



Maryland
STATE DEPARTMENT OF EDUCATION

Career and Technical Education: Comprehensive Local Needs Assessment

A Systemic Review Guidebook for Secondary Schools
Version 3.0

MARYLAND STATE DEPARTMENT OF EDUCATION

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DOCUMENT HISTORY

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1.0	February 2024	Initial Document
2.0	March 2024	Modified: Formatting for accessibility Added: State Level Performance Data Added: Appendices with Strategies and Resources to Consider
3.0	April 2024	Modified: Activity B.4 and all related data tables

Purpose

The federal Strengthening Career and Technical Education for the 21st Century Act (Perkins V), provides funding to support educators in developing the technical and employability skills and academic knowledge of secondary and postsecondary education students enrolling in career and technical education (CTE) programming.

Perkins V requires that grant recipients complete a Comprehensive Local Needs Assessment (CLNA) every other year to identify needs or gaps that should be addressed to strengthen the delivery of high-quality CTE programming.

The Maryland State Department of Education (MSDE) has created this document to assist LEA in conducting your CLNA. Information contained within it will assist local education agencies to align improvement efforts with the College and Career Readiness Pillar contained in the Blueprint for Maryland's Future. Key action steps include assessing the alignment of CTE programs of study (POS) to labor market needs; reviewing student participation and performance in CTE coursework; evaluating site progress in making CTE offerings accessible to students; and considering efforts to recruit, train, and retain CTE instructors.

Results from this CLNA should be incorporated into the LEAs Perkins V Local Application, which details how you plan to use federal funds to improve CTE instruction and expand equitable student access to quality programs.

The CLNA and the Local Application will be reviewed and approved on a rolling basis, and must be fully completed by the LEA, negotiated (LEA and MSDE), and approved by the State Director of Career and Technical Education or their designee prior to July 1st of each year.

Appendices A - E are included in this document that may help you align your priorities to your Local Application. If you have questions about how to use this guide, please contact your designated Secondary Program Coordinator in the Office of College and Career Pathways.

Instructions

Conducting this needs assessment could take several months to complete and must precede the creation of your Perkins V Local Application.

This guide provides a framework to help you investigate the status of your CTE programming and identify areas for improvement. It is organized into six sections:

- Guiding Principles
- Assembling a Stakeholder Team
- Component A: Labor Market Alignment
- Component B: Student Participation and Persistence
- Component C: Program Performance
- Component D: Professional Development

While you may choose to cover topics in any order, you should begin by assembling a stakeholder team to inform your effort. This group must include representatives from the stakeholder groups that are identified in the Perkins V legislation.

You may complete this document online or electronically by typing directly into the provided fillable fields. Alternatively, you may print out a copy of this form and enter information by hand. Do not alter or remove sections. Those choosing to complete the document offline should upload a completed copy using SharePoint.

Guiding Principles and Logic Model

OVERVIEW

MSDE has identified a set of guiding principles to inform the creation of CTE programming. It includes the expectation that all learners should have access to high-quality CTE coursework that:

- aligns to high-skill, high-wage, in-demand careers,
- leads to industry-recognized and/or postsecondary credentials that supports entrance or advancement in a specific career cluster, and
- offers career-based learning experiences (e.g., work-based learning, apprenticeship) that require the application of academic and technical knowledge and skills in a work setting.

LOGIC MODEL

Despite the growing emphasis on CTE as a pivotal pathway for students in Maryland, there is a significant gap in the systematic evaluation of current CTE programs. Maryland's dedication to aligning educational experiences with the demands of the real-world labor market faces challenges:

1. **Lack of Comprehensive Oversight:** There isn't a unified method to holistically assess the state's CTE programming capacity. This absence has led to disparities among various student groups across CTE clusters, hindering equitable access to quality education.
2. **Inefficient Funding Application Process:** Potential CTE grantees in Maryland lack a structured Local Application process for Perkins V grant funds, affecting their ability to optimally leverage these resources for student outcomes.

The combined effect of these challenges puts Maryland's CTE programs at risk of not fully aligning with the Perkins V requirements and, more importantly, not meeting the evolving needs of students and the labor market. Consequently, there is an urgent need for a systematic approach to bridge these gaps, ensuring the delivery of equitable, high-quality career and technical training that truly mirrors labor market demands.

LOGIC MODEL CHART

	Strategies	Outputs	Short-Term Outcomes	Long-Term Outcomes	Impacts
Tangible: Funding from Perkins V	Develop a CLNA	Comprehensive report detailing current state of CTE programs	Identification of gaps and disparities in CTE programs	Enhanced quality and inclusivity of CTE programs	A workforce better prepared for Maryland's labor market demands
Tangible: Labor Market Information (LMI) Data	Analyze LMI to align CTE programs with labor market demands	List of high-demand sectors and occupations in Maryland	CTE curriculum adjustments based on labor market needs	Improved alignment of CTE tracks with workforce demands	Higher employment rates for CTE program graduates
Tangible: Interview and Focus Group	Conduct interviews and focus groups with stakeholders	Collection of feedback and insights from stakeholder groups	Immediate feedback loop established with stakeholders	Strengthened collaboration and partnerships	Enhanced stakeholder trust and investment in CTE programs
Intangible: Expertise in CTE Programming	Design a structured Local Application process for Perkins V funding	Guideline document for potential CTE grantees	Streamlined application process for Perkins V funding	Increased number of high-quality grant applications, earlier in the process	Optimal leverage of grant funds for improved student outcomes
Intangible: Stakeholder Relationships	Engage regularly with stakeholders for continuous feedback	Periodic stakeholder engagement sessions	Fostered sense of community ownership and involvement	Stronger community ties and support for CTE programs	CTE programs that resonate more deeply with community needs
Intangible: Knowledge of federal and state education guidelines	Ensure CTE programs align with Perkins V, the Blueprint for Maryland's Future, and other relevant guidelines	Regular compliance checks and reports	Immediate course correction when misalignments are found	Consistent alignment with state and federal guidelines	Sustained funding and support for CTE programs due to compliance

INTERPRETATION

3. **IF** we intentionally and strategically allocate Perkins funding in the planning process, **THEN** we can develop a CLNA leading to a comprehensive report that identifies gaps in the CTE programs, ultimately enhancing the quality and inclusivity of CTE programs and preparing the workforce better for Maryland's labor market demands.

4. **IF** we utilize LMI data, **THEN** we can better align CTE programs with current labor market demands, leading to adjustments in the CTE curriculum, improving the alignment of CTE tracks with workforce demands, and resulting in higher employment rates for CTE program graduates.
5. **IF** we employ interview and focus groups effectively, **THEN** we can gather valuable feedback from stakeholders, establishing an immediate feedback loop, strengthening collaboration, and enhancing stakeholder trust and investment in CTE programs.
6. **IF** we leverage our expertise in CTE programming, **THEN** we can design a structured Local Application process for Perkins V funding, streamlining the application process, increasing the number of successful grant applications, and optimizing the use of grant funds for improved student outcomes.
7. **IF** we nurture and maintain stakeholder relationships, **THEN** we can engage more deeply and regularly for feedback, fostering a sense of community ownership, strengthening community ties, and creating CTE programs that resonate more deeply with community needs.
8. **IF** we stay updated on federal and state education guidelines, **THEN** we can ensure consistent alignment of CTE programs with these guidelines, leading to immediate course corrections when needed, sustained alignment, and thereby securing sustained funding and support for CTE programs.

PROGRAM DESIGN

All CTE programming in Maryland must be delivered through Programs of Study (POS) developed by the state or a local school system. To be considered “state approved,” each program of study must meet these criteria:

- Strengthens the academic, career, and technical skills of students to prepare them for careers and further education.
- Incorporates input from diverse stakeholder groups, including industry and postsecondary partners.
- Fits within one of 10 state-recognized career clusters that help students learn about their work options so that they may make informed career decisions.
- Includes opportunities for students to earn industry or postsecondary credentials and participate in career-based learning experiences.
- Prepares students for both college and careers through the completion of a planned sequence of coursework that blends academic, technical, and workplace skills.
- Incorporates a coherent set of academic, employability, and technical skills based on national and state standards that offer students a competitive advantage in the workplace.
- Offers multiple options to prepare students for entry into careers and further education through articulation agreements, supervised career-based learning experiences (e.g., work-based learning, internship, apprenticeship, etc.), and/or industry-mentored or capstone projects.
- Is based on enrollment and outcome data to inform program improvement and increase student performance.

Refer to these criteria as you conduct your CLNA to ensure your programming is rigorous and of uniformly high quality.

STUDENT ENGAGEMENT

A CTE POS includes a course sequence from grades nine through 12 and two or more years of postsecondary education courses. A student may meet the following thresholds of engagement:

Participant — Student completing not less than one credit in a MSDE approved CTE POS.

Concentrator — Student completing at least two courses in a single MSDE approved CTE POS.

Completer — Student who meets all requirements in a state approved CTE POS.

PROGRAM DELIVERY

Local school systems must meet **Size, Scope, and Quality** criteria to qualify for federal funding. Detailed information on these and additional expectations relating to CTE programming can be found in Maryland’s [Policies & Procedures for the Development & Continuous Improvement of Career and Technical Education Programs of Study](#).

Any program that fails to meet all the following criteria will need to be brought into compliance or removed from your program approval request, invalidating it for Perkins V funding. While you are not

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expected to develop plans to address deficiencies as part of the CLNA process, you are encouraged to assess each CTE POS against these criteria to help prepare for developing your local application.

SIZE
At least two, state-approved CTE POSs are offered in recognized clusters.
Each POS consists of a coordinated, non-duplicative sequence of academic and technical coursework comprising at least 3 credits.
Each CTE concentrator-level course (typically the 3rd in a program) has a minimum of 10 concentrators over a 4-year period. If not, evidence must be offered of continued progress toward meeting this requirement.
Each POS has the required number of staff, availability of equipment, and student access to facilities.

SCOPE
Curricula are aligned to state-approved industry standards that allow students to earn recognized credentials, certifications, licenses, college credit, or degrees
Curricula offer a progression from secondary to postsecondary education and/or employment (including attainment of an industry-recognized credential or apprenticeship), and from community college to bachelor's degree programs
Curricula allow students to learn and demonstrate academic, technical, and employability skills
Curricula include differentiated supports and modifications to meet the needs of diverse learners
Each CTE student has a written career and academic plan in place that includes the: <ul style="list-style-type: none"> ● required courses to complete a POS and graduate; ● required assessments to earn a certification, license, credential, or degree; ● required academic assessments to graduate; and ● a timeline to take courses, assessments, and complete career-based learning experiences.
All students, regardless of race, color, national origin, sex, or disability, have equitable access to high-quality CTE programs as required by Code of Maryland Regulation 13A.04.02.04
Approved POSs are guided by Local Advisory Councils and Program Advisory Committees according to the CTE Local Advisory Council and Program Advisory Committee Policies and Procedures (COMAR EA Title 21. Sec.101)
All CTE POS adhere to CTE Development Standards, which are required by Code of Maryland Regulations 13A.04.02.03
All programs meet the definitions for high-skill, high-wage, in-demand occupations

QUALITY
The site achieves or consistently makes progress towards local targets established for state and federal core indicators of performance
POS are delivered by teachers who meet state requirements to teach content at the secondary level
CTE POS are delivered by teachers who earned a minimum of effective on their teacher evaluation as defined by Code of Maryland Regulation 13A.07.09 within three years
Each CTE POS meets all the requirements of the MSDE evaluation criteria found in the Policies and Procedures for the Development and Continuous Improvement of CTE Programs of Study (page 45).
All students, including students in special populations, are offered the opportunity to: <ul style="list-style-type: none"> ● Participate in at least one career-based learning experience (e.g., work-based learning, internship, apprenticeship, etc.), ● Earn college credit and/or industry credentials, and ● Participate in CTSOs.
Professional learning opportunities, informed by data, are provided for administrators, teachers, faculty, counselors and support personnel to improve student learning outcomes. All secondary professional learning must be guided by the Maryland-endorsed National Learning Standards

QUALITY
Local and state annual data-reporting requirements are met, and reviews conducted of all annual Program Quality Index reports to inform improvement
Human resources are included in the recruitment process to ensure a diverse CTE teacher and faculty member candidate pool
Metrics are used to ensure that CTE teacher and faculty member recruitment strategies are successful
Teacher retention rates are reviewed annually, for the most recent 3 years, with data used to identify the top three contributing factors to CTE teacher and faculty member turnover

Assembling a Stakeholder Team

Assemble a diverse stakeholder team to assist you in conducting your CLNA. Representation in the listed categories is required by federal statute, except where indicated. While Perkins V requires more than one representative for each group (with an exception for CTE coordinators and data analysts), it is permissible for one person to fulfill up to two roles.

