



# Career and Technical Education: Comprehensive Local Needs Assessment

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A Systemic Review Guidebook for Secondary Schools  
Version 3.0

Office of College and Career Pathways

2024 - 2026

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## Document Control Information

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### DOCUMENT HISTORY

Document Version	Date	Summary of Change
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 the data tables in Activities B.1 and B.4.

## Purpose

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**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 1<sup>st</sup> 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

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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

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### 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
<b>Tangible:</b>  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
<b>Tangible:</b>  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
<b>Tangible:</b>  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
<b>Intangible:</b>  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
<b>Intangible:</b>  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
<b>Intangible:</b>  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 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"> <li>• required courses to complete a POS and graduate;</li> <li>• required assessments to earn a certification, license, credential, or degree;</li> <li>• required academic assessments to graduate; and</li> <li>• a timeline to take courses, assessments, and complete career-based learning experiences.</li> </ul>
All students, regardless of race, color, national origin, sex, or disability, have equitable access to high-quality CTE programs as required by <a href="#">Code of Maryland Regulation 13A.04.02.04</a>
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 <a href="#">Code of Maryland Regulations 13A.04.02.03</a>
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 <a href="#">Code of Maryland Regulation 13A.07.09</a> 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).

QUALITY
<p>All students, including students in special populations, are offered the opportunity to:</p> <ul style="list-style-type: none"> <li>• Participate in at least one career-based learning experience (e.g., work-based learning, internship, apprenticeship, etc.),</li> <li>• Earn college credit and/or industry credentials, and</li> <li>• Participate in CTSOs.</li> </ul>
<p>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</p>
<p>Local and state annual data-reporting requirements are met, and reviews conducted of all annual Program Quality Index reports to inform improvement</p>
<p>Human resources are included in the recruitment process to ensure a diverse CTE teacher and faculty member candidate pool</p>
<p>Metrics are used to ensure that CTE teacher and faculty member recruitment strategies are successful</p>
<p>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</p>

## 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	Michael Grubbs
Organization	Baltimore County Public Schools
Title	CTE Coordinator
Email	mgrubbs@bcps.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 fulfil 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)	Sam Wynkoop	Principal	BCPS
	Leah Warble	Assistant Principal	BCPS
	Michelle Anderson	Principal	BCPS
	Robin Bowden, MiVida Parham, Alicia Fales, Kara Lynch, Renee Stout	CTE Supervisors	BCPS
Professional career or academic counselor	Melissa Geigley	Counselor	BCPS
	MaatenRe	Coordinator, Counseling	BCPS
Teachers	Tracy Rehmert	CTE Teacher/DC	BCPS
	Will Knipscher	CTE Teacher/DC	BCPS
	Renee Kuhn	CTE Teacher/DC	BCPS
Instructional Support and Paraprofessionals (Psychologists, Social Workers, etc.)	Connie Hayek		CCBC
	David Green		BCPS

### POSTSECONDARY

Role	Name	Title	Affiliation
Administration (e.g., dean, division chair)	Candice Grayson	HT/MLT Program Coordinator	CCBC

	Jane Mattes	Dean	CCBC
	Diane Flint	Asst. Dean	CCBC
Faculty	Melissa Lane	Dept Chair, Criminal Justice	CCBC
	Adrienne Dougherty	Radiation Therapy Program Director	CCBC
	Doug Kendzierski	Dept Chair, Transportation	CCBC



**WORKFORCE**

Role	Name	Title	Affiliation
Local Workforce Development board member	Anita Hammond	Manager, Workforce Development	LifeBridge Health/WDB
	Todd Marks	CEO, Mindgrub	Mindgrub, WDB
*Regional Economic Development organization member	Carol Brooks	Supervisor	DEWD
	Loren Smalley	Blueprint Coordinator	DEWD
Local business & industry representative	Cindy Jones	Supervisor	First Financial
	Tim Hollensshade	CEO	Hollenshades Auto Group

**OTHER**

Role	Name	Title	Affiliation
Parent or caretaker	Lisa Thomas	Parent	BCPS
Student	Jalissa Thomas	Student	BCPS
Representative of Special Populations	Joyce Serio	Supervisor, Transition Facilitators	BCPS
Out-of-School youth / unhoused youth / corrections			

\* Not required under Perkins V but recommended to include.

