MARYLAND STATE DEPARTMENT OF EDUCATION
EQUITY AND EXCELLENCE

Mohammed Choudhury
State Superintendent of Schools

To: Members of the State Board of Education

From: Mohammed Choudhury, State Superintendent of Schools

Date: August 23, 2022

Subject: Blueprint Deep Dive: College and Career Readiness Pathways: Apprenticeships

Purpose

To provide a briefing to the State Board of Education on Apprenticeship programs as described in The Blueprint for Maryland's Future and other national context and best practices.

Background/Historical Perspective

The Blueprint for Maryland's Future defines the value of, need for, and directives to expanding apprenticeship opportunities for our high school students across Maryland. The Maryland State Department of Education and other agencies, including the Maryland Department of Labor, are required to promote and oversee the successful implementation of apprenticeship programs.

Executive Summary

The presentation will include a discussion on apprenticeship program opportunities for students, in six sections:

1. Apprenticeship Overview
2. Apprenticeships in Maryland and The Blueprint
3. Student Experiences and Sample Schedules
4. Financial Implications
5. Spotlights
6. Next Steps

Action

No action is required; this information is for discussion only.

Attachments

Blueprint Deep Dive-Apprenticeships.pdf

Blueprint Deep Dive

College and Career Readiness Pathways: Apprenticeships

MARYLAND STATE BOARD OF EDUCATION | August 23, 2022

Presented By | **Mohammed Choudhury**
State Superintendent of Schools

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Apprenticeship Overview

Offering Earn and Learn paid job opportunities with related instruction

What is an Apprenticeship?

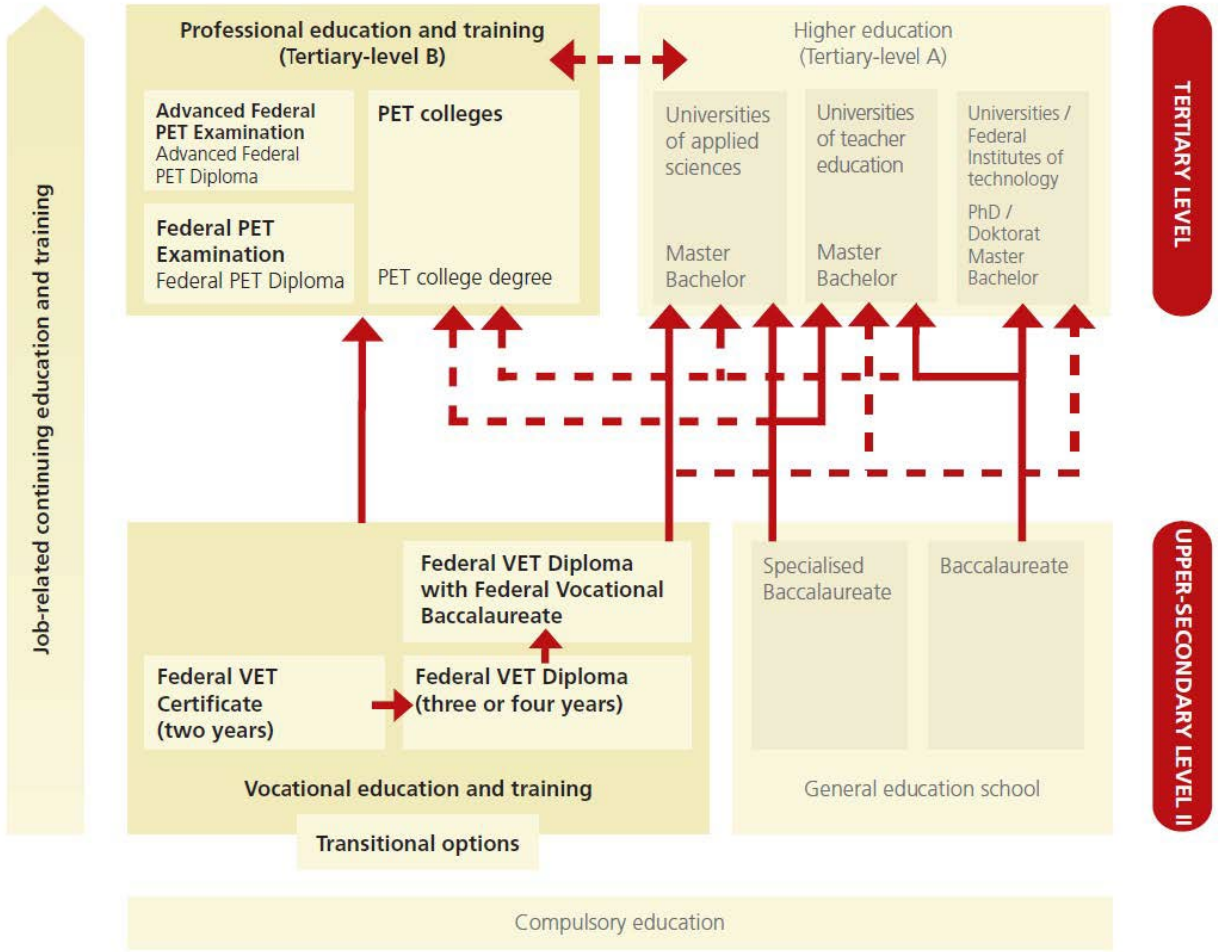
- Apprenticeships **combine paid on-the-job training with classroom instruction to prepare workers for highly-skilled careers**. Apprentices receive a skills-based education that prepares them for good-paying jobs.