STAKEHOLDER TEAM COORDINATOR

[This is the individual responsible for planning and holding stakeholder meetings and completing CLNA]

Name	Kristine H. Pearl, Ed.D.
Organization	Frederick County Public Schools
Title	Supervisor of CTE
Email	kristine.pearl@fcps.org

STAKEHOLDER TEAM MEMBERS

When Selecting Stakeholders, consider:

- Recruit individuals who are knowledgeable about CTE at your site and influential in the field.
- Ensure that members understand the time commitment and can attend all scheduled meetings.
- Perkins V requires *more than one representative for each group* (with an exception for the coordinators and data analyst). Members may not represent more than two stakeholder groups.
- If you are unable to recruit a member to fulfill a required role you should keep a record of your outreach efforts to demonstrate you acted in good faith.

Stakeholder Team Responsibilities

- Review Maryland Department of Labor employment and projections data, district student participation and performance data, and educator support efforts to identify priority areas for improvement.
- Ensure that program offerings are aligned to local, regional, and/or state employment priorities.
- Help to communicate the importance of delivering high-quality CTE POS in your site and champion local efforts to achieve improvement goals.
- Meet on a quarterly basis to track your progress in improving CTE programming and make annual updates to this needs assessment.

Note that stakeholder team meetings may be held in person, virtually, or using a hybrid approach. If scheduling conflicts make holding a full team meeting impractical, stakeholders may meet in subgroups to review data and consider strategies to strengthen programming. Ultimately, all stakeholders should contribute to identifying challenges and formulating solutions, and publicly support your findings.

Stakeholder Team Roster

SECONDARY

Role	Name	Title	Affiliation
Administration (e.g., principal, assistant principal)	Mike Concepcion	Principal, CTC	FCPS
	Norm McGaughey	Coordinator, CTE	FCPS
	Korbin Shoemaker	Coordinator, CTE	FCPS
Professional career or academic counselor	Ryan Defibaugh	Coordinator of School Counseling	FCPS
	Laura Brown	Career Coach Coordinator	FCPS
Teachers	Anthony Bollino	CTE Teacher Specialist	FCPS
	Jeremy Brown	WBL Coordinator	FCPS
	Mike Brown	CTE Teacher	FCPS
	Travis Zimmerman	CTE Teacher	FCPS
Instructional Support and Paraprofessionals (Psychologists, Social Workers, etc.)	Lorraine Marshall	Math Specialist,	FCPS CTC

POSTSECONDARY

Role	Name	Title	Affiliation
Administration (e.g., dean, division chair)	Meg Garvin	Director of Research and Assessment	UMBC
	Kim Manley	Perkins Coordinator	FCC
	George Dimitoglou	Associate Professor of Computer Science	Hood College
Faculty	John Yoho	Instructor, Business	FCC
	Kaelyn Steig	Instructor, Business	FCC

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WORKFORCE

Role	Name	Title	Affiliation
Local Workforce Development board member	Michelle Day	Director	Frederick County Workforce Services
	Dwayne Myers	Chair	Frederick County Workforce Services and co-owner Dynamic Auto
*Regional Economic Development organization member	Rebecca Tucker	Senior Business Development Manager of Agriculture	Frederick County Govt.
	Kaie Stevens	Director, Office of Agriculture	Frederick County Govt.
Local business & industry representative	Jose Bueso	President	Dynamic Automotive
	Philip Brown	President and CEO	Phoenix Mecano
	Megan Sweigart	Executive Director	techfrederick
	David Hesse	Executive Vice President	Kalkreuth Roofing and Sheet Metal, Inc.

OTHER

Role	Name	Title	Affiliation
Parent or caretaker	Charles Smith	Parent	Parent of Student
Student	Jacob Smith	Senior	CTE CAD Drafting
Representative of Special Populations	Megan Hailu	EL Teacher Specialist, PreK-12	FCPS
Out-of-School youth / unhoused youth / corrections	Melissa Muntz	Manager SHIP	SHIP- Student Homelessness Initiative Partnership

* Not required under Perkins V but recommended to include.

Component A: Labor Market Alignment

OVERVIEW

Career programming in Maryland must address the economic and workforce development needs of the state and align to high-skill, high-wage, and/or in-demand (HS/HW/ID) careers. These are defined as:

High-Skill — Careers that: (1) require previous work-related skills, knowledge, or experience of one or more years; (2) have a Specific Vocational Preparation (SVP) rating of at least six as defined by [O*Net](#); (3) require state or federal licensing or industry-recognized certification; or (4). require a recognized postsecondary credential or degree.

High-Wage — Careers that exceed the state average annual wage of \$69,750 in 2022.

In-Demand — Careers with a growth rate over ten years of at least 7% or a two-year occupational projected growth of 2.5%.

The Division of Career and College Readiness has evaluated all secondary and postsecondary State and Local approved POS against these HS/HW/ID criteria. Ideally, your CTE POS will meet all three of the criteria, or at least one to qualify for funding. You may access additional information on these programs at the [Maryland CTE Data website](#). The Maryland Department of Labor has also developed [Long Term Occupational Projections](#) thru 2030, which can help you to identify high demand careers and the education and job training necessary to secure them.

ACTIVITY A.1: TAKING STOCK

The following table details the CTE POS offered at your district in the 2022-23 school year, their alignment with high-skill, high-wage, and in-demand careers, and the relative proportion of students concentrating in each area. Although it is not *required* that each POS meet the criteria for high-skill, high-wage, *and* in-demand, it should be the goal of each POS to do so.

Note: Prior to sharing this table with your stakeholder team, you will need to suppress numbers and percentages in cell that do not include the minimum number of students required to protect student confidentiality. Maryland state policy is to suppress data for cells or percentages that are based on fewer than 35 students. Please consult your district policies to determine which data cells should be suppressed and how this information should be communicated (e.g., by entering 'LOW N' or '<35 students' in effected cells).

Program	Alignment to current statewide industries (enter ✓)			Number of CTE participants 2022-23	Percent of all CTE Participants 2022-23
	HS	HW	ID		
Example	HS	HW	ID	###	100%
All Programs	X			14192	100.0%
Academy of Health Professions: Dental	x		x	101	0.7%
Academy of Health Professions - Physical Rehabilitation	x		x	176	1.2%
Academy of Health Professions Medical Assisting	x		x	207	1.5%
Academy of Health Professions Nursing	x		x	213	1.5%
Agricultural and Commercial Metals Technology	x	x	x	60	0.4%
Agriculture	x	x	x	3131	22.1%
Autobody/Collision Repair and Refinishing	x	x		57	0.4%

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Program	Alignment to current statewide industries (enter ✓)			Number of CTE participants 2022-23	Percent of all CTE Participants 2022-23
Automotive Mechanics	x	x	x	74	0.5%
Automotive Technology	x	x	x	106	0.7%
Biomedical Sciences	x	x	x	167	1.2%
Business Administrative Services	x	x		6630	46.7%
Business Management	x	x	x	6097	43.0%
Drafting and Design Tech (CAD)	x	x		71	0.5%
Career Research and Development	x			4172	29.4%
Carpentry	x	x	x	79	0.6%
Cisco IT Networking	x	x	x	125	0.9%
Computer and Information Sciences	x	x	x	13529	95.3%
Construction Design and Management	x	x	x	1892	13.3%
Cosmetology	x		x	72	0.5%
Culinary Arts American Culinary Federation	x		x	87	0.6%

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Program	Alignment to current statewide industries (enter ✓)			Number of CTE participants 2022-23	Percent of all CTE Participants 2022-23
Culinary Hospitality	x	x	x	482	3.4%
Digital Design and Printing Methods (Print ED)	x			44	0.3%
Early Childhood Education Child Development Associate - Preschool	x	x	x	1843	13.0%
Electrician - Construction Electricity	x	x	x	76	0.5%
Environmental Landscape Design and Management	x	x	x	270	1.9%
Finance and Accounting	x	x	x	6291	44.3%
Homeland Security and Criminal Justice	x	x	x	438	3.1%
HVACR & Plumbing	x	x	x	73	0.5%
Marketing	x	x	x	6358	44.8%
Naval Science NJROTC	x			175	1.2%
Project Lead the Way - Engineering	x	x	x	1100	7.8%
Teaching Academy of Maryland	x	x	x	61	0.4%
Audiovisual Communication and Broadcasting Tech	x		x	80	0.6%

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Program	Alignment to current statewide industries (enter ✓)			Number of CTE participants 2022-23	Percent of all CTE Participants 2022-23
Interactive Media Productions	x	x	x	41	0.3%
Youth Apprenticeship	x			77	0.5%

Are you planning on adding any new or phasing out any existing POS in the upcoming year? If so, which CTE POS(s) are you considering and why?

Program/CIP Code	Adding or deleting	Rationale for change
Emergency Services Training/High School Cadet/430250	Adding	Able to expand current internship program to align to MSDE and MFRI requirements
Child Development/200201	Deleting	Now offer full implementation of Early Childhood Child Development Associate / 131209

ACTIVITY A.2: ASSESSING PROGRAM ALIGNMENT TO LABOR MARKET AND INDUSTRY NEEDS

Based on a review of the CTE POS data for high-skill, high-demand, and in-demand standards, rate each statement as a strength or area for improvement. Provide an explanation for any answer with which you identify as an 'area for improvement.'

	Meets	Area for Improvement	Explanation
Our CTE stakeholders review workforce and economic data to assess current and anticipate future local employment needs in HS/HW/ID industries	All programs meet at least one of the criteria		
Processes are in place to identify and expand high school level registered apprenticeship opportunities.		A centralized Work Based Learning Teacher Specialist is needed	To meet the 45% goal, we must increase our capacity to expand the Apprenticeship program. . Currently the CTE Director has taken on those additional responsibilities with support from the CTE Administrative Assistant. A centralized Work Based Learning Teacher Specialist is needed. We have the MD Works grant and are working diligently to expand opportunities however, the program requires significant oversight, employer communications and data collection.
Processes are in place to update or phase out CTE POS that do not align with HS/HW/ID industries	We are continually assessing programs and phase out programs that no longer meet the criteria such as Child Development, while adding Child Development Associate.		
A majority of our students are concentrating in POS aligned to HS/HW/ID industries	Agriculture, Computer Science, CRD, and Marketing with 400 or more concentrators in those categories	Restaurant Culinary Management and Horticulture CPH are under 10 concentrators.	For Restaurant Culinary Management- We are working with the school to better promote the program rather than singleton classes. This school year, a full section of the concentrator course is running. Horticulture CPH- The program has evolved to Agribusiness and has increased enrollment, taking priority.
Processes are in place to recruit	Our program advisory committees are strong.		