## Component A: Labor Market Alignment

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### 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%
Curriculum for Agricultural Science Education (CASE)	✓	✓	✓	181	1%
Natural Resources and Conservation	✓	✓	✓	181	1%
Interactive Media Production	✓	✓	✓	722	4%
Graphic Communications (PrintED)	✓	✓	✓	722	4%
Computer and Information Sciences	✓	✓	✓	4281	22%
IT Networking Academy (CISCO) - CCENT	✓	✓	✓	4281	22%
IT Networking Academy (CISCO) - CCNA Security	✓	✓	✓	4281	22%
Careers in Cosmetology	✓	✓	✓	2375	12%
Restaurant, Culinary, and Catering Management	✓	✓	✓	2375	12%
Culinary Arts (ACF)	✓	✓	✓	2375	12%
Baking and Pastry Arts (ACF)	✓	✓	✓	2375	12%
Teacher Academy of Maryland	✓	✓	✓	1176	6%
Engineering Technology	✓	✓	✓	2034	10%

P-TECH: Engineering Technology	✓	✓	✓	2034	10%
P-TECH: Design, Fabrication, and Advanced Manufacturing	✓	✓	✓	2034	10%
Construction Design and Management	✓	✓	✓	941	5%
Pre-Engineering (PTLW)	✓	✓	✓	2034	10%
Early Childhood Education/Child Care	✓	✓	✓	1176	6%
Air Force Junior Reserve Officers Training Corps (AFJROTC)	✓	✓	✓	1176	6%
Army Junior Reserve Officers Training Corps (AJROTC)	✓	✓	✓	1176	6%
Navy Junior Reserve Officers Training Corps (NJROTC)	✓	✓	✓	1176	6%
Marine Corps Junior Reserve Officers Training Corps (MCJROTC)	✓	✓	✓	1176	6%
Criminal Justice, Law and Society	✓	✓	✓	1176	6%
Homeland Security and Emergency Preparedness - Criminal Justice/Law Enforcement	✓	✓	✓	1176	6%
Homeland Security and Emergency Preparedness - Information/Communications Technology	✓	✓	✓	1176	6%
Local Construction Trades Academy	✓	✓	✓	941	5%
Construction Trades Professions - Carpentry	✓	✓	✓	941	5%

Construction Trades Professions - Electrical	✓	✓	✓	941	5%
Construction Trades Professions - Plumbing	✓	✓	✓	941	5%
Automotive Technology Maintenance and Light Repair- Plus (NATEF)	✓	✓	✓	183	1%
Medium/Heavy Truck Technician- Diesel (NATEF)	✓	✓	✓	183	1%
Construction Maintenance Professions - HVAC	✓	✓	✓	183	1%
Aeronautics, Aviation, Aerospace Science and Technology	✓	✓	✓	183	1%
Academy of Health Professions - Certified Nursing Assistant	✓	✓	✓	1363	7%
Academy of Health Professions - Pharmacy Technician	✓	✓	✓	1363	7%
Academy of Health Professions - Dental Assistant	✓	✓	✓	1363	7%
Academy of Health Professions - Certified Clinical Medical Assistant	✓	✓	✓	1363	7%
Academy of Health Professions - Physical Rehabilitation	✓	✓	✓	1363	7%
Academy of Health Professions - Allied Health Other Specialty	✓	✓	✓	1363	7%
Academy of Health Professions - Allied Health Dual Enrollment	✓	✓	✓	1363	7%
Biomedical Science (PLTW)	✓	✓	✓	1363	7%
Business Management	✓	✓	✓	2577	13%
Accounting and Finance	✓	✓	✓	2577	13%
Business Administrative Services	✓	✓	✓	2577	13%

Food and Beverage Management (Prostart)	✓	✓	✓	2375	12%
Marketing	✓	✓	✓	2577	13%
Career Research and Development		✓	✓	3863	20%
Apprenticeship Maryland Program	✓	✓	✓	3863	20%

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	Rational for change

**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	Yes		The CTE Office regularly reviews and presents Department of Labor data and the Baltimore County Workforce Development Board primary sectors to guide decision making. However, PACs and PLCS can benefit from increased data sharing and more consistent employment updates
Processes are in place to identify and expand high school level registered apprenticeship opportunities.	Yes		The CTE office holds a monthly webinar for new business and routinely compares students' placements across the 10 career clusters. We also serve on the county workforce development board and promote at each meeting.
Processes are in place to update or phase out CTE POS that do not align with HS/HW/ID industries	Yes		The CTE Office has a 5-Year Plan that is reviewed each year and presented to our Local Advisory Council. Feedback informs program updates and or sunseting.
A majority of our students are concentrating in POS aligned to HS/HW/ID industries		Yes	Although concentrator data is at an appropriate level, student group breakdown needs reviewed.
Processes are in place to recruit business and industry stakeholders to participate on Program Advisory Committees	Yes		CTEAC, our Local Advisory Council ensures employers serve 3 year spans and each career cluster is represented.

### 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 CTE Program that does not fully align with high-wage, high skill, and in-demand criteria is College Career Research and Development. However, this is general categorization based on the average of student placements in CCRD for the Work-Based Learning components. However, there are many instances that students are in-deed in high school-high wage, and in-demand placements (. e.g. NSA).

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?

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

- 1) Increase apprenticeship opportunities for fields related to Solar Photovoltaic Installers (58.82%) and Wind Turbine Service Technicians (85.71%).
- 2) Increase industry partners in high-wage, high skill, in-demand fields to offer guidance on new program design and adoption, like Aviation Technology and Artificial Intelligence expansion that has occurred.
- 3) Support existing teachers in updating their certifications in new fields, hire new CTE teachers with requisite skills, and explore other hiring options.
- 4) Review Business Education Pathways to ensure curriculum is aligned to industry standards and innovations in the workforce.
- 5) Consult with local business to offer workplace tours or externships for instructors, specially related to advanced technologies, offshore wind, and solar.