- **What are the differences between an apprenticeship and an internship?**
  - **Length of Time:** Apprenticeships are over a significant period (1-3 years), rather than just a few months for an internship.
  - **Structure:** Apprenticeships include a structured training plan, with a focus on mastering specific high-demand skills. Internships often aren't structured and focus on entry-level work experience.
  - **Mentorship:** Apprentices receive individualized training with an experienced mentor who guides them through their entire process. Internships do not always include mentorship.
  - **Pay:** Apprentices are paid a standard wage, similar to any other employee.
  - **Credential:** Apprenticeships often lead to an industry-recognized credential.

https://www.dol.gov/general/topic/training/apprenticeship
https://www.apprenticeship.gov/help/what-difference-between-apprenticeship-and-internship

International Case Study: Switzerland

- The Swiss vocational education and training **(VET) system is recognized around the world as a model** for integrating workplace and academic training.
  - The **VET system serves 70% of young Swiss people** and has strong support from employers across the country.
- Approximately **240 apprenticeship occupations exist**, and over **40 percent of companies participate.**
  - **All parts of society from government to business to education are involved**, and apprenticeships are recognized as a quality route to careers.



https://cte.careertech.org/sites/default/files/files/resources/ncee_gold_standard_swiss_vet_system_2015.pdf

National Case Study: CareerWise Colorado

- CareerWise is a Colorado-based **apprenticeship intermediary that supports businesses, students, and educators** seeking to start programs employing young people as apprentices.
  - The **intermediary matches apprentices to employers** and education opportunities, and helps employers and schools set up the structures to support apprenticeships. CareerWise Colorado has **placed more than 600 apprentices with 179 employers over 5 years.**
- Youth apprenticeships ensure "**students have access to the skills and knowledge they need for financial and academic success, and that businesses have access to highly-trained talent.**"
- Youth Apprentices complete **three-year program**, starting with Junior year of high school.
- Students phase out their time in traditional high school coursework **and phase in more time with on-the-job training** and industry specific coursework.

	YEAR 1	YEAR 2	YEAR 3
HIGH SCHOOL ACADEMIC CLASSES	THE EQUIVALENT OF 3 DAYS PER WEEK	THE EQUIVALENT OF 2 DAYS PER WEEK	NONE
ON-THE-JOB TRAINING	12-16 HOURS PER WEEK	20-24 HOURS PER WEEK	32+ HOURS PER WEEK
ADDITIONAL COURSEWORK PATHWAY- AND OCCUPATION- SPECIFIC INDUSTRY CERTIFICATIONS AND HIGHER-ED COURSEWORK	ON THE JOB UPSKILLING & CERTIFICATION APPRENTICE UPSKILLS FOR SPECIFIC OCCUPATION AND EARNS AN INDUSTRY RELEVANT CERTIFICATION.		HIGHER-ED COURSEWORK APPROVED BY BUSINESS AND APPRENTICE.

https://www.thedenverchannel.com/news/local-news/apprenticeship-programs-in-colorado-help-grow-workforce-give-students-path-to-career
Katz, Batia, and Diana Elliott. 2020. CareerWise: Case Study of a Youth Apprenticeship Intermediary. Washington, DC: The Urban Institute.