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business and industry stakeholders to participate on Program Advisory Committees	Businesses reach out to us asking to participate. Our team serves on multiple local Board of Directors and committees with industry partners. Those connections keep us engaged with local businesses.		
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ACTIVITY A.3: REFLECTION

Based on your responses in this component of the needs assessment guide, consider the following questions:

1. What is your rationale for offering programming that is not fully aligned with high wage, high skill, and in-demand criteria you rated in Activity 1.1)?

The only programs that align to only one criteria are Youth Apprenticeship, CRD and NJROTC. These are typically programs that students participate in when they are not certain of the career path that best suits them. These programs provide an opportunity to explore career fields. All of them result in a high percentage rate of employment post high school.

2. What are the top five priorities you will address in the coming year to update or phase out misaligned CTE programs and/or expand student participation in CTE programming aligned with HW/HS/ID careers?

- 1) Update a Fire and Rescue internship to a CTE Program of Study.**
- 2) Reinvigorate ill equipped welding program at Brunswick High.**
- 3) Continue to grow the Youth Apprentice Program through a new position.**
- 4) Expand Interactive Media Productions by updating non-CTE POS to IMP through necessary equipment and Professional Learning.**
- 5) Create middle school pathways to align with high school Programs of Studies.**

NOTE: Sample strategies that may help you align your priorities, are listed in Appendix A.

Component B: Student Participation and Persistence

OVERVIEW

To ensure that all students have equitable access to CTE programming, MSDE encourages districts to assess rates of student participation and persistence in CTE overall, as well as within each POS offered for the state approved Career Clusters. Enrollments also should be tracked using the disaggregates for student gender, race-ethnicity, and special population status detailed in Perkins V.

ACTIVITY B.1: TAKING STOCK

The following table asks you to enter the number and percentage of 2023 high school graduates statewide and in your district who participated in CTE coursework and persisted to achieve concentrator status in CTE programming, disaggregated by selected student demographics.

Please use the 2023 statewide graduate data and district heat maps, which will be provided by MSDE, to complete the requested information. If you have any questions regarding the data entry, please contact MSDE staff.

Once you have entered the data, review the information to determine whether there are any concerning gaps in student participation and/or persistence. Note that small numbers of students may have large impacts on your participation and concentrator status rates; consequently, use care when interpreting data with cell sizes of less than 10 students.

Note: *Prior to sharing this table with your stakeholder team, you will need to suppress numbers and percentages in cell that do not include the minimum number of students required to protect student confidentiality. Maryland state policy is to suppress data for cells or percentages that are based on fewer than 35 students. Please consult your district policies to determine which data cells should be suppressed and how this information should be communicated (e.g., by entering 'LOW N' or '<35 students' in effected cells).*

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Student Group	2023 Graduates Statewide				2023 Graduates in Your District			
	Number	Percent	Percent participating in CTE	Percent of participants who achieved concentrator status	Number	Percent	Percent participating in CTE	Percent of participants who achieved concentrator status
All 2023 Graduates (4-year cohort)	58,206	85.81%			3298	100.0%	98.2%	51.7%
Gender								
Male	28,576	82.60%			1625	49.3%	99.5%	57.2%
Female	29,581	89.16%			1628	49.4%	99.6%	47.7%
Race-ethnicity								
American Indian	140	85.89%			9	0.3%	100.0%	66.7%
Asian	4,559	96.16%			205	6.2%	98.0%	51.7%
Black	18,648	84.68%			465	14.1%	98.5%	47.7%
Hispanic	10,446	71.37%			614	18.6%	98.2%	47.2%
Multi-race	2,485	89.36%			156	4.7%	98.1%	57.1%
White	21,838	93.38%			1843	55.9%	98.3%	53.7%
Special Populations								
Economically disadvantaged	17,049	80.83%			716	21.7%	99.7%	53.6%
Multilingual learners	3,140	55.78%			429	13.0%	32.4%	47.8%
Individuals with disabilities	4,697	69.47%			506	15.3%	55.9%	55.9%
Nontraditional fields	-	-	-		0	0.0%		
Single parents	-	-						
Out of workforce	-	-	-				-	-
Unhoused Individuals	833	62.03%						
Youth in foster care	66	40.24%					-	-

Youth with parent in military	1,028	95.10%			67	2.0%	100.0%	23.9%
Migrant students	-	-	-	-				

Note that since special population status is not mutually exclusive (i.e., a student may belong to more than one category), these data may not sum to 100%.

FCPS NOTE: There is currently no systematic process for capturing Single Parent, Out of Workforce, unhoused individuals, Youth in Foster Care, and Migrant Student. The FCPS CTE Team will work with the FCPS data Team to determine possible processes

ACTIVITY B.2: ASSESSING YOUR PROGRAM

Based on a review of the overall CTE program data—relative to the state and across student groups—rate each statement as a strength or area for improvement. Provide an explanation for any answer with which you identify as an ‘area for improvement.’

	Meets	Area for Improvement	Explanation
Our district ensures all students—irrespective of gender, race, or special population status—are provided unbiased, inclusive, and non-discriminatory information about CTE courses and POS	While there is always room for growth, through Career Coaches and Department Chair advocacy, there have been many gains in this area communicating the advantage of CTE skill certification and exploring careers		While we strive to ensure that all students have access to all programs, extenuating circumstances such as the need to meet graduation requirements may impact access.
Our district has processes in place to recruit students traditionally underrepresented in CTE to improve diversity in CTE POS	We utilize partners and platforms to identify non-traditional representation within CTE. Partners- Example partners and organizations include Women in Trades, Women in Engineering, and Girls that Code.- Used for targeted recruitment. Platforms- Utilize internal data platform (“RADAR”) to identify disproportionate enrollment and enrollment in advanced CTE coursework.	Hiring of diverse staff	FCPS actively recruits non-traditional teachers for CTE programs as a way to increase the diversity of CTE students and students entering CTE Pathways. However, continued improvement is needed.
Processes are in	Our district implements targeted outreach	Barriers due to	Due to increasing

	Meets	Area for Improvement	Explanation
place to ensure that traditionally underrepresented students have options to <u>enroll</u> in CTE POS	initiatives, collaborates with community organizations such as SHIP that supports Homeless students and offers tailored support services. As a result of the Blueprint, funding is provided to ensure that CTE is free for all students.	schedule/course requirements and budget cuts that eliminated CTE positions and therefore CTE programs,	graduation requirements, underrepresented students (i.e. ED and ML), may have additional courses and interventions that take the place of scheduling. FCPS has a committee made up of many stakeholders to help identify ways to reduce systemic barriers. We will continue to market all courses and POS to all students and ensure that they are unbiased, inclusive, and non-discriminatory.
Processes are in place to ensure that students traditionally underrepresented in CTE <u>persist</u> in CTE POS once enrolled	Our Women In Trades program is one example where women mentors from within industry encourage and support students. This year we had District-wide Sheltered Instruction Observation Protocol (SIOP) trainings for all FCPS staff so they can support the persistence of traditionally underrepresented students in CTE programs of study (POS) by incorporating language and content support, culturally responsive teaching practices, differentiated instruction, and ongoing assessment to meet the diverse needs of students, thereby promoting their engagement, comprehension, and success within CTE pathways		We continue to identify strategies to support increased persistence,
Processes are in place to ensure that all eligible students have equitable access to	Our Career Coaches have been successful in their first year in creating career experiences such as guest speakers, field trips and learning lunches for all students. They are also working closely with our	Increasing employer participation in Youth Apprenticeship remains an ongoing challenge.	There are more student applicants for Youth Apprenticeship than positions are available. For the

	Meets	Area for Improvement	Explanation
career-based learning experiences	Work Based Learning Coordinators at each high school to ensure that all students are aware of work based learning opportunities.		summer session we had 136 students apply for 11 new positions.
Career guidance and advisement services are provided to student prior to enrolling in a CTE POS	With the alignment of middle school courses to high school POS, students will be getting greater exposure to various career pathways. At the middle school level, the Career Coaches are involved in providing the support to encourage enrollment as well to meet the students career goals.		
All students have access to career planning and support services to help them successfully transition to advanced education and/or the workforce	Our Career Coach program has successfully integrated in our secondary schools to provide career education assessments, career presentations in content specific courses and support students in career preparation through resume writing, mock interviews, career fairs and helping students find work based learning experiences.		

ACTIVITY B.3: REFLECTION

Based on your review of your data and responses in Activity B.2, consider the following questions:

1. Are there any student groups in your district that have concerning gaps in their CTE participation or persistence rates? If so, which groups are underperforming?

In B-1 where we examine gender, race ethnicity and special populations for concentrators, our data is fairly steady with between 47% and 66% of all categories achieving concentrator status. The only exception is the subcategory of military children which is only 22% of 67 students.

2. What are the top five priorities you will address in the coming year to expand student **participation** in CTE programming and reduce participation and/or persistence gaps among students? *[Note: At least one priority area you identify should address the needs of gender, race-ethnicity, or special population groups.]*

NOTE: Sample strategies that may help you align your priorities, are listed in Appendix B.

- 1) **Construction and Transportation Clusters have the largest gap in non traditional enrollment.** Our Women in Trades initiative continues to create greater awareness of opportunities in construction and transportation. Last year they created a video funded through Perkins that featured young women from both of these programs. The Women

In Trades subcommittee is actively attending special events such as the Frederick County Home Builders Show and school registration nights to recruit women. For next year they are offering a formal mentoring program to support women who start non-traditional programs. They are also working with Career Coaches to plan school based evening events to promote opportunities for women in all aspects of the trades.

- 2) **Vertical Alignment: We are aligning our middle school courses to AgriBusiness, Engineering and Computer Science. career pathways.** The new course contents will provide career exploration activities to expose students to career options and the benefits that participation in CTE offers.
- 3) **Increase awareness: We are expanding informational sessions for incoming 9th-grade students** to familiarize them and their families with high school CTE opportunities. New pathway documents are being developed to create awareness and for the first time, during our Middle School Career and Technology Fair we featured High School Career Coaches and CTE teachers from each high school, engaging over 900 middle school students and educators in high school CTE programs..
- 4) **Student Recognition: We are increasing the ways that we recognize CTE completers.** The majority of our schools are now holding CTE recognition ceremonies to honor CTE Completers, students who earned CTE industry certifications, and up to three students at each high school are recognized as outstanding CTE seniors. We hope to expand that program to all high schools next year. Systemically we also hold a signing day to honor youth apprentices and other CTE students who are going directly to the workforce after graduation.
- 5) **Increase Multilingual Education students participation in CTE through a specialized program** that partners with Frederick Community College to offer a specialized workforce training and foundational academics program to high age/low-credit High School Multilingual Learners (MLs). The program, in addition to academic instruction in English and math, will also include workforce training in the Automotive and Introduction to Construction Trades pathways.

Activity B.4: career cluster participation and persistence

Student participation and persistence rates may differ across Career Clusters. Use the following tables to enter the number and percentage of 2023 CTE students in your district enrolled by cluster and student demographics.

Most of this information can be found in your CTE Storyboards located on MoveIT. Work with your district data team to find any other requested information. You may contact staff at MSDE if you have questions about the data to be entered.