## Component B: Student Participation and Persistence

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### 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 district heat maps 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.

#### Notes:

1. **Data Suppression:** 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).
2. **2023 Statewide Graduate Data:** Currently, MSDE does not disaggregate four-year cohort participation in CTE. However, we have identified this area as a growth opportunity in data collection and reporting.

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%			7381	84.99%	54.7	51.5%
<b>Gender</b>								
Male	28,576	82.60%			3519	81.14%	53%	56%
Female	29,581	89.16%			3862	88.82	47%	44%
<b>Race-ethnicity</b>								
American Indian	140	85.89%			32	86.49%	0%	0%
Asian	4,559	96.16%			578	94.29%	7%	9%
Black	18,648	84.68%			3053	86.54%	45%	56%
Hispanic	10,446	71.37%			847	66.12%	14%	10%
Multi-race	2,485	89.36%			302	83.89%	4%	4%
White	21,838	93.38%			2556	89.65%	29%	27%
<b>Special Populations</b>								
Economically disadvantaged	17,049	80.83%			1721	75.25%	56%	51%
Multi-lingual learners	3,140	55.78%			381	52.41	7%	3%
Individuals with disabilities	4,697	69.47%			689	72.07	12%	10%
Nontraditional fields	-	-			-	-	30%	40%
Single parents	-	-			-	-	0	0
Out of workforce	-	-			-	-	0	0
Unhoused Individuals	833	62.03%			166	49.85	3%	2%
Youth in foster care	66	40.24%			13	29.55	0	0
Youth with parent in military	1,028	95.10%			-	-	0	0
Migrant students	-	-			-	-	0	0

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%.

**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	Yes		The CTE Office and the school system have a non-discrimination policy and applies an equity lens when designing promotional and marketing material. We ensure it is both in printed and digital form.
Our district has processes in place to recruit students traditionally underrepresented in CTE to improve diversity in CTE POS		Yes	Despite our school system ensuring that program awareness and recruitment strategies are not exclusive to all student groups, it is evident that the data illustrates a need for better recruitment. We are also working on reducing variability in magnet assessments across the county.
Processes are in place to ensure that students traditionally underrepresented in CTE have options to <u>enroll</u> in CTE POS	Yes		We leverage the NAPE PIPE program to help disrupt programs that are seeing gaps in representation and ensure our PLCS share data at the school and program level for teachers to consider root causes.
Processes are in place to ensure that students traditionally underrepresented in CTE <u>persist</u> in CTE POS once enrolled		Yes	Concentrator persistence varies by program and by school. We believe the addition of Career Navigators will help with proper placement into programs and we will continue to leverage the NAPE PIPE program to help disrupt programs that are seeing gaps in representation and ensure our PLCS share data at the school and program level for teachers to consider root causes.
Processes are in place to ensure that all eligible students have equitable access to career-based learning experiences	Yes		BCPS piloted a CTE Site Coordinator position that worked on increased career pathway exposure. This has been expanded to the Career Navigator role to ensure that ALL students are provided increased and adequate career counseling support.
Career guidance and advisement services are provided to student prior to enrolling in a CTE POS		Yes	While the CTE Office holds interests and informational sessions, participates in the yearly Magnet Expo, and BCPS Fest, our teachers also hold CTE month events and career exploration

	Meets	Area for Improvement	Explanation
			nights. However, standardized processes for every HS will be a focus area for 24-25.
All students have access to career planning and support services to help them successfully transition to advanced education and/or the workforce		Yes	The school system has a 6-year plan beginning in grade 7 that has connections to CTE pathways and interests. School counseling and CTE also leverage Traitify as a tool to ensure students have equitable access to career interest tools. The RIASEC model is also being introduced in BCPS.

### 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?

School system data illustrates a strong comparison of CTE participation and overall school system demographics. However, concentrator enrollment shows a significant gap for many students' groups. For example, black, Hispanic, SWD, ED, and EL concentrators in CTE all have a significant gap difference when compared against BCPS school system data.