The Over-Supply of Credentials

Over half of the most commonly earned credentials are over-supplied

"States often don't know which credentials are valued by employers. Consequently, states don't provide students with the opportunity to earn those that matter most."

Rank	Credential	Credential Type	Credentials Earned	Percent Oversupplied	Supply/Demand Category	State Count
1	Microsoft Office Specialist	Software	129,895	--	Very Undersupplied	19
2	WISE Financial Literacy Certification	General Career Readiness	67,208	100%	Very Oversupplied	7
3	NCCER - Core Curriculum	Certification	60,350	100%	Very Oversupplied	12
4	Adobe Certified Associate	Software	52,189	78%	Supply Meets Demand	19
5	Virginia Workplace Readiness Skills for the Commonwealth	General Career Readiness	42,313	100%	Very Oversupplied	1
6	Basic First Aid	General Career Readiness	36,102	100%	Very Oversupplied	11
7	NCCER - Carpentry	Certification	33,392	100%	Very Oversupplied	14
8	IC3 Certification	General Career Readiness	22,840	100%	Very Oversupplied	13
9	Automotive Service Excellence Certification	Certification	22,726	16%	Very Undersupplied	24
10	ServSafe Certification (Manager/ Food Handler/Allergens/Alcohol)	Certification	21,634	47%	Moderately Oversupplied	20

License · Certification · Software · General Career Readiness · CTE Assessment

No Data · Very Undersupplied · Moderately Undersupplied · Supply Meets Demand · Moderately Oversupplied · Very Oversupplied

Credentials Matter. May 2019. ExcelinEd and Burning Glass Technologies. https://credentialsmatter.org/

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Apprenticeships in Maryland and The Blueprint

Local context and opportunities to expand Youth/High School Apprenticeships in Maryland

History of Youth Apprenticeships in Maryland

- **In 2015**, House Bill 942 **established a pilot program for Youth Apprenticeships** to prepare students to enter the workforce by providing on-site employment training and related classroom instruction needed to obtain a license or certification for a skilled occupation. The pilot **program began in the summer of 2016 and lasted for two years**.
- In 2018, MSDE and the Department of Labor expanded **the Apprenticeship Maryland Program (AMP) to be a permanent state-wide program** as a Career and Technical Education (CTE) Program of Study.
- The Apprenticeship Maryland Program quickly **expanded from the 2 pilot counties to nearly all of the 24 districts** across Maryland.

Partner Organizations

- MSDE
- Maryland Department of Labor
- Local Education Agencies (LEA)
- Maryland Apprenticeship Training Council (MATC)
- Youth Apprenticeship Advisory Council (YAAC)
- Maryland Department of Commerce
- Youth Apprenticeship Sponsors/ Employers
- Blueprint CTE Committee

https://www.dllr.state.md.us/whatsnews/apprexp.shtml
https://news.maryland.gov/msde/apprenticeship-maryland-program-expands/

Youth/High School Apprenticeships in Maryland

- The Apprenticeship Maryland Program (AMP) is a **Maryland CTE Program of Study**
  - LEAs complete the **CTE Program of Study proposal form,** which is an agreement between MSDE and the local school system. Each LEA needs to create a **local advisory committee to oversee the program and develop polices** for its implementation.
- A youth apprentice receives **supervised, structured, on-the-job training from a mentor** in a specific in-demand occupation.
- Youth apprentices **work a minimum of 450 hours** with a certified employer. Participating students typically work during the summer after their junior year and during their senior year.
- Youth apprentices also **participate in a classroom-setting related instruction, as set by the employer.**

Image courtesy of Washington County Public Schools

Steps for an Employer to Sponsor a Youth Apprenticeship

To learn more, go to: labor.maryland.gov/employment/appr/youthappr.shtml

MSDE's Responsibilities

- **Review and approve Apprenticeship Maryland Program (AMP) proposals** and programs of study.
- Conduct **technical assistance visits and remote support** for LEAs.
- **Convene LEA apprenticeship coordinators** on a regular basis through virtual and in-person meetings.
- Work with LEAs to ensure **youth apprenticeship data is collected.**
- Actively **participate in the Youth Apprenticeship Advisory Committee.**
- Assist the Department of Labor in **recruiting youth apprenticeship employers** and determining whether **occupations should host an apprentice.**