Note: *Prior to sharing this table with your stakeholder team, you will need to suppress numbers and percentages in cell that do not include the minimum number of students required to protect student confidentiality. Maryland state policy is to suppress data for cells or percentages that are based on fewer than 10 students. Please consult your district policies to determine which data cells should be suppressed and how this information should be communicated (e.g., by entering 'LOW N' or, '<10.))students' in effected cells.*

CAREER CLUSTER KEY:

AMC: Arts, Media, and Communication

BMF: Business Management and Finance

CD: Construction and Development

CRD: Career Research and Development

CSHT: Consumer Services, Hospitality, and Tourism

EANR: Environmental, Agricultural, and Natural Resources

HB: Health and Biosciences

HRS: Human Resource Services

IT: Information Technology

MET: Manufacturing, Engineering, and Technology

TT: Transportation Technologies

CRD: (Career Research and Development & Apprenticeship MD)

Race/Ethnicity Key:

AI: American Indian/Alaskan Native

A: Asian

H: Hispanic

B: Black/African American

W: White

PI: Hawaiian/Pacific Islander

M: Multi-Racial

Special Populations Key:

SWD: Students with Disabilities

ED: Economically Disadvantaged

NT: Non-Traditional

SP: Single Parents

OOW: Out of Workforce

MLL: Multilingual Learners

MV: Students served under the McKinney-Vento Act (Unhoused)

FY: Foster Youth

AD: Active Duty

MT: Migrant

CLUSTER-LEVEL DATA: USE THIS TABLE TO PUT IN YOUR NUMBERS

CLUSTER	ENROLLMENT NUMBER	NUMBER OF CONCENTRATORS	NUMBER OF GRADUATES	GENDER		RACE/ETHNICITY							SPECIAL POPULATIONS								
				M	F	AL	A	H	B	W	PL	M	SWD	ED	NT	SP	OOW	EL	MV	FY	AD
AMC	42	36	36	22	20	0	1	6	9	24		2	7	10	26	0		4		0	3
BMF	1833	967	530	1009	827	7	119	321	253	1059	2	76	132	376	1142	0		47	7	0	43
CD	598	379	237	500	99	1	29	114	70	351	1	33	76	140	170	0		26	4	0	15
CRD	1738	1014	505	832	911	8	58	369	279	933	4	90	193	474	132	0		106	20	1	31
CSHT	145	93	59	57	88	0	5	43	44	50		2	12	55	31	0		13	4	0	2
EANR	777	495	298	347	433	4	26	140	74	502	1	32	102	184	788	0		32	4	2	26
HB	174	131	111	30	146	0	20	33	35	81		4	5	40	55	0		5	1	0	4
HRS	1431	750	409	554	879	4	45	303	225	783	3	66	136	383	299	0		88	19	0	20

CLUSTER	ENROLLMENT NUMBER	NUMBER OF CONCENTRATORS	NUMBER OF GRADUATES	GENDER		RACE/ETHNICITY							SPECIAL POPULATIONS								
IT	3182	1670	970	1602	1588	4	193	598	447	1782	5	151	286	727	628	0		142	27	0	43
MET	297	177	119	184	113	0	15	36	42	186		18	5	41	120	0		2	0	0	5
TT	64	58	53	59	5	0	1	14	2	44		3	19	22	5	0		5	0	0	2
WBL	1738	1014	505	832	911	5	58	369	279	933	4	90	193	474				106	20		
YA	16	14	13	11	5			4	4	8			5	6							
TOTAL	12035	6798	3845	6039	6025	33	570	2350	1763	6736	20	567	1171	2932				572	106		

CLUSTER-LEVEL DATA: USE THIS TABLE TO PUT IN YOUR PERCENTAGES

For the "Enrollment" column, the denominator is your total CTE Enrollment from the previous table. For all other columns, the denominator is your total cluster enrollment.

Cluster	Enrollment %	Concentrators %	Graduates %	Gender		Race/Ethnicity							Special Populations								
				M	F	AL	A	H	B	W	PI	M	SWD	ED	NT	SP	OO W	EL	HL	FY	AD

AMC	100%	86%	86%	52%	48%	0%	2%	14%	21%	57%	0%	5%	17%	24%	34%	0%	0%		0%	0%	4%
BMF	100%	53%	29%	55%	45%	3%	6%	18%	14%	58%	1%	4%	7%	21%	53%	0%	0%	3%	4%	0%	2%
CD	100%	63%	40%	84%	17%	0%	5%	19%	12%	59%	2%	6%	13%	23%	21%	0%	0%	4%	1%	0%	2%
CRD	100%	58%	29%	48%	52%	3%	3%	21%	16%	54%	2%	5%	11%	27%	6%	0%	0%	6%	1%	0%	2%
CSHT	100%	64%	41%	39%	61%	.7%	3%	30%	30%	34%	0%	1%	8%	38%	12%	0%	0%	9%	3%	0%	1%
EANR	100%	64%	38%	45%	56%	.3%	3%	18%	10%	65%	0%	4%	13%	24%	58%	0%	0%	4%	1%	0%	2%
HB	100%	75%	64%	17%	84%	6%	11%	19%	20%	47%	0%	2%	3%	23%	19%	0%	0%	3%	1%	0%	1%
HRS	100%	52%	29%	39%	61%	4%	3%	21%	16%	55%	0%	5%	10%	27%	32%	0%	0%	6%	1%	0%	2%
IT	100%	52%	30%	50%	50%	3%	6%	19%	14%	56%	0%	5%	9%	23%	38%	0%	0%	4%	1%	0%	3%
MET	100%	60%	40%	62%	38%	0%	5%	12%	14%	63%	0%	6%	2%	14%	42%	0%	0%	1%	0%	0%	2%
TT	100%	91%	83%	92%	8%	0%	2%	22%	3%	69%	0%	5%	30%	34%	5%	0%	0%	8%	0%	0%	2%
WBL	100%	58%	29%	48%	52%	3%	3%	21%	16%	54%	0%	5%	11%	27%				6%	1%		

YA	100%	88%	81%	69%	31%		0%	25%	25%	50%	0%		31%	38%								
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Review your cluster-level data and consider the following questions:

1. In which clusters does it appear that students in your district are not participating at rates equivalent to their representation in the population? What factors might be affecting their decisions?

High White, low Black and Hispanic

Welding: 48% White, -15% Black, -21% Hispanic

HVAC: 48% White, -15%, Black, -21% Hispanic

Low enrollment in general across all subgroups: AMC

These factors might include limited awareness or exposure to certain career options, insufficient guidance or support in exploring diverse pathways, cultural perceptions of certain professions, and the absence of role models or mentors from underrepresented backgrounds within those clusters.

We need to diversify where AMC is being offered.

2. In which clusters does it appear that all students participating are not persisting at equivalent rates? What factors might be affecting their decisions?

The **Business Management Cluster** had 1833 students enrolled but only 967 concentrators.

The **Human Resource Services** Cluster had 1431 students enrolled and 750 concentrators.

The **Information Technology** Cluster had 3182 students enrolled and 1670 concentrators.

There is some natural attrition in some clusters. Some business students participate in the first course in this cluster just to earn their financial literacy credit. The first course in the Information Tech cluster can be used for the Computer Science tech credit. Likewise, the Human Resource cluster consists of the Hospitality Program and Child Development Associate programs which are very popular with a large number of students enrolling for exploratory purposes, but they quickly find out that these pathways are not a career choice for them.

3. How might student participation and persistence differ by program of study or cluster? Which programs of study or career clusters are under or over-performing?

Programs **under performing** persistence levels are **Business, Marketing and Finance; Human Resource Services; and Information Technology**. These programs are located in comprehensive high schools where students often enter the CTE POS to satisfy graduation requirements such as Computer Science & Engineering Credits, or Personal Financial Literacy however there is currently no systemic expectation that students commit to completing the entire program.

Programs **over performing** include **Arts and Communications, Transportation and Youth Apprenticeship**. Two of these are small programs that are held at the Career and Technology Center. When students sign up it is with the expectation that they complete the program. Likewise, with the Youth Apprenticeship, students understand the 450 hour commitment when they apply.

4. What are the top five priorities you will address in the coming year to expand student participation in CTE programming and reduce participation and/or persistence gaps among students? *[Note: At least one priority area you identify should address the needs of gender, race-ethnicity, or special population groups.]*
 - 1) **Address gaps for black and hispanic students:** We will continue to focus on a **culturally responsive curriculum and equitable access** to resources can help enhance participation and diversity within our CTE programs.
 - 2) **Expand student participation and diversity in AMC** through the expansion of the program in comprehensive high schools.
 - 3) **Increase awareness on the benefits of program completion:** We will engage in direct discussions with both high school and middle school school counselors to **showcase the opportunities available through CTE** and ensure they understand our pathways. Additionally, we will collaborate closely with Career Coaches, providing them with education and resources, including our CTE Completer Pathway document and High School Pathway Quick Reference guide.
 - 4) **Expand opportunities for our ML population:** Our CTE Team will continue to partner with FCPS ML Team to provide PL for CTE Teachers on instructional strategies for ML to ensure they have access and opportunities to engage in CTE content.
 - 5) **Vertical alignment** from middle school to high school through pathways.

NOTES:

- A. Depending on your program offerings, you may find it necessary to do a more granular analysis of your data to assist in identifying priorities.
- B. Sample strategies that may help you align your priorities, are listed in Appendix B.

Component C: Program Performance

Federal law requires that you collect data on the performance of CTE concentrators. The accountability indicators cover a range of outcomes to help you assess whether students are making educational progress, graduating, and making successful transitions into advanced postsecondary education and training or employment. These include:

1S1: Four-year graduation rate: The percentage of CTE concentrators who graduate high school, as measured by the four-year adjusted cohort graduation rate used in ESSA.

2S1: Academic proficiency in reading/language arts: The percentage of CTE concentrators achieving proficiency on the Districtwide high school reading/language arts assessment.

2S2: Academic proficiency in mathematics: The percentage of CTE concentrators achieving proficiency on the Districtwide high school mathematics assessment.

2S3: Academic proficiency in science: The percentage of CTE concentrators achieving proficiency on the Districtwide high school science assessment.

3S1: Post-program placement: The percentage of CTE concentrators who are in postsecondary education or advanced training, military service, a national community service program, or employed in the second quarter after exiting from secondary education¹

4S1: Nontraditional program concentration: The percentage of CTE concentrators in CTE programs of study that lead to non-traditional fields.

5S1: Attained Recognized Postsecondary credential: The percentage of CTE concentrators graduating from high school who met or exceeded proficiency on industry standards to attain a recognized postsecondary credential.

5S4a: Technical Skill Attainment: The percentage of CTE concentrators graduating from high school who met state recognized CTE standards, including earning and industry-recognized credential.

5S4b: Apprenticeship: The percentage CTE concentrators graduating from high school who participated in an apprenticeship.

To establish performance expectations, MSDE has set performance targets for each indicator based on an analysis of statewide data. All providers are expected to achieve the performance targets established for each indicator. Moreover, to ensure that all students make progress, you are expected to monitor performance on an annual basis.

In the following table, use your District's heatmap to fill in your District's performance on the federal measures. On the heatmap, cells highlighted in green indicate your district met or exceeded the statewide performance level; yellow indicates your district performance did not meet the performance level but was within 90% of the target; and red indicates that your district did not meet the performance level and was less than 90% of the target. Districts failing to achieve the state performance level are expected to develop a program improvement plan to bring them into compliance.

¹ Note: this is a lagged indicator, meaning that data should be reported on graduates for the previous academic year. For example, you should report placement data for 2022 graduates in 2023 (i.e., outcomes achieved between October-December 2022).