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. Female concentrators in the IT Cisco Networking program are under-represented (by 31%) in the 2023 CTE Program Concentrator Enrollment Trend Heatmap for Years '21, '22, and '23. (Kara)
2. Male students have traditionally been underrepresented in the TAM programs at each of our 12 programs. The traditional stereotypes around the teaching profession dissuade students from being encouraged to enroll. (Renee)
3. African American males are over-represented in CRD by 13%, and students with disabilities are over-represented by 21%. Through career navigation, counseling, and other resources, students and parents will be made aware of all potential completer options that align to student interest to increase the participation of these groups in all programs across CTE, reducing their enrollment in CRD. (Alicia)
4. While the Participation heatmap for the MET cluster does not indicate any disparities for the female subgroup, female concentrators are underrepresented in the MET cluster by an average of 23% due to lack of awareness of the diversity in industry offerings; lack of self-alignment, effect of male domination; and parental, teacher, and curricular influences. (Robin)

5. Male participants and concentrators are traditionally overrepresented in the Transportation Technologies (TT) cluster by an average of 39% and 42%, respectively. Gender stereotyping for certain industries like trucking and transportation, automotive and aerospace have traditionally offered careers that have been filled predominantly by men. (Robin)
6. As a critical percentage point, female student enrollment is underrepresented by 35% in the in the BCPS CD cluster. (MiVida)
7. As expected with enrollment, female student completers are underrepresented in the CD cluster by 31% in Carpentry to 47% in Plumbing an average of 39% in the 6 programs BCPS offers. (MiVida)

#### 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	HB: Health and Biosciences
BMF: Business Management and Finance	HRS: Human Resource Services
CD: Construction and Development	IT: Information Technology
CRD: Career Research and Development	MET: Manufacturing, Engineering, and Technology
CSHT: Consumer Services, Hospitality, and Tourism	TT: Transportation Technologies
EANR: Environmental, Agricultural, and Natural Resources	CRD: (Career Research and Development & Apprenticeship MD)

**Race/Ethnicity Key:**

AI: American Indian/Alaskan Native	W: White
A: Asian	PI: Hawaiian/Pacific Islander
H: Hispanic	M: Multi-Racial
B: Black/African American	

**Special Populations Key:**

SWD: Students with Disabilities	FY: Foster Youth
ED: Economically Disadvantaged	AD: Active Duty
NT: Non-Traditional	MT: Migrant
SP: Single Parents	
OOW: Out of Workforce	
MLL: Multilingual Learners	
MV: Students served under the McKinney-Vento Act (Unhoused)	

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

[illegible]

**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	OOW	EL	HL	FY	AD	
AMC	4%	45%	7381	52	48	0%	11%	6%	43%	35%	0%	4%	9%	45%	0%	0%	0%	1%	1%	0%	0%	
BMF	13%	68%	7381	59	41	0%	7%	15%	43%	31%	0%	3%	7%	51%	20%	0%	0%	5%	3%	0%	0%	
CD	5%	53%	7381	88	12	1%	4%	15%	37%	38%	0%	5%	13%	51%	12%	0%	0%	3%	1%	0%	0%	
CRD	20%	21%	7381	55	45	1%	1%	11%	55%	27%	0%	5%	33%	66%	0%	0%	0%	3%	4%	1%	0%	
CSHT	12%	16%	7381	15	85	0%	4%	8%	56%	27%	0%	5%	6%	51%	40%	0%	0%	1%	1%	0%	0%	
EANR	1%	80%	7381	48	52	0%	10%	3%	21%	65%	0%	2%	14%	30%	0%	0%	0%	1%	0%	0%	0%	
HB	7%	55%	7381	23	77	0%	14%	8%	36%	37%	0%	4%	1%	43%	6%	0%	0%	0%	1%	0%	0%	
HRS	6%	96%	7381	36	64	1%	4%	11%	42%	37%	0%	6%	13%	57%	8%	0%	0%	5%	3%	0%	0%	
IT	22%	34%	7381	76	24	0%	19%	6%	38%	32%	0%	4%	3%	37%	24%	0%	0%	2%	1%	0%	0%	
MET	10%	25%	7381	74%	26%	0%	15%	8%	26%	46%	0%	5%	2%	32%	26%	0%	0%	1%	1%	0%	0%	
TT	1%	72%	7381	93%	7%	0%	5%	12%	28%	51%	0%	3%	11%	44%	7%	0%	0%	2%	0%	0%	0%	



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?

The EANR cluster is over-represented by white students when compared to school system demographics. EANR is also over-represented by the ED and SWD student groups. The CD cluster has illustrated an under-representation for females Transportation for females, while Health and Biosciences for males are under-represented.

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 CRD (21%), CSHT (16%), and MET (25%) clusters appear to demonstrate the lowest persistence rate when comparing enrollment figures to concentrator figures. One hypothesis is this is the result of scheduling as all three of these clusters contain programs that are often used for the first course of the program of study for a Technology Education Credit or as an elective (e.g. Food and Beverage), affecting matriculation into the concentrator courses.

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?

One of the difficulties in assessing differences is the variation in program offering. For example, the MET cluster is fairly represented around the school system – across 10 schools - and is distributed among magnet and non-magnet offerings. However, the EANR cluster is limited to two schools, one magnet, the other a school with one feeder and a predominately white community. There is a hypothesis that those delimiting factors influence the participation and persistence by student groups.