LEA Responsibilities

- **Recruit students and employers** to participate in apprenticeships and facilitate the **matching process**.
- **Support students throughout the apprenticeship process**, including all official applications and registration forms.
- **Monitor a student's progress** through the apprenticeship program and provide **counseling or other accommodations** when needed.
- Collaborate with employers to **determine applicable related instruction.**
- Coordinate with MD Labor to **conduct and attend site visits of potential employers.**

Department of Labor's Responsibilities

- **Recruit and coordinate** with employers.
- Provide **technical assistance to employers applying** for approval.
- **Vet all employers** as part of the registration process, including a site visit in conjunction with the LEA.
- **Vet occupations** to determine if they are **apprenticeable**. Apprenticeable occupations are those that **require relevant and definable on-the-job learning** and instruction for a new employee to become proficient.
- **Maintain a database** that lists participating employers by LEA.
- Provide the initial **vetting of wages, safety, and on-the-job learning.**

Employer Responsibilities

- **Interview and hire** youth apprentices for a **minimum of 450 hours.**
- Pay youth apprentices **minimum wage or higher.**
- **Instruct** youth apprentices in the **required competencies** for position.
- **Provide safety instruction** in work practices.
- **Assign a mentor and skilled trainers** to work with the youth apprentice.
- Allow **release time from work for mentors and trainers** to attend relevant trainings or meetings.
- Work with the school system coordinator to **identify the classroom-related instruction.**
- **Sign and comply with the requirements in the youth apprenticeship agreement.**
- Comply with all applicable **state and federal child labor laws and regulations.**
- Extend an **offer of employment to the youth apprentice upon completion**. (Strongly **encouraged, but not required**.)

Blueprint Policy Area 3: College and Career Readiness

- Sets a new **College and Career Readiness standard** after a rigorous research study is conducted.
- Develops **Post-CCR pathways** to advance learning and earn a credential. Once a student meets the CCR Standard, they enter a pathway:
  - IB Diploma, AP program, or Cambridge AICE Diploma
  - Dual enrollment or early college program
  - Career and Technical Education (CTE) program
- Expands the **CTE system** that is aligned with industry's needs
  - CTE programs, **including apprenticeships**, are developed in consultation with employers, trade associations, labor organizations, community colleges, etc. through a new CTE Committee
- Develops **CCR-support pathways** for students to achieve the CCR standard

Career and Technology Education (CTE) Committee

- Establishes a new **CTE Committee** within the Governor's Workforce Development Board.
  - Members include representatives from the Departments of Education, Labor, and Commerce; the Higher Education Commission; labor organizations; trade associations; and other experts.
- **Post-CCR Pathways create connections to the workforce** and for students to earn meaningful credentials while still in high school.
- Sets yearly incremental **statewide goals to achieve 45% of high school students completing an apprenticeship** or industry credential by 2030.
- **CTE Committee helps to oversee** successful implementation of these initiatives.

45% Goal

(a)(1) On or before December 1, 2022, the CTE Committee shall establish, for each school year between the 2023-2024 school year and the 2030-2031 school year, inclusive, statewide goals that reach **45% by the 2030-2031 school year, for the percentage of high school students who, prior to graduation, complete the high school level of a registered apprenticeship or an industry-recognized occupational credential.**