DISTRICT PERFORMANCE BY STUDENT GROUP

Federal Accountability Indicator 2023 Graduates									
	1S1	2S1	2S2	2S3	3S1*	4S1	5S1	5S4a	5S4b
State Performance Target	89.97%	52.3%	48.00%	0.00%	76.50%	28.72%	78.41%	78.41%	0.00%
District Performance	98.9%	60%	61%	25%	86%	31%	84%	93%	
Gender									
Males	98%	59%	62%	20%	83%	3%	85%	93%	0.9
Females	99%	62%	58%	31%	90%	67%	84%	93%	0.4
Race-ethnicity									
American Indian	100.0%	33%	50%	N/A		67%	N/A	50%	0.0
Asian	100.0%	79%	91%	67%	91%	32%	92%	96%	0.0
Black	98.6%	54%	32%	13%	88%	28%	76%	90%	1.4
Hispanic	100%	41%	50%	11%	84%	32%	81%	90%	1.0
Multi-race	97%	54%	48%	25%	82%	33%	95%	92%	0.0
White	98%	66%	78%	36%	86%	31%	86%	94%	0.5

Comprehensive Local Needs Assessment: Secondary Schools

SPECIAL POPULATIONS

	Federal Accountability Indicator 2023 Graduates								
	1S1	2S1	2S2	2S3	3S1*	4S1	5S1	5S4a	5S4b
State Performance Target	89.97 %	52.3%	48.00 %	0.00%	76.50 %	28.72 %	78.41 %	78.41 %	0.00%
District Performance	98.9%	60%	61%	25%	86%	31%	84%	93%	
Economically disadvantaged	97%	45%	5%	15%	80%	28%	78%	87%	1.2
Multilingual learners	98%	4%	0%	0	74%	20%	60%	75%	0.0
Individuals with disabilities	91%	21%	5%	5%	76%	31%	76%	85%	2.2
Nontraditional fields	100%	67%	75%	45%	86%	100%	88%	95%	
Single parents									
Out of workforce									
Students served under the McKinney-Vento Act (Unhoused)	88%	34%	14%	20%	84%	16%	88%	96%	0.0
Youth in foster care									
Youth with a parent in active military	100%	76%	54%	67%		26%	83%	95%	0.0
Migrant students									

NOTE: Gaps in our CTE Data related to Foster Care, Migrant, etc. are acknowledged. The CTE Team will work with the FCPS Data team to brainstorm ideas on how to better capture these indicators.

* Data for the 3S1 indicator reflect outcomes for 2022 graduates 6 months following their graduation.

ACTIVITY C.1: ASSESSING PROGRAM PERFORMANCE

	List
Looking at <i>overall performance</i> , on which indicators are you <u>substantially underperforming</u> * the district (STATE) performance target?	<p>Overall we are exceeding all state indicators. However, there are sub groups that are underperforming. For instance,</p> <p>4S1 Non Traditional Program Concentrator males are underperforming by 3% compared to the district performance of 31%.</p> <p>2S1, 2S2 and 2S3 concentrator ED, ML and SWD are significantly underperforming.</p>
Looking at <i>overall performance</i> , on which indicators are you <u>substantially exceeding</u> the district (STATE) performance target?	<p>2S2 Academic Performance in Math concentrator Asian and white students are overperforming by 91% and 78% compared to the district performance of 61%</p> <p>5S1 Attained Recognized Postsecondary credential multi race concentrator students are overperforming by 95% compared to the district performance of 84%</p>

* Substantially underperforming is defined as achieving an outcome that is less than 90% of the district performance target, and substantially over-performing is achieving an outcome that is more than 110% of the district performance target.

ACTIVITY C.2: DETERMINING ROOT CAUSES

- For each indicator for which you are substantially underperforming the district performance target, identify the key factors that might affect student performance, including any disparities or gaps in performance by program. Ideally, these factors should be the primary drivers of the results that you see.
 - 4S1 Non Traditional Program Concentrator males are underperforming at 3% compared to the district performance of 31%.
 - Non-traditional program engagement and interest may be low among male students, affecting performance.
 - Inadequate support systems like mentoring or counseling could hinder academic success.
 - Curriculum relevance may be lacking, leading to decreased motivation and performance.
 - Social and cultural factors may influence male students' engagement with education.
 - Disparities in resource access, such as technology, could hinder performance.
 - Teacher training and support may not meet the unique needs of male students in the nontraditional programs.
 - Limited parental involvement could impact academic outcomes
 - 2S1 Academic proficiency in reading/language arts concentrator students in ML and

SWD are significantly underperforming by 4% and 21% compared to district performance of 60%

- 2S2 Academic proficiency in Math concentrator students in ED, ML and SWD are significantly underperforming by 5%, 0% and 5% compared to district performance of 61%
- 2S3 Academic proficiency in Science concentrator students in ED, ML and SWD are significant
- For all three sub groups, disparity in educational supports, as well as home environment may impact student success.

Economically Disadvantaged Students (ED) -

- Resource Accessibility: Limited access to essential learning materials, technology, and academic support outside of school can hinder the academic performance of economically disadvantaged students.
- Instructional Supports: A lack of differentiated instruction that caters to diverse learning needs and backgrounds may not adequately support these students in mastering complex scientific concepts.
- Extracurricular Opportunities: Reduced participation in extracurricular science activities and programs, such as science fairs and STEM clubs, which can enhance understanding and engagement in the subject matter.

Students with Disabilities (SWD) -

- Individualized Education Plans (IEPs): Insufficiently tailored or poorly implemented IEPs can fail to address specific learning disabilities effectively, impacting academic achievement in science.
- Professional Development: A potential lack of ongoing training for teachers in special education strategies and accommodations can lead to less effective teaching methods being employed for students with disabilities.
- Assistive Technologies: Inadequate provision of or training in assistive technologies that can aid learning for students with disabilities in science classes.

Multilingual Learners (ML) -

- Language Proficiency: ML students are required to take these academic assessments within one year after school enrollment. Assessments utilize complex terminology and concepts that can be challenging for ML students if they are not yet proficient in the language of instruction. Many have not yet developed the language skills to be successful on these assessments.
- Cultural Relevance: Teaching materials and examples that do not reflect the diverse backgrounds of ML students can result in lower engagement and understanding of the subject matter.
- Teacher Preparedness: Teachers may not always be equipped with the necessary skills or resources to effectively support language acquisition alongside content mastery in science courses.

2. The data provided reflect the performance of all students within your district. Remember that aggregate data can hide considerable variation. **As you think about strategies to improve performance, consider how program performance might differ within programs of study. Might some programs be performing above or below the site average?**

Below Performing:

<p>2S1 Construction and Development - 41% Transportation & Tech - 40%</p>	<p>2S2 Career Research and Development - - 33% Construction and Development - 32% Environmental Agriculture - 24%</p>
<p>4S1- Non Trad Construction and Development - 8% Human Resource Services - 17%</p>	<p>3S1 Transportation Tech - 70%</p>

Information Tech - 22% Transportation Tech - 7%	
--	--

Above Performing:

<p>1S1 Business Management and Finance - 99% Health & Bioscience - 100% Consumer Services - 100% Information Tech - 100%</p>	<p>2S1 Manufacturing Engineering & Technology - 92% Health Bioscience - 73%</p>
<p>2S2 Arts Media and Communications - 71% Business Management & Finance - 68% Information Technology - 90% Manufacturing Engineering & Technology - 97%</p>	<p>2S3 All Clusters- All Above State Target.</p>
<p>4S1 Environmental, Agriculture, and Natural Resources - 58%</p>	<p>5S1 Construction and Development - 96% Health & Bioscience - 96% Transportation Technology - 97%</p>
<p>5S4 Arts Media and Communication 100% Construction and Development 99% Health and Bioscience - 100% Manufacturing Engineering & Technology 100%</p>	

3. Resource constraints may affect the activities you might undertake. What might be the most efficient and effective approach to making changes (e.g., taking into consideration the relative size of your program enrollments)?
 - Professional Development for staff and administrators
 - Integration of mathematical practices within computational thinking experiences.
 - Program evaluation and upgrades of equipment and supplies that attract and retain students within programs.
 - Digital Tools that support the preparation, practice, and attainment of industry certifications.
 - Increasing the equitable access of CTE Programs through expansion to additional locations.
 - Appropriate staffing for CTE management to provide students with additional opportunities for WBL and career programming.
 - Support career coaches with the understanding of academic assessments to target and recruit students into career pathways.

4. What are the top five priorities you will address in the coming year to improve student performance outcomes on indicators on which you are substantially underperforming? *[Note: At least one priority area you identify should address the needs of gender, race-ethnicity, or special population groups.]*

1. Ensure all programs have the **materials of instruction and equipment needed** to support industry recognized credential success for students.
2. Support programs with a focus on **Health and BioSciences** to ensure that students have the updated textbooks needed to support Academic Attainment and industry recognized credentials.
3. **Replace aging equipment** particularly within our Transportation Technologies Cluster and in Information Technology where placement for black students is low. Replacing aging equipment will support 3SI placement by preparing students on equipment that meet industry standards.
4. **Provide the staffing needed** to support growth of apprenticeship expansion.
5. Provide the textbooks needed to support the expansion of dual enrollment in the Health and BioSciences programs and Homeland Security programs.

NOTE: Sample strategies that may help you align your priorities, are listed in Appendix C.

Component D: Recruiting, Developing, and Retraining CTE Educators

The quality of your CTE programming depends upon the skills of your workforce. This extends to all members of your educational team, including secondary teachers, support staff, paraeducators, professional school counselors, and more. Ideally, staff should also be representative of the populations served and retained over time to promote program sustainability.

ACTIVITY D.1: REVIEW DATA ON CURRENT STAFF

Reviewing current staff demographics is critical to understanding where there are opportunities to strengthen staff skills and diversify your workforce. Create a separate table for each CTE Career Cluster or program of study offered.