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. Female concentrators in the IT Cisco Networking program are under-represented (by 31%) in the 2023 CTE Program Concentrator Enrollment Trend Heatmap for Years '21, '22, and '23. (Kara)

2. Male students have traditionally been underrepresented in the TAM programs at each of our 12 programs. The traditional stereotypes around the teaching profession dissuade students from being encouraged to enroll. (Renee)

3. African-American males are over-represented in CRD by 13%, and students with disabilities are over-represented by 21%. Through career navigation, counseling, and other resources, students and parents will be made aware of all potential complete options that align to student interest in order to increase the participation of these groups in all programs across CTE, reducing their enrollment in CRD. (Alicia)

4. While the Participation heatmap for the MET cluster does not indicate any disparities for the female subgroup, female concentrators are underrepresented in the MET cluster by an average of 23% due to lack of awareness of the diversity in industry offerings; lack of self-alignment, effect of male domination; and parental, teacher, and curricular influences. (Robin)

5. Male participants and concentrators are traditionally overrepresented in the Transportation Technologies (TT) cluster by an average of 39% and 42%, respectively. Gender stereotyping for certain industries like trucking and transportation, automotive and aerospace have traditionally offered careers that have been filled predominantly by men. (Robin)

6. As a critical percentage point, female student enrollment is underrepresented by 35% in the in the BCPS CD cluster. (MiVida)

7. As expected with enrollment, female student completers are underrepresented in the CD cluster by 31% in Carpentry to 47% in Plumbing an average of 39% in the 6 programs BCPS offers. (MiVida)

**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 education<sup>1</sup>

**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.

### DISTRICT PERFORMANCE BY STUDENT GROUP

	Federal Accountability Indicator 2023 Graduates
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<sup>1</sup> 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).

	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	95%	55%	48%	22%	78%	27%	70%	59%	
Gender									
Males	95%	95%	95%	95%	95%	95%	95%	95%	
Females	96%	96%	96%	96%	96%	96%	96%	96%	
Race-ethnicity									
American Indian	94%	94%	94%	94%	94%	94%	94%	94%	
Asian	99%	99%	99%	99%	99%	99%	99%	99%	
Black	94%	94%	94%	94%	94%	94%	94%	94%	
Hispanic	92%	92%	92%	92%	92%	92%	92%	92%	
Multi-race	95%	95%	95%	95%	95%	95%	95%	95%	
White	96%	96%	96%	96%	96%	96%	96%	96%	

**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	95%	55%	48%	22%	78%	27%	70%	59%	
Economically disadvantaged	92%	92%	92%	92%	92%	92%	92%	92%	
Multilingual learners	96%	96%	96%	96%	96%	96%	96%	96%	
Individuals with disabilities	92%	92%	92%	92%	92%	92%	92%	92%	
Nontraditional fields	97%	97%	97%	97%	97%	97%	97%	97%	
Single parents									
Out of workforce									
Students served under the McKinney-Vento Act (Unhoused)	82%	82%	82%	82%	82%	82%	82%	82%	
Youth in foster care	86%	86%	86%	86%	86%	86%	86%	86%	
Youth with a parent in active military									
Migrant students									

\* 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 performance target?	4S1 and 5S1 are indicators that BCPS needs to consider. 5S1, specifically is an area of concern. However, it should be noted that these are <i>reported</i> data points for 4S1 and 5S1 and the BCPS CTE Office has documented
Looking at <i>overall performance</i> , on which indicators are you <u>substantially exceeding</u> the district performance target?	N/A

\* 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**

1. 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.

Foremost, BCPS was without a data collection dashboard since the 2020 ransomware attack. It is confirmed that the 2022/2023 data for certifications (i.e. TSA/ICRs) was **not** fully reported. This, however, should be fixed in 2023-2024 data with a new dashboard.

4S1/5S1: Increased expectation for CCRD and JROTC instructors to offer ASVAB, an accessible TSA. Training for teachers/students/counselors on the importance of the ASVAB and how to prepare for it. These two factors should increase district performance given the participation numbers in these two programs. Secondly, curriculum obstacles across a variety of programs may restrict students from earning an industry recognized credential. Many TSAs/ICRs need improved alignment to the actual curriculum.

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?

BCPS has begun to review 4S1/5S1 dashboard data and aggregated by program and school. This data is unpacked during Department Chair and PLC meetings. It is evident that there is variation across sites (exam attempts/pass rates). The CTE Office will continue to investigate difference between programs (e.g. attempts/pass rates for PLTW at the 9 nine sites by student groups).

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)?

Opportunities to braid funding (e.g. Title II, Blueprint, Title IV) to ensure all student groups are being provided with equitable resources and teacher with advanced training on credential exams may increase opportunities for students to improve their attempts and pass rates. Partnering with other content areas (e.g. Special Education, English

Language Learners, Math, and Science) can increase supports for students to be successful in matriculating through CTE Programs of study and ultimately passing credentialing exams.