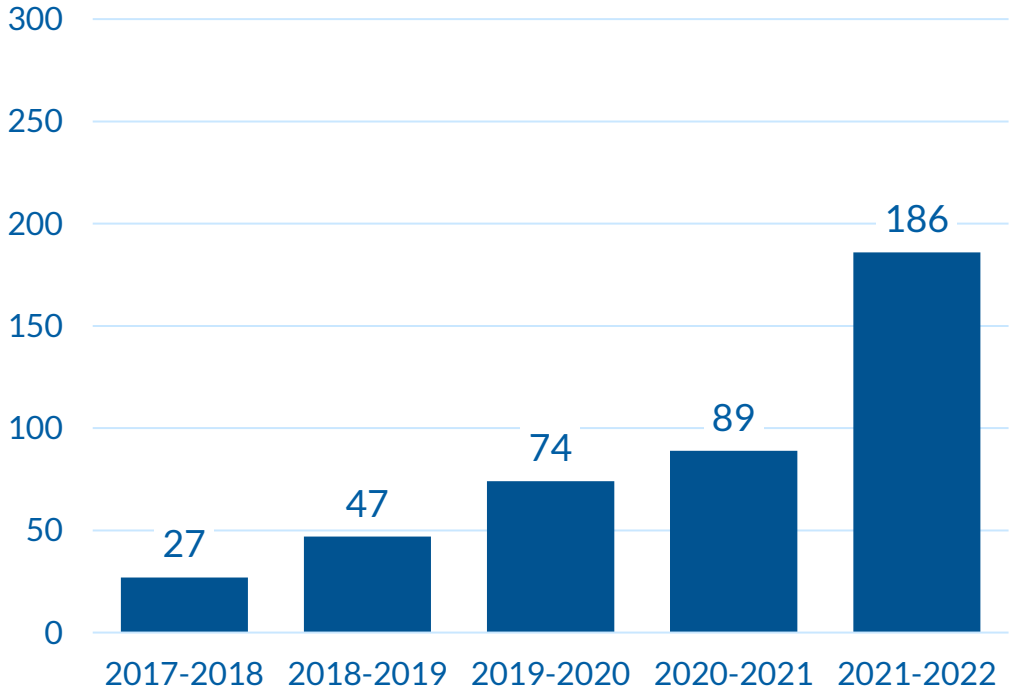
(2) To the extent practicable, the CTE Committee shall ensure that the **largest number of students achieve the requirement of this subsection by completing a high school level of a registered apprenticeship program** approved by the Division of Workforce Development and Adult Learning within the Maryland Department of Labor.

- In 2021, Maryland had **57,423 graduates.**
- To meet the **45% goal, 25,840 of these graduates** would have needed to complete an apprenticeship or industry credential.
- **In 2021, about 7% of graduates met these criteria.**