NAME OF CAREER CLUSTER OR CTE POS: Arts, Media, and Communication					
Staff demographic	Percentage of 2022-23 staff	Percentage of students participating in CTE programming 2022-23	5-year staff turnover rate (Percentage of staff who did not return for years 2018-19 thru 2022-23)		
			Teachers	Support staff/ paraprofessionals	Professional School Counselors
Gender					
Male	100%	52%	68%		
Female	0%	48%	68%		
Race-ethnicity					
American Indian	0%	0%			
Asian	0%	2%			
Black	0%	21%	50%		
Hispanic	0%	14%			
Multi-race	0%	5%	67%		
White	100%	57%	69%		
Credential					
Properly Licensed	100%		69%		
Granted Temporary Waiver	0%				

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NAME OF CAREER CLUSTER OR CTE POS: Business Management and Finance					
Staff demographic	Percentage of 2022-23 staff	Percentage of students participating in CTE programming 2022-23	5-year staff turnover rate (Percentage of staff who did not return for years 2018-19 thru 2022-23)		
			Teachers	Support staff/ paraprofessionals	Professional School Counselors
Gender					
Male	52%	55%	68%		
Female	48%	45%	68%		
Race-ethnicity					
American Indian		0%			
Asian		6%			
Black	3%	14%	50%		
Hispanic		18%			
Multi-race	3%	4%	67%		
White	94%	58%	69%		
Credential					
Properly Licensed	85%		69%		
Granted Temporary Waiver	15% (conditional)				
NAME OF CAREER CLUSTER OR CTE POS: Career and Research Development					
Staff demographic	Percentage of 2022-23 staff	Percentage of students participating in CTE programming 2022-23	5-year staff turnover rate (Percentage of staff who did not return for years 2018-19 thru 2022-23)		
			Teachers	Support staff/ paraprofessionals	Professional School Counselors
Gender					
Male	41%	84%	68%		
Female	59%	17%	68%		

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Race-ethnicity					
American Indian		0%			
Asian		5%			
Black	3%	12%	50%		
Hispanic		19%			
Multi-race	3%	6%	67%		
White	94%	59%	69%		
Credential					
Properly Licensed	86%		69%		
Granted Temporary Waiver	14% (conditional)				
NAME OF CAREER CLUSTER OR CTE POS: Construction and Development					
Staff demographic	Percentage of 2022-23 staff	Percentage of students participating in CTE programming 2022-23	5-year staff turnover rate (Percentage of staff who did not return for years 2018-19 thru 2022-23)		
			Teachers	Support staff/ paraprofessionals	Professional School Counselors
Gender					
Male	100%	48%	68%		
Female		52%	68%		
Race-ethnicity					
American Indian		0%			
Asian		3%			
Black	6%	16%	50%		
Hispanic		21%			
Multi-race		5%	67%		
White	94%	54%	69%		

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Credential					
Properly Licensed	100%		69%		
Granted Temporary Waiver					

NAME OF CAREER CLUSTER OR CTE POS: Consumer Services, Hospitality, and Tourism

Staff demographic	Percentage of 2022-23 staff	Percentage of students participating in CTE programming 2022-23	5-year staff turnover rate (Percentage of staff who did not return for years 2018-19 thru 2022-23)		
			Teachers	Support staff/ paraprofessionals	Professional School Counselors

Gender

Male	20%	39%	68%		
Female	80%	61%	68%		

Race-ethnicity

American Indian		1%			
Asian		3%			
Black		30%	50%		
Hispanic		30%			
Multi-race		1%	67%		
White	100%	34%	69%		

Credential

Properly Licensed	80%		69%		
Granted Temporary Waiver	20% (conditional)				

NAME OF CAREER CLUSTER OR CTE POS: Environmental, Agricultural, and Natural Resources

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Staff demographic	Percentage of 2022-23 staff	Percentage of students participating in CTE programming 2022-23	5-year staff turnover rate (Percentage of staff who did not return for years 2018-19 thru 2022-23)		
			Teachers	Support staff/ paraprofessionals	Professional School Counselors
Gender					
Male	27%	45%	68%		
Female	73%	56%	68%		
Race-ethnicity					
American Indian		0%			
Asian		3%			
Black		10%	50%		
Hispanic		18%			
Multi-race		4%	67%		
White	100%	65%	69%		
Credential					
Properly Licensed	87%		69%		
Granted Temporary Waiver	13% (conditional)				

NAME OF CAREER CLUSTER OR CTE POS: Health and Biosciences

Staff demographic	Percentage of 2022-23 staff	Percentage of students participating in CTE programming 2022-23	5-year staff turnover rate (Percentage of staff who did not return for years 2018-19 thru 2022-23)		
			Teachers	Support staff/ paraprofessionals	Professional School Counselors
Gender					
Male	8%	17%	68%		
Female	92%	84%	68%		

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Race-ethnicity					
American Indian		1%			
Asian		11%			
Black	8%	20%	50%		
Hispanic		19%			
Multi-race		2%	67%		
White	92%	47%	69%		
Credential					
Properly Licensed	92%		69%		
Granted Temporary Waiver	8% (conditional)				
NAME OF CAREER CLUSTER OR CTE POS: Human Resource Services					
Staff demographic	Percentage of 2022-23 staff	Percentage of students participating in CTE programming 2022-23	5-year staff turnover rate (Percentage of staff who did not return for years 2018-19 thru 2022-23)		
			Teachers	Support staff/ paraprofessionals	Professional School Counselors
Gender					
Male	29%	39%	68%		
Female	71%	61%	68%		
Race-ethnicity					
American Indian		0%			
Asian		3%			
Black	7%	16%	50%		
Hispanic		21%			
Multi-race	7%	5%	67%		
White	86%	55%	69%		

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Credential					
Properly Licensed	92%		69%		
Granted Temporary Waiver	8% (conditional)				
NAME OF CAREER CLUSTER OR CTE POS: Information Technology					
Staff demographic	Percentage of 2022-23 staff	Percentage of students participating in CTE programming 2022-23	5-year staff turnover rate (Percentage of staff who did not return for years 2018-19 thru 2022-23)		
			Teachers	Support staff/ paraprofessionals	Professional School Counselors
Gender					
Male	68%	50%	68%		
Female	32%	50%	68%		
Race-ethnicity					
American Indian	2%	0%			
Asian		6%			
Black	2%	14%	50%		
Hispanic	2%	19%			
Multi-race	2%	5%	67%		
White	90%	56%	69%		
Credential					
Properly Licensed	93%		69%		
Granted Temporary Waiver	7% (conditional)				
NAME OF CAREER CLUSTER OR CTE POS: Manufacturing, Engineering, and Technology					
Staff demographic	Percentage of 2022-23 staff	Percentage of students participating in CTE	5-year staff turnover rate (Percentage of staff who did not return for years 2018-19 thru 2022-23)		

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		programming 2022-23	Teachers	Support staff/ paraprofessionals	Professional School Counselors
Gender					
Male	100%	62%	68%		
Female		38%	68%		
Race-ethnicity					
American Indian		0%			
Asian		5%			
Black		14%	50%		
Hispanic		12%			
Multi-race		6%	67%		
White	100%	63%	69%		
Credential					
Properly Licensed	75%		69%		
Granted Temporary Waiver	25% (conditional)				

NAME OF CAREER CLUSTER OR CTE POS: Transportation Technologies

Staff demographic	Percentage of 2022-23 staff	Percentage of students participating in CTE programming 2022-23	5-year staff turnover rate (Percentage of staff who did not return for years 2018-19 thru 2022-23		
			Teachers	Support staff/ paraprofessionals	Professional School Counselors
Gender					
Male	100%	92%	68%		
Female		8%	68%		
Race-ethnicity					
American Indian		0%			

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Asian		2%			
Black		3%	50%		
Hispanic		22%			
Multi-race		5%	67%		
White	100%	69%	69%		
Credential					
Properly Licensed	100%		69%		
Granted Temporary Waiver					
NAME OF CAREER CLUSTER OR CTE POS: Youth Apprenticeship					
Staff demographic	Percentage of 2022-23 staff	Percentage of students participating in CTE programming 2022-23	5-year staff turnover rate (Percentage of staff who did not return for years 2018-19 thru 2022-23)		
			Teachers	Support staff/ paraprofessionals	Professional School Counselors
Gender					
Male	50%	69%	68%		
Female	50%	31%	68%		
Race-ethnicity					
American Indian		0%			
Asian		0%			
Black		25%	50%		
Hispanic		25%			
Multi-race		0%	67%		
White	100%	50%	69%		
Credential					
Properly Licensed	100%		69%		

Comprehensive Local Needs Assessment: Secondary Schools

Granted Temporary Waiver					
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Note: The data provided was through a combining of reports from the MCC, SCG, and HSDC file. There are gaps due to a lack of data tracking procedures to maintain better data around this topic.

Activity D.2: assess educator support opportunities

It's critical to create consistent opportunities that allow your staff to maintain their licensure and grow within this field. Professional development is a key strategy for retention and ensuring a high-quality workforce.

Based on your knowledge of professional licensure requirements and the availability of content-specific professional development opportunities across clusters, rate the extent to which you strongly agree or disagree with each statement. Where applicable, please add an explanation for your assessment with examples.

	Strength	Area for Improvement	Explanation
Staff acquire content-specific professional development required to maintain licensure.	Multiple programs have PD opportunities	Conditional Teachers	Staff that are hired through non-traditional pathways have additional obligations and professional development that require greater attention.
Staff are aware of the requirements to maintain endorsement.	Experienced staff are aware	Conditional teachers	Over the past few years our number of conditional teachers has expanded. HR works with them to meet their certification requirements. CTE staff supports them by ensuring that they know and understand specific content requirements.
Staff have equal access to content-specific professional development opportunities across industries.	Where there are not state supported options, in-house professional development is provided.	Staffing and budget restrictions that are barriers for providing teachers professional development.	Without Perkins funds we would not be able to support the required professional developments in contents such as Automotive, PLTW, etc. However, we are able to support most programs with internal training to improve teacher content and pedagogical knowledge.
Data are collected on the effectiveness of professional development to ensure it meets the needs of educators.	The success of professional development can be correlated to the implementation of the content	Where PD is organized by a third party, the content may not align to the needs of our system and students.	

	and student performance		
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ACTIVITY D.3: REFLECTION

Based on your responses in this section of the needs assessment guide, consider the following questions:

1. Does your staff demographic characteristics reflect the students they serve across programs of study?

Currently the demographics of our teachers do not reflect the student population. The majority of our teachers are white. We need to do a better job of recruiting teachers of color. Our school system has made the recruitment of a diverse staff a major systemic priority.

2. Are instructors adequately credentialed, including licenses, certifications, or endorsements for the courses they're teaching? If not, what mechanisms can be put in place to get them endorsed, or what recruitment efforts are necessary to attract properly credentialed instructors?

After Covid and the acceleration of the teacher shortage we hired a significantly higher number of conditional teachers. Teachers hired often were entering into education with little to no formal educational training or are certified in areas outside of CTE. This hiring season we are starting to see an influx of teachers applying that are certificated in CTE.

3. To what extent does your school offer regular, substantive content-specific professional development opportunities? Do all staff members have equal awareness of, and opportunities to participate in content-specific professional development opportunities, necessary to maintain their industry credentials and endorsements?

We ensure that training is prioritized in our budgeting for contents that require ongoing professional development, We offer professional development opportunities in other areas as frequently as possible and as funding will allow.

4. What barriers exist to offering and participating in content-specific professional development?

During the COVID-19 pandemic, teachers had to take on additional responsibilities, such as filling in for other teachers due to substitute shortages and taking on extra duties to catch students up academically. These leaders were offered per diem pay plus an additional 10% in some cases, this arrangement has not been extended to professional development.

As a result, many teachers are experiencing significant stress and burnout from the extra workload and pressure. Their existing responsibilities, combined with their concerns about health and safety during the pandemic, have left them feeling exhausted and undervalued. The lack of per diem pay for participating in professional development activities further discourages their involvement, as it adds to their workload without any additional financial incentive.

These factors create a major barrier to content-specific professional development, as teachers are less likely to engage in training or workshops when they are already stretched thin and feel their efforts are not adequately recognized or rewarded.

5. What are the top five priorities you might wish to address in the coming year to recruit, develop, and retain CTE instructors and improve their professional skills?

- 1) **Prioritize hiring a diverse group of qualified** staff members that reflects student demographics.
- 2) **Recruit and hire certified/experienced teachers** to fill projected openings.
- 3) **Support conditional teachers** by helping them acquire the necessary skills and learning experiences to earn their teaching credentials.
- 4) Provide veteran teachers with **targeted professional development** to address gaps in knowledge and skills arising from changes in schedules, courses, or industry certification requirements.
- 5) **Personalize professional development** opportunities to help teachers update curriculum and improve pedagogy, with special emphasis on supporting conditional teachers.

NOTE: Sample strategies that may help you align your priorities, are listed in Appendix D.

Next Steps

With the completion of the CLNA), you are now poised to embark on the crucial next phase of securing Perkins V funding. This stage involves translating the insights and findings from the CLNA into actionable and strategic plans.