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.]*

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

1. Female performance in the IT Computer Science program is lower than male performance (by 12%) on the CTE Program Performance Heat Map for School Year '23. (Kara)
2. Students with disabilities and multilingual learners have consistently underperformed their peers on the ParaPro exam. (Renee)
3. Based on the performance heatmap, students with disabilities in the EANR cluster are not meeting the graduation rate by over 20% (MiVida).
4. Based on the performance heatmap, over 20% of hispanic students in the HB cluster are not attaining IRCs. (MiVida)
5. Increase # of female concentrators in CD cluster from 12% (60) to 13% (65). (Robin and MiVida)

## 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:					
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
<b>Gender</b>					
Male	48%	53%	15% (30 teachers)		
Female	51%	47%	11 % (28 teachers)		
<b>Race-ethnicity</b>					
American Indian	-	0%	-		
Asian	-	7%	-		
Black	-	45%	-		
Hispanic	-	14%	-		
Multi-race	-	4%	-		
White	-	29%	-		
<b>Credential</b>					
Properly Licensed	98%	X	-		
Granted Temporary Waiver	0%	X	-		



**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.	Yes		The CTE office leverages Perkins and the school system's operating budget to ensure that CTE instructors participate in summer training that is specific to their licensure.
Staff are aware of the requirements to maintain endorsement.	Yes		The CTE Office partners with the Office of Certification each year at our August Professional Study Day (PSD) and during our mid-year PD offerings to meet with teachers to review their licensure requirements.
Staff have equal access to content-specific professional development opportunities across industries.	Yes		The CTE Office offers quarterly professional learning communities that are distributed by cluster and/or program of study. This content is design specifically
Data are collected on the effectiveness of professional development to ensure it meets the needs of educators.		Yes	While the CTE Office uses survey data on all professional development experiences, and reviews it as an office, ensuring that it is tied to student growth and continuous improvement is an area of focus for 24-25.

### 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?

Yes, the CTE instructors, across the school system, reflects the students that we serve in BCPS. However, ensuring that individual programs have increased diversity remains a continued focus for the CTE Office. For example, while we have African-American females in our PLTW engineering teachers, at several sites, it is not as widely accessible as it can be.

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?

Yes, as it currently stands, CTE instructors, overall, are adequately credentialed for the courses they are teaching. In some instances (e.g. AHP at Eastern Tech) we have leveraged the Community College of Baltimore County (CCBC) to ensure that students have access to a Registered Nurse for the CNA.

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?

The CTE Office, at minimum 6 county wide professional development opportunities each year that are specifically connected their content area. These opportunities are after school, and a stipend is provided. All staff members in BCPS have the opportunity to participate in these professional development opportunities that are industry led. The CTE Office also works with the Office of Certification to ensure that we monitor our instructors credentials (e.g. NCCER) alongside the accreditation organization (e.g. ABC).

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

The primary barrier to ensuring offerings and participation in content specific professional development is the time of the school year. Ensuring that we have a consistent and equitable offering during a time of the day that doesn't impact additional school initiatives (e.g. staff meetings, teacher licensure, family care) is one of the greatest challenges in providing content specific PD. We have leveraged hybrid, virtual, and after school models to attempt to accommodate all of our teachers.

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?

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

1. Undertake targeted efforts to recruit individuals who are nontraditional for their field.

2. Offer bonuses for specific fields or tuition reimbursement for teachers trying to get credentials.
3. Consult with employer advisory groups for potential teacher candidates.
4. Continue to leverage our 'grow your own' initiative to recruit students and instructors.
5. Hire a recruiter (e.g. Kelly Services) to identify potential applicants.