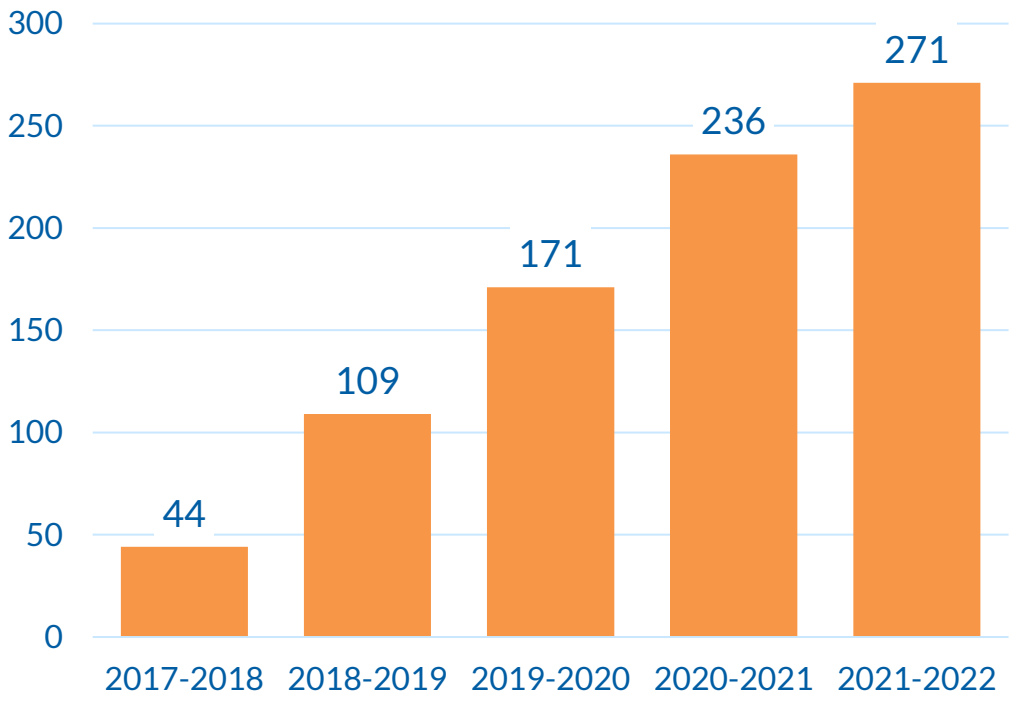
MD Code, Education, § 21-204

Expansion of Youth/High School Apprenticeships

Number of Students Participating in Apprenticeships

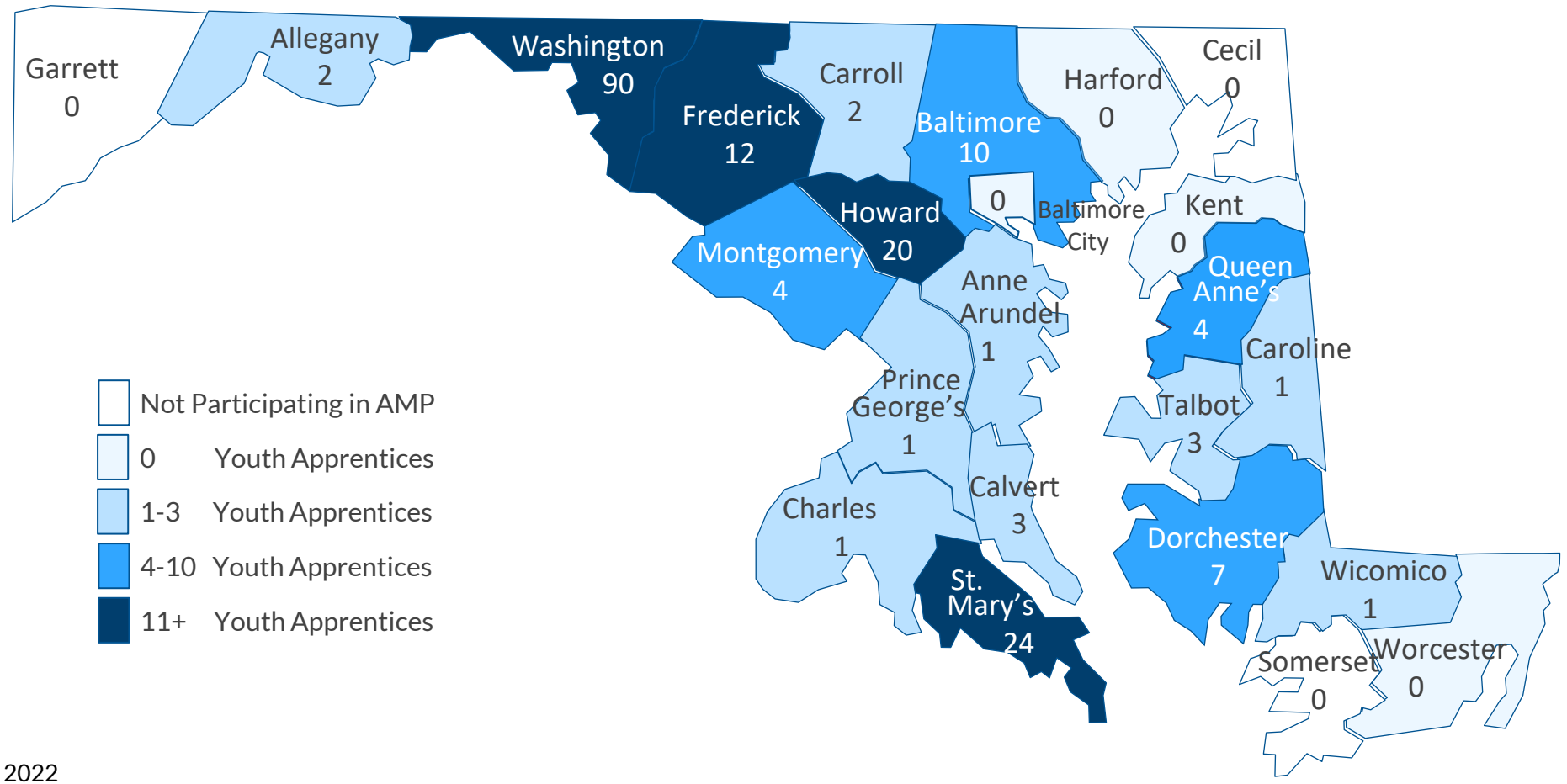


Number of Employers Participating in Apprenticeships



Data as of June 24, 2022

Youth Apprentices by County



Data as of June 24, 2022

Industry Sectors of Employers for Youth/High School Apprentices

Industry Sector	*# of Youth Apprentices*	*% of Total*
Manufacturing	41	22.0%
Construction	36	19.4%
Education	29	15.6%
Healthcare	22	11.8%
Hospitality and Tourism	14	7.5%
Automotive	12	6.5%
Transportation and Logistics	5	2.7%
Government	4	2.2%
Architecture	2	1.1%
Engineering	2	1.1%
Aeronautics	1	0.5%
Association Management	1	0.5%
Business	1	0.5%
Finance, Banking and Real Estate	1	0.5%
Furniture Repair	1	0.5%
Information Technology	1	0.5%
Total	**186**	**100.0%**