UTILIZING CLNA ANALYSIS FOR LOCAL PERKINS APPLICATION S.M.A.R.T.I.E. GOAL SETTING

The first step for LEAs is to use their CLNA analysis to formulate S.M.A.R.T.I.E. goals. These goals should be Specific, Measurable, Achievable, Relevant, Time-bound, Inclusive, and Equitable. The essence of this process is to ensure that the goals set for CTE programs are not only aligned with the identified needs and opportunities but are also focused on inclusivity and equity.

LEAs should look at areas highlighted in the CLNA, such as skill gaps, program areas needing enhancement, and disparities in student participation and success rates. From here, specific goals can be set. For example, if the CLNA indicated a gap in technology-related skills among students, a S.M.A.R.T.I.E. goal could be to increase enrollment in technology-focused CTE programs by 15% within the next two years while ensuring equitable access for all student groups.

CONNECTING GOALS TO AN ANNUAL BUDGET FOR PERKINS FUNDING

Once S.M.A.R.T.I.E. goals are established, LEAs must then align these objectives with an annual budget for Perkins funding. This budgeting should be a reflective exercise, considering not just the cost of program enhancements but also the broader resources required to meet these goals. This includes faculty development, curriculum updates, equipment purchases, and any necessary infrastructure improvements.

For instance, if one of the goals is to enhance a manufacturing CTE program, the budget may include expenses for new machinery, professional development for educators to teach advanced manufacturing techniques, and outreach initiatives to increase program enrollment.

ENSURING ALIGNMENT WITH PERKINS REQUIREMENTS

Throughout this process, LEAs need to ensure that their plans align with the requirements of the Perkins V Act. This means that the goals, strategies, and budgeted activities should contribute to developing more effective and equitable CTE programs, as stipulated by Perkins V.

Appendix A: Sample Strategies for Component A: Labor Market Alignment

PROBLEM: EXISTING CTE PROGRAMS ARE NOT ALIGNED TO MARYLAND'S LABOR MARKET PROJECTIONS.

Root Cause	Strategy	Sample Activities	Resource	Description
<p>The district maintains programs that have been historically offered but are no longer aligned to Maryland's labor market needs</p>	<p>Sunset programs that are no longer preparing students for high-skill, high-wage in-demand careers</p>	<ul style="list-style-type: none"> Analyze program enrollments, standards, postsecondary pathways, and employers to assess whether sunsetting is warranted. Develop strategy and timeline for sunsetting a program and internal and external communication plans to share information. Explore alternative educational options for students currently enrolled that will allow them to transition to other programs. Consult with the union and educators to arrange transition options, which may include reassignment or retraining. Review state regulations and district policies to identify barriers to sunsetting programs 	<p>How to sunset an educational program</p>	<p>This blog post describes considerations in sunsetting and educational programming, including warning signs of need, considerations before moving forward, and concrete steps to take when a decision to discontinue is made.</p>
	<p>Introduce new programs that are aligned to Maryland or regional employment projections</p>	<p>Review Maryland state and/or regional economic and workforce projections to assess current and future workforce needs</p>	<p>Maryland Occupational Projections 2020-2030</p>	<p>The State of Maryland publishes occupational projections that indicate changes in employment. Use this interactive website to identify careers anticipated to grow in the coming years.</p>

Root Cause	Strategy	Sample Activities	Resource	Description
		Recruit industry partners in high-wage, high skill, in-demand fields to offer guidance on new program design and adoption	Cheat Sheet: Opportunities for Employer Involvement in CTE	Use this factsheet developed by Advance CTE and ACTE to identify strategies for engaging employers in CTE programming.
		Support existing teachers in updating their certifications in new fields, hire new CTE teachers with requisite skills, and explore other hiring options	Maryland CTE Teacher Certification	Maryland has identified eight types of CTE certifications. Consult this document to see the expectations by CTE Program of Study.
		Review strategies developed by other states to align programs with labor market needs	Georgia Alignment Toolkit	Georgia has compiled a toolkit to help schools align programs to best serve students and local business. Includes a report and worksheets.
The cost of introducing new programs is prohibitive	Identify new funding sources	Use Maryland’s Perkins reserve grants to fund new programs.	Maryland Grant Information Guide: Perkins Reserve Grant FY 2024	This document describes how Maryland is using its Perkins Reserve funds to support new programs. Consult it for ideas to pursue funding in future years.
		Seek to braid funding from other federal legislation (e.g., Adult Education, Workforce), federal grant programs (e.g., Institute of Education Sciences (IES) CTE grant competitions), and philanthropic organizations	IES Research Programs Maryland Foundation Grants	The federal government periodically offers funding to support research into CTE programs. Review the IES webpage to get an idea of the types of funding that exist and how you might apply. Foundation grants also may exist within Maryland. See the grants page maintained by the Governor’s Grant Office for potential funders
		Work with industry partners to obtain donations of materials and supplies.	Employer Engagement in CTE	This report from Advance CTE profiles ways that employers may support educational programming.

PROBLEM: CTE PROGRAMS ARE NOT PREPARING STUDENTS FOR THE HIGH-SKILL, HIGH-WAGE, IN-DEMAND OCCUPATIONS IDENTIFIED IN STATE EMPLOYMENT PROJECTIONS.

Root Cause	Strategy	Sample Activities	Resource	Description
Instructional resources are outdated and do not prepare students to enter or retain employment in high-wage, high-skill, and/or in-demand fields	Update program standards, curriculum, assessments, certifications, and links to postsecondary programs	Review related program offerings in high-performing Maryland districts.	Maryland CTE Performance Dashboard	Maryland has developed this interactive CTE dashboard that lists performance by cluster, program and student group. Use this resource to identify districts and colleges that are attaining high levels of performance.
		Create and use employer advisory boards to inform necessary updates	Strategies for Developing Employer Partnerships Michigan Program Advisory Toolkit	The CTE Technical Assistance Center of New York created a comprehensive website with resources to support educators in engaging with employers. Similarly, Michigan has created a toolkit with guidance and tools you may adapt for your own use.
		Review program resources in other states to identify potential instructional design resources	Texas CTE Administrative Code	Texas has specified the knowledge and skills to be taught in CTE programs. Use this website to find examples of required skills by cluster, programs, and course.
	Offer professional development to assist	Engage industry experts to review curriculum and	Increasing Access to Industry Experts in High Schools	This report by Advance CTE profiles state

	CTE educators in upgrading their curricular resources	offer recommendations to strengthen offerings	http://wbltoolkit.cte.nyc/workplace-tour/	strategies to recruit industry experts. Consult it to gain insights on promising strategies that might be adapted for district or college use.
		Consult with local business to offer workplace tours or externships for instructors	Teacher Externship Industry Partner Planning Guide http://wbltoolkit.cte.nyc/workplace-tour/	South Dakota has developed this resource to support educators and employers in developing externship opportunities

Appendix B: Sample Strategies for Component B: Student Participation and Persistence

PROBLEM: STUDENTS ARE NOT PARTICIPATING IN CTE PROGRAMMING.

Root Cause	Strategy	Sample Activities	Resource	Description
Students lack awareness of CTE programming and the benefits of program participation	Implement awareness campaigns to inform students about program offerings and benefits	Offer career exploration activities in the middle grades to expose students to career options and the benefits that participation in CTE offers.	Middle School CTE design options and resources	ACTE has developed resources to support educators in expanding CTE options in the middle grades. Offerings include program design principles, a repository of state-level strategies, research studies, examples of ways to implement and improve programs, and podcasts and webinars.
		Schedule informational sessions for entering 9 th grade students to introduce them to school CTE offerings.	Freshman Cruise	Roseburg Public Schools (OR) takes all 9 th grade students on a 'cruise' of CTE offerings to allow students to meet teachers and learn about CTE studies that are available.
		Schedule career fairs and informational events to help students learn about CTE offerings.	Career Fair Options	Gainesville High School (AL) offers students a career fair experience to introduce them to CTE options. See the video to learn about their approach
		Create online assets that	CTE Options at my School	Fairfax County Public

		support students in identifying the CTE opportunities at their school.		Schools (VA) hosts a website that helps students learn about CTE programs offered in their school replete with videos and detailed program descriptions.
Families and educators do not appreciate CTE's benefit and discourage youth from enrolling	Improving messaging to families, community groups, and educators to help them understand the benefits CTE confers	Undertake a comprehensive marketing campaign to educate families about CTE	CTE Vision Toolkit CTE Marketing Best Practices & Campaigns	Advance CTE has created a 5-part series of issue briefs and posters detailing how CTE contributes to students' success and strengthens our nation's economy. Washington State has developed this playbook detailing strategies and providing resources to promote CTE programs to students, parents, and educators.
		Host CTE Signing Days to celebrate and publicize CTE students who demonstrate their intent to enter a postsecondary institution to continue their studies or take a job with a community employer	CTE Letter of Intent Signing Day: College CTE Signing Day: Employment	Linn Benton Community College (OR) publicly recognizes high school seniors who sign letters of intent to guarantee a spot in the coming semester. Similarly, SkillsUSA holds a national signing day for students planning to enter employment, apprenticeship, or advanced technical training. Calvert Career and Technology Academy (MD) participated in such an event to honor its students.

<p>Students are not provided career guidance that supports them in choosing CTE as an educational pathway.</p>	<p>Educate high school guidance counselors on the benefits that CTE offers and the advanced education and employment options that students may follow.</p>	<p>Develop and conduct professional development for school counselors aimed at increasing awareness and benefits of CTE programs.</p>	<p>School Counselor Playbook: Unlocking Career Success</p>	<p>2024 - 2026 Unlocking Career Success offers this playbook that includes practical tools, resources, and information to assist counselors in discussing college and career pathways with students.</p>
		<p>Design tools and resources for counselors to use in their career exploration activities with students that highlight CTE offerings.</p>	<p>ACTE High Quality CTE: Student Career Development</p>	<p>ACTE offers webinars, online courses, toolkits, and more designed to support counselors and college/career navigators as they offer guidance to students.</p>

PROBLEM: STUDENTS ARE NOT PERSISTING IN CTE PROGRAMS.

Root Cause	Strategy	Sample Activities	Resource	Description
<p>Historically underrepresented students or those with special needs do not feel welcome in CTE programs.</p>	<p>Remove obstacles to success for students who may need additional support to persist.</p>	<p>Implement evidence-based strategies to support special population students in succeeding in CTE programming.</p>	<p>Maximizing Access & Success for Special Population Students Strategies for Special Population Success Recruiting Special Populations into CTE: Toolkit</p>	<p>Advance CTE and ACTE have partnered to offer a series of briefs offering definitions, strategies, and guiding questions to assist educators in supporting special population students. The National Alliance for Partnerships in Equity created this brief documenting the obstacles students with special needs face and tools CTE educators may apply to</p>

				recruit and retain youth. The Ohio Department of Education has developed this toolkit to promote the recruitment of special population students into CTE programs. Use it to find ideas for using data and leveraging
		Explore why students from some racial-ethnic groups face obstacles in CTE programming and take steps to address them.	A Guide to Discussing Racial Equity	Review this guidebook to learn how to hold discussions around racial equity to identify.
		Conduct a curricular review to identify and remove unintentional gender bias.	Assessing the Enrollment and Retention of Nontraditional Learners	The Wisconsin Technical College System has developed a tool that educators can use to assess the adoption of promising practices to increase enrollments and retention of nontraditional learners based on their gender.
Students do not understand the personal and economic benefits of completing advanced coursework and entering the field.	Offer students mentors and real-world workplace experiences to inform their career decisions.	Pair students with mentors who can offer them one-on-one guidance to encourage them to pursue a career.	Partnering Students with Industry Mentors	Parkways School District (MO) connects students with industry mentors who provide guidance, connections, expertise, and course support intended to motivate youth to solve real-world problems.
		Place students in authentic work-based learning (WBL) experiences, including internships and apprenticeships, to help them learn about the benefits from obtaining	Work-based Learning Toolkit	The U.S. Department of Education created this resource to support state and local program administrators in learning about WBL, engaging employers, measuring

		advanced skills.		75% of schools outcomes, and scaling effective practices.
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Appendix C: Sample Strategies for Component C: Program Performance

PROBLEM: CTE CONCENTRATORS ARE UNABLE TO ACHIEVE PROFICIENCY ON STATE ACADEMIC PERFORMANCE STANDARDS.

