigations	5
Partnerships with EE providers	5

Virginia (n=92)	Median rating
PD to facilitate outdoor field exp.	6
Funding for programs / supplies	6
PD for student investigations	6
PD to facilitate student action	6
PD to use outdoor learning spaces	6
Funding for PD	5.5
Curriculum / standards alignment	5

West Virginia (n=3)	Median rating
Funding for programs / supplies	7
PD to facilitate student action	7
Funding for transportation	6
PD for student investigations	6
Funding for PD	6
Curriculum / standards alignment	6
PD to facilitate outdoor field exp.	6

CONCLUSIONS

Discussion & Conclusions from the 2022 ELIT Survey



Indicator Changes: 2017 to 2022

2022 saw the first decline in the rate of districts that are well-prepared to implement environmental education.

After three prior periods in which there were gains of two percentage points in the proportion of LEAs that scored as well-prepared, 2022 saw the first decrease in these numbers. In 2022, only 17% of LEAs scored as well-prepared. It is possible that some of the previous progress that had been made to put systems and infrastructure into place was lost or reduced, potentially being one of many implications of the challenges districts faced in the aftermath of the COVID-19 pandemic.

Among those LEAs for which we could pair their 2022 responses with their 2019 data, this overall pattern of a small loss in the indicator held. There was a loss of 4 percentage points overall, with slightly more districts shifting to a lower level of preparedness than shifted to a higher level of preparedness. This further supports the interpretation that there were some losses in these infrastructure elements in the past three years.

Data showed that system-wide MWEEs decreased slightly at elementary levels and more substantially at middle school.

In 2022, reports of system-wide MWEEs at both the elementary and middle school levels decreased. The picture for elementary grades, however, was mixed. Although there was a small (2%) decrease in system-wide MWEEs, there was also a decrease in districts without any MWEEs at this level. This meant there were generally more MWEEs, but not every LEA had achieved the system-wider benchmark.

The picture for middle school grades, however, showed a contraction of the prevalence of system-wide MWEEs, going down steadily from 37% to 28% over the past three cycles, which continued a trend first noticed in 2019. The data showed that there still tended to be broad MWEE use, but that it wasn't as often achieving the system-wide marker. There was a slight increase (2%) in the proportion of LEAs with no MWEEs at this level.

The prevalence of system-wide MWEEs in high school showed the greatest decline from 2019.

The greatest changes and challenges for system-wide MWEE implementation appeared to be at the high school level, where there was a reduction of nine percentage points from 2019, bringing the indicator lower than the rates seen in 2017. Similarly, there was a substantial increase in the number of LEAs reporting no MWEEs in required high school courses.

Data reporting for high school has always been a challenge in the ELIT, due to the need to distinguish specific courses that are system-wide requirements (i.e., all students must take them) from courses that may use MWEEs system-wide, but are not reaching all students, because they are electives. The approach used by the ELIT survey to gather these data was streamlined in 2022, which may mean the newer numbers are more accurate reflections of courses that are truly required.

Key Takeaways from 2022 ELIT Indicators

Promising Practices for Preparedness

Examining each element of the Preparedness score, data over the years has consistently shown two elements that are fully implemented by nearly all well-prepared LEAs – an established program leader and community partners. These seem to be foundational elements for a well-prepared district. Notably, none of the LEAs that fell into the unprepared category reported having an established leader for environmental education in their district. This may suggest that when a person is in that role, they tend to ensure that progress is made on the other elements within the indicator.

When we look at areas of success that have been seen among somewhat and unprepared districts, it seems that most districts are able to get some foothold in cross-curricular integration of EE activities, but that element continues to be a significant challenge to fully achieve. The development of community partnerships is an area where districts seem able to achieve some "early wins," and may be levers to further build more infrastructure and elements.

Further Investigation into High School

The indicator measuring MWEEs at the high school level has been the most volatile of the ELIT indicators over the past three iterations. It saw a substantial surge in 2019, only to see a great reduction in 2022. The approach to measuring this metric was revised to make it simpler. If this version was clearer, changes could simply be a correction in reporting. The data could also be reflecting challenges at the high school level.

However, there may still be fuzziness in reporting on what qualifies as a graduation requirement course and achieving the "system-wide" benchmark. In many districts, there may be several choices of courses students can use to satisfy a graduation requirement. For example, students must complete 3 of 5 listed science courses to graduate; but the district does not specify *which* three. The ELIT may need to develop further guidance about these situations.

Overall, the volatility of this measure may suggest need for further investigation with districts to specifically refine how this indicator is gauged to improve reliability and ease of answering.

Priorities for EE Support

Building on insights from past ELIT surveys, where funding was almost always identified as the greatest area of need, the 2022 survey provided a new list of need areas, breaking down a wide range of specific funding and PD needs to dig deeper into this area.

This resulted in one funding priority rising to the top of the overall list of needs region-wide – funding for programming and supplies. Below that top need, the spectrum of other PD and funding needs were all rated as having a similar need level, in the aggregate. As in the past, there is far less reported need for support from central office/administrations.

This more nuanced list of needs led to quite different profiles of need within each jurisdiction. LEAs within some states gravitated toward needs for funding elements, while other states seemed to place higher need on the PD elements. This may support further customization of support within the states.

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Chris Liu-Beers
Liz Guertin
Max Shein
Bob Burkhard
Ashley Hajimirsadeghi
Mary Oakey
Taylor Cole
Sara Cottle

J. Sickler CONSULTING

For more information about this report, contact:

Jessica Sickler
J. Sickler Consulting
jessica@jsickler.net

Shannon Sprague
NOAA, Chesapeake Bay Office
Shannon.Sprague@noaa.gov