## Next Steps

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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
The district maintains programs that have been historically offered but are no longer aligned to Maryland's labor market needs	Sunset programs that are no longer preparing students for high-skill, high-wage in-demand careers	<ul style="list-style-type: none"> <li>Analyze program enrollments, standards, postsecondary pathways, and employers to assess whether sunseting is warranted.</li> <li>Develop strategy and timeline for sunseting a program and internal and external communication plans to share information.</li> <li>Explore alternative educational options for students currently enrolled that will allow them to transition to other programs.</li> <li>Consult with the union and educators to arrange transition options, which may include reassignment or retraining.</li> <li>Review state regulations and district policies to identify barriers to sunseting programs</li> </ul>	<a href="#">How to sunset an educational program</a>	This blog post describes considerations in sunseting and educational programming, including warning signs of need, considerations before moving forward, and concrete steps to take when a decision to discontinue is made.
	Introduce new programs that are aligned to Maryland or regional employment projections	Review Maryland state and/or regional economic and workforce projections to assess current and future workforce needs	<a href="#">Maryland Occupational Projections 2020-2030</a>	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.
		Recruit industry partners in high-wage, high skill, in-demand fields to offer guidance on new program design and adoption	<a href="#">Cheat Sheet: Opportunities for Employer Involvement in CTE</a>	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	<a href="#">Maryland CTE Teacher Certification</a>	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	<a href="#">Georgia Alignment Toolkit</a>	Georgia has compiled a toolkit to help schools align programs to best serve students and local business. Includes a report and worksheets.
<b>The cost of introducing new programs is prohibitive</b>	Identify new funding sources	Use Maryland's Perkins reserve grants to fund new programs.	<a href="#">Maryland Grant Information Guide: Perkins Reserve Grant FY 2024</a>	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	<a href="#">IES Research Programs</a> <a href="#">Maryland Foundation Grants</a>	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.	<a href="#">Employer Engagement in CTE</a>	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.	<a href="#">Maryland CTE Performance Dashboard</a>	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	<a href="#">Strategies for Developing Employer Partnerships</a> <a href="#">Michigan Program Advisory Toolkit</a>	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	<a href="#">Texas CTE Administrative Code</a>	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 CTE educators in upgrading their curricular resources	Engage industry experts to review curriculum and offer recommendations to strengthen offerings	<a href="http://wbltoolkit.cte.nyc/workplace-tour/">Increasing Access to Industry Experts in High Schools</a> <a href="http://wbltoolkit.cte.nyc/workplace-tour/">http://wbltoolkit.cte.nyc/workplace-tour/</a>	This report by Advance CTE profiles state 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	<a href="http://wbltoolkit.cte.nyc/workplace-tour/">Teacher Externship Industry Partner Planning Guide</a> <a href="http://wbltoolkit.cte.nyc/workplace-tour/">http://wbltoolkit.cte.nyc/workplace-tour/</a>	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.	<a href="#">Middle School CTE design options and resources</a>	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 <sup>th</sup> grade students to introduce them to school CTE offerings.	<a href="#">Freshman Cruise</a>	Roseburg Public Schools (OR) takes all 9 <sup>th</sup> 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.	<a href="#">Career Fair Options</a>	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 support students in identifying the CTE opportunities at their school.	<a href="#">CTE Options at my School</a>	Fairfax County Public Schools (VA) hosts a webpage that helps students learn about CTE programs offered in their school replete with videos and detailed program descriptions.
<b>Families and educators do not appreciate CTE's benefit and discourage youth from enrolling</b>	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	<a href="#">CTE Vision Toolkit</a> <a href="#">CTE Marketing Best Practices &amp; Campaigns</a>	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	<a href="#">CTE Letter of Intent Signing Day: College</a> <a href="#">CTE Signing Day: Employment</a>	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.
<b>Students are not provided career guidance that supports them in choosing CTE as an educational pathway.</b>	Educate high school guidance counselors on the benefits that CTE offers and the advanced education and employment options that students may follow.	Develop and conduct professional development for school counselors aimed at increasing awareness and benefits of CTE programs.	<a href="#">School Counselor Playbook: Unlocking Career Success</a>	Unlocking Career Success offers this playbook that includes practical tools, resources, and information to assist counselors in discussing college and career pathways with students.
		Design tools and resources for counselors to use in their career exploration activities with students that highlight CTE offerings.	<a href="#">ACTE High Quality CTE: Student Career Development</a>	ACTE offers webinars, online courses, toolkits, and more designed to support counselors and college/career navigators as they offer guidance to students.

**PROBLEM: STUDENTS ARE NOT PERSISTING IN CTE PROGRAMS.**

Root Cause	Strategy	Sample Activities	Resource	Description
<b>Historically underrepresented students or those with special needs do not feel welcome in CTE programs.</b>	Remove obstacles to success for students who may need additional supports to persist.	Implement evidence-based strategies to support special population students in succeeding in CTE programming.	<a href="#">Maximizing Access &amp; Success for Special Population Students</a> <a href="#">Strategies for Special Population Success</a>	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.

			<a href="#"><u>Recruiting Special Populations into CTE: Toolkit</u></a>	<p>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 recruit and retain youth.</p> <p>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</p>
		Explore why students from some racial-ethnic groups face obstacles in CTE programming and take steps to address them.	<a href="#"><u>A Guide to Discussing Racial Equity</u></a>	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.	<a href="#"><u>Assessing the Enrollment and Retention of Nontraditional Learners</u></a>	The Wisconsin Technical College System has developed a tool that educators can use to assess the adoption of promising practices to increasing enrollments and retention of nontraditional learners based on their gender.
<b>Students do not understand the personal and economic benefits of completing advanced</b>	Offer students mentors and real-world workplace experiences to inform their career decisions.	Pair students with mentors who can offer them one-on-one	<a href="#"><u>Partnering Students with Industry Mentors</u></a>	Parkways School District (MO) connects students with industry mentors who provide guidance, connections, expertise, and

coursework and entering the field.		guidance to encourage them to pursue a career.		course supports 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 advanced skills.	<a href="#">Work-based Learning Toolkit</a>	The U.S. Department of Education created this resource to support state and local program administrators in learning about WBL, engaging employers, measuring outcomes, and scaling effective practices.