Root Cause	Strategy	Sample Activities	Resource	Description
Students are not provided with academic content as part of their CTE coursework	Integrate academic content into CTE programming offered at all levels.	Review current efforts to integrate academic and CTE instruction and take steps to address ineffective practices. Incorporate reading and writing activities, technical manuals, industry-related texts, and project-based assignments that require critical thinking and communication skills. Incorporate math skills into CTE classrooms. Encourage collaboration and co-teaching between CTE and academic teachers.	CTE and Academic Integration Self-Assessment Rubric ACTE Integration of Academics and CTE Section Math-in-CTE	New York has developed a four-level rubric that educators can use to assess the status of district/college integration of academic skills in CTE programming. ACTE hosts a virtual collaboration to share ideas and effective practices. Visit the Resource Section to download tools to fuel your integration efforts. The Southern Regional Education Board has developed curricular tools that enhance the teaching of math that is already embedded in CTE programs.
		Use results from academic assessments to target educational remediation so that high school students enter college ready to learn.	Rigorous K-12 Assessments Help Reduce Remediation	This brief from offers examples of how higher states are 11 th grade test results as a college readiness signal and as a means of targeting services for at-risk youth
Students face financial or geographical barriers that prevent them from	Identify obstacles to students earning an industry recognized	Use Maryland's Perkins V basic grant to fund student attainment of an	Maryland CTE Perkins Reserve Grant Information Guide	Maryland offers a competitive grant program that includes options for

<p>pursuing an industry-recognized credential.</p>	<p>credential and take steps to resolve them.</p>	<p>industry-recognized credential.</p> <p>Develop strategies to identify students who may face challenges in paying for exams and find ways of offsetting costs.</p> <p>Work with exam providers, employers, and community organizations to provide fee waivers or scholarships for certification exams, materials, and training courses.</p> <p>Work with credentialing vendors to expand testing sites and administer exams in convenient and accessible locations.</p>	<p>Credential Currency: Promoting Credentials of Value</p> <p>Aligning State CTE Programs with Industry Needs and Priorities</p>	<p>using funding to strengthen the award of industry-recognized credentials in POS.</p> <p>This report offers strategies to expand student attainment.. While focused on the state level, some recommendations may be adapted for district/college use.</p> <p>ExcelinEd produced this toolkit to support states in aligning CTE programs with industry needs and priorities. While intended for state policymakers, some recommendations may be adapted for use at the district/college level.</p>
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PROBLEM: STUDENTS ARE NOT EARNING INDUSTRY-RECOGNIZED CREDENTIALS.

Root Cause	Strategy	Sample Activities	Resource	Description
<p>Students face financial or geographical barriers that prevent them from pursuing an industry-recognized credential.</p>	<p>Identify obstacles to students earning an industry recognized credential and take steps to resolve them.</p>	<p>Use Maryland’s Perkins V basic grant to fund student attainment of an industry-recognized credential.</p> <p>Develop strategies to identify students who may face challenges in paying for exams and find ways of offsetting costs.</p> <p>Work with exam providers, employers, and community organizations to provide fee waivers or scholarships for</p>	<p>Maryland CTE Perkins Reserve Grant Information Guide</p> <p>Credential Currency: Promoting Credentials of Value</p> <p>Aligning State CTE Programs with Industry Needs and Priorities</p>	<p>Maryland offers a competitive grant program that includes options for using funding to strengthen the award of industry-recognized credentials in POS.</p> <p>This report offers strategies to expand student attainment.. While focused on the state level, some recommendations may be adapted for district/college use.</p>

		<p>certification exams, materials, and training courses.</p> <p>Work with credentialing vendors to expand testing sites and administer exams in convenient and accessible locations.</p>		<p>2024 - 2026</p> <p>ExcelinEd produced this toolkit to support states in aligning CTE programs with industry needs and priorities. While intended for state policymakers, some recommendations may be adapted for use at the district/college level.</p>
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PROBLEM: CTE CONCENTRATORS ARE NOT TRANSITIONING INTO ADVANCED TRAINING OR EMPLOYMENT FOLLOWING GRADUATION.

Root Cause	Strategy	Sample Activities	Resource	Description
<p>Students do not understand the steps needed to pursue a career.</p>	<p>Offer workplace experiences and access to career planning tools to help students plan for labor market entry.</p>	<p>Develop in-school and worksite experiences that help students understand the world of work and how to prepare for the transition to employment following graduation.</p>	<p>Maryland's Work-based Learning Continuum</p>	<p>This resource describes the research, common practices to support students in learning about work, and tools to help in career seeking and advancement.</p>

Appendix D: Sample Strategies for Component D: Recruiting, Developing, and Retaining CTE Educators

PROBLEM: IT'S DIFFICULT TO RECRUIT CTE EDUCATORS.

Root Cause	Strategy	Sample Activities	Resource	Description
Salaries in the private sectors are higher than for educators in the same field, making it difficult to attract educators.	Develop a range of teacher recruitment strategies that motivate individuals to pursue a CTE instructional career.	<p>Offer bonuses for specific fields or tuition reimbursement for teachers trying to get credentials.</p> <p>Consult with employer advisory groups for potential teacher candidates.</p> <p>Create a 'grow your own' initiative to recruit instructors.</p> <p>Hire a recruiter to identify potential applicants.</p> <p>Conduct outreach to entice retiring industry workers or those seeking a change to enter the field.</p>	36 CTE Teacher Recruitment Strategies	The Oklahoma Department of Career and Technology Education developed this list of CTE teacher recruitment strategies compiled from expert resources.
The pool of CTE educators is small, making it difficult to hire new instructors.	Identify non-traditional pathways for teachers to earn the necessary credentials to become a CTE educator.	<p>Launch a targeted CTE teacher recruitment campaign to motivate educators and industry professionals to become teachers.</p> <p>Engage with local industry to pair experienced workers with current to support their development</p>	<p>Teach CTE Recruitment Toolkit</p> <p>Becoming a CTE Teacher in Maryland</p>	<p>ACTE has created this toolkit to raise awareness of CTE teacher shortages and provide tools to build interest in the profession.</p> <p>The Maryland Division of Career and College Readiness has created this guidance document that summarizes teacher</p>

		<p>and ability to teach in new fields.</p> <p>Explore the multiple pathways to becoming a CTE teacher in Maryland.</p> <p>Develop alternative pathways to certification for individuals with industry experience who lack teaching credentials.</p>		<p>certification options for each CTE program of study offered in the state.</p>

PROBLEM: NEW CTE EDUCATORS LACK ACCESS TO PROFESSIONAL DEVELOPMENT SUPPORTS TO STRENGTHEN THEIR INSTRUCTION.

Root Cause	Strategy	Sample Activities	Resource	Description
Individuals transitioning from industry may lack the pedagogical skills to succeed in the classroom.	Offer targeted professional development to support new CTE instructors in strengthening their teaching skills.	<p>Pair new first and second year CTE teachers with seasoned veterans who can serve as mentors and provide resources and guidance.</p> <p>Facilitate networking events, conferences, and workshops where CTE educators can connect with colleagues, share best practices, and collaborate on innovative teaching strategies.</p>	CTE TEACH Mentor Programs	The Colton-Redlands-Yucaipa Regional Occupational Program (CA) partners with the California Department of Education to offer mentorship support and professional development for new CTE teachers.
CTE educators are unable to offer academic credit to students taking CTE coursework.	Create policy and practices to support CTE educators in offering academic credits.	Pair academic and CTE educators to design courses that allow students to earn academic and	Credit Quandaries: How CTE Instructors can Teach Academic Credit	This document from the Center on Great Teachers & Leaders explores strategies that states and

		technical credit simultaneously.		districts are using to enable CTE teachers who lack the necessary credentials to award academic credit for their courses.
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PROBLEM: THE TURNOVER RATE IS HIGHER FOR EDUCATORS WHO IDENTIFY AS PEOPLE OF COLOR.

Root Cause	Strategy	Sample Activities	Resource	Description
Educators who are nontraditional for their field are not recruited and those who begin are not offered supports to persist in the occupation.	Undertake targeted efforts to recruit individuals who are nontraditional for their field.	<p>Promote CTE as a career choice by collaborating with professional organizations to promote CTE teaching careers and develop pathways to teacher preparation programs.</p> <p>Offer professional development targeted to address the needs of nontraditional educators, which include creating inclusive workplaces and offering mentoring and professional learning communities.</p>	<p>State and Local Strategies for Diversifying the CTE Educator Workforce</p> <p>Diversifying the Teaching Profession: How to Recruit and Retain Teachers of Color</p>	<p>This document identifies issues and offers solutions for diversifying the secondary CTE educator workforce. Includes suggested activities to both promote recruitment and retention of teachers.</p> <p>The Learning Policy Institute created this resource to support diversifying the teaching profession overall. Use it to find options that might apply to the CTE workforce.</p>

Appendix E: Additional Resources

While specific evidence-based resources may vary depending on the context and location, several organizations and research institutions focus on educational best practices, including those related to Career and Technical Education (CTE). Here are some resources and organizations that often provide evidence-based insights:

Advance CTE

The State CTE Directors association offers a wealth of resources in their learning center.

Website: [Advance CTE](#)

American Institutes for Research (AIR) - Educator Quality:

AIR conducts research on various aspects of education, and their educator quality resources often include evidence-based strategies for teacher retention.

Website: [AIR Educator Quality](#)

Association for Career and Technical Education (ACTE):

ACTE provides resources and research related to CTE.

Website: [Association for Career and Technical Education](#)

CTE Research Network

Federally funded website focused on strengthening CTE research.

Website: [CTE Research Network](#)

Learning Policy Institute (LPI):

LPI conducts research on education policy and practice. Their reports and publications often include evidence-based recommendations.

Website: [Learning Policy Institute](#)

National Center for Education Statistics (NCES)

The NCES, part of the U.S. Department of Education, offers data and reports on various aspects of education. Their website is a valuable resource for accessing national education statistics.

Website: [National Center for Education Statistics](#)

National Comprehensive Center for Teacher Quality (TQ Center):

The TQ Center focuses on improving teacher quality and effectiveness. They offer resources and research on teacher recruitment and retention.

Website: [National Comprehensive Center for Teacher Quality](#)

RAND Corporation - Education Research:

RAND Corporation conducts research on various education-related topics, and their reports often include evidence-based insights.

Website: [RAND Education](#)

Regional Education Laboratories (RELs):

Funded by the U.S. Department of Education, the RELs conduct research and provide resources on various educational topics.

Website: [Regional Education Laboratories](#)

What Works Clearinghouse (WWC):

WWC reviews and assesses the quality of educational research. While it covers various educational topics, it can be a valuable resource for finding evidence-based practices related to teacher retention.

Website: [What Works Clearinghouse](#)