## 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.	<a href="#">CTE and Academic Integration Self-Assessment Rubric</a>  <a href="#">ACTE Integration of Academics and CTE Section</a>  <a href="#">Math-in-CTE</a>	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.
		<p>Incorporate reading and writing activities, technical manuals, industry-related texts, and project-based assignments that require critical thinking and communication skills.</p> <p>Incorporate math skills into CTE classrooms.</p> <p>Encourage collaboration and co-teaching between CTE and academic teachers.</p>		<p>ACTE hosts a virtual collaboration to share ideas and effective practices. Visit the Resource Section to download tools to fuel your integration efforts.</p> <p>The Southern Regional Education Board has developed curricular tools that enhance the teaching of math that is already embedded in CTE programs.</p>
		Use results from academic assessments to target educational remediation so that high school students enter college ready to learn.	<a href="#">Rigorous K-12 Assessments Help Reduce Remediation</a>	This brief from offers examples of how higher states are 11 <sup>th</sup> grade test results as a college readiness signal and as a means

				of targeting services for at-risk youth
<b>Students face financial or geographical barriers that prevent them from pursuing an industry-recognized credential.</b>	Identify obstacles to students earning an industry recognized credential and take steps to resolve them.	<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 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><a href="#">Maryland CTE Perkins Reserve Grant Information Guide</a></p> <p><a href="#">Credential Currency: Promoting Credentials of Value</a></p> <p><a href="#">Aligning State CTE Programs with Industry Needs and Priorities</a></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 obtainment. 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>

**PROBLEM: STUDENTS ARE NOT EARNING INDUSTRY-RECOGNIZED CREDENTIALS.**

Root Cause	Strategy	Sample Activities	Resource	Description
<b>Students face financial or geographical barriers that</b>	Identify obstacles to students earning an industry recognized	Use Maryland’s Perkins V basic grant to fund student attainment	<a href="#">Maryland CTE Perkins Reserve Grant Information Guide</a>	Maryland offers a competitive grant program that includes options for using funding to

<b>prevent them from pursuing an industry-recognized credential.</b>	credential and take steps to resolve them.	<p>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 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><a href="#">Credential Currency: Promoting Credentials of Value</a></p> <p><a href="#">Aligning State CTE Programs with Industry Needs and Priorities</a></p>	<p>strengthen the award of industry-recognized credentials in POS.</p> <p>This report offers strategies to expand student obtainment. 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: CTE CONCENTRATORS ARE NOT TRANSITIONING INTO ADVANCED TRAINING OR EMPLOYMENT FOLLOWING GRADUATION.**

Root Cause	Strategy	Sample Activities	Resource	Description
<b>Students do not understand the steps needed to pursue a career.</b>	Offer workplace experiences and access to career planning tools to help students plan for labor market entry.	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.	<a href="#">Maryland's Work-based Learning Continuum</a>	This resource describes the research, common practices to support students in learning about work, and tools to help in career seeking and advancement.



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## 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
<b>Salaries in the private sectors are higher than for educators in the same field, making it difficult to attract educators.</b>	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>	<a href="#">36 CTE Teacher Recruitment Strategies</a>	The Oklahoma Department of Career and Technology Education developed this list of CTE teacher recruitment strategies compiled from expert resources.
<b>The pool of CTE educators is small, making it difficult to hire new instructors.</b>	Identify non-traditional pathways for teachers to earn the necessary credentials to become a CTE educator.	Launch a targeted CTE teacher recruitment campaign to motivate educators and industry	<a href="#">Teach CTE Recruitment Toolkit</a>  <a href="#">Becoming a CTE Teacher in Maryland</a>	ACTE has created this toolkit to raise awareness of CTE teacher shortages and provide tools to build interest in the profession.

		<p>professionals to become teachers.</p> <p>Engage with local industry to pair experienced workers with current to support their development 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>		The Maryland Division of Career and College Readiness has created this guidance document that summarizes teacher certification options for each CTE program of study offered in the state.

**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.	Pair new first and second year CTE teachers with seasoned veterans who can serve as mentors and provide resources and guidance.	<a href="#">CTE TEACH Mentor Programs</a>	The Colton-Redlands-Yucaipa Regional Occupational Program (CA) partners with the California Department of Education to offer mentorship supports and

		Facilitate networking events, conferences, and workshops where CTE educators can connect with colleagues, share best practices, and collaborate on innovative teaching strategies.		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 technical credit simultaneously.	<a href="#">Credit Quandaries: How CTE Instructors can Teach Academic Credit</a>	This document from the Center on Great Teachers & Leaders explores strategies that states and districts are using to enable CTE teachers who lack the necessary credentials to award academic credit for their courses.

**PROBLEM: THE TURNOVER RATE IS HIGHER FOR EDUCATORS WHO IDENTIFY AS PEOPLE OF COLOR.**

Root Cause	Strategy	Sample Activities	Resource	Description
<b>Educators who are nontraditional for their field are not recruited and those who begin are not offered supports to persist in the occupation.</b>	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</p>	<p><a href="#">State and Local Strategies for Diversifying the CTE Educator Workforce</a></p> <p><a href="#">Diversifying the Teaching Profession: How to Recruit and Retain Teachers of Color</a></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</p>

		workplaces and offering mentoring and professional learning communities.		profession overall. Use it to find options that might apply to the CTE workforce.
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## Appendix E: Additional Resources

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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](#)