Data as of June 24, 2022

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Student Experiences and Sample Schedules

Expanding opportunities for students to participate in academics and apprenticeships

Student Apprentice Sample Schedules: Dorchester County

- Student A takes **English and Mathematics at Chesapeake College on Mondays and Wednesdays** and **works at their apprenticeship the remainder of the week**.
  - Additionally, they are a student athlete playing Volleyball (Fall) and Softball (Spring).
- Student B **attends a Computer Aided Drafting Design (CADD) program Monday, Wednesday, Friday at Dorchester Career and Technology Center** (8:00-10:30 am).
  - On **Tuesday/Thursday, they report directly the apprenticeship site** at 8:00 am.
  - They take academic core classes **at their high school Monday-Friday** 11:10 am – 12:30 pm.
  - Depending on the project they are working on at the apprenticeship location, they **may return to the work site in the afternoon, or their mentor may allow them to work remotely to conserve gas**.

Student Apprentice Sample Schedules: Frederick County

- Frederick County Public Schools students have **four classes each day** as part of a **semester block schedule.**
- **Most youth apprenticeship students** use the following schedule:
  - **Attend classes in the morning** for Blocks 1 & 2 (7:30-10:30 am)
  - **Work at their youth apprenticeship for Blocks 3 & 4**, continuing after the school day as well (11:00 am – end of workday).
    - The **exact schedule depends on the individual student and employer**. The expectation is to be at the jobsite at least 3 hours each day.

Student Apprentice Sample Schedules: Howard County

- Student apprentices **typically attend work first thing in the morning**, 6:00-11:00 am, and **then go to their high school for English and Math courses in the afternoon.**
  - Alternatively, **students will go to school first and then go to work in the afternoon.**
- The student's **exact schedule will depend on the industry and employer** and what time they are most needed.
  - Students also have the **option to take their graduation requirement classes at Howard Community College.**

Student Apprentice Sample Schedules: St. Mary's County

- Each student **receives an individualized schedule to accommodate the apprenticeship hours and course schedules.**
- Student A will **take English and Math at their high school during periods 1 and 2 and then leave for their apprenticeship.**
- Student B may go to the **Forrest Center for their CTE courses for periods 3, 4, and 5**. They then **leave for their apprenticeship after period 5** (about 12:15 pm).

Student Apprentice Sample Schedules: Washington County

- There are three scheduling options for Student Apprentices:
  - Student A may **attend school for two or three morning periods** for required core academic or CTE classes, and **then attend their apprenticeship in the afternoon.**
  - **Student B is on an alternating schedule**, taking their core **academic courses on A Day** and every other Friday, and **CTE courses on B Day** and every other Friday.
  - Student C **will attend school full day and attend their apprenticeship on employer's 2nd shift in the afternoon.**

Reimagining Student Schedules

- These **examples of the flexibility** needed to balance the different components show how a school and a student can **work together to make an apprenticeship happen**.
- As a state, **Maryland needs policies that support LEAs to be creative and strategic at scale** to maximize students' **apprenticeship opportunities** while finishing high school successfully.
  - The State Board and MSDE are **committed to ensuring that this policy landscape exists**.
- **Possible innovations** to support students include:
  - Altering the **length of a course** (e.g., semesterizing a one-year course, etc.).
  - Offering **virtual courses**, either synchronously or asynchronously.
  - Scheduling courses **outside of the normal school day.**
  - **Coordinating with the community college** to offer courses there.
  - Encouraging **working at the apprenticeship during the weekend,** when appropriate.
  - Hiring **apprentices at the LEA** central office (e.g., Graphics and Printing, Operations, etc.)
  - Earning **high school credit over the summer.**

District Spotlight: Montgomery County's TranZed Academy for Working Students (TAWS)

- The TAWS program **helps working high school students** prepare for life after graduation through **flexible school schedules and career coaching**. The program is designed to **build on a student's strengths while accelerating their career path**, enabling students to work more hours and earn more money. Each student also works one-on-one with a **career coach to design Individual Career Plans.**
- TAWS is built on several pillars. These include:
  - **Flexible study options and scheduling**, including online, face-to-face, and early college classes, or a combination.
  - **Self-paced curriculum** for students to learn at their own pace.
  - **Career coaching** to help students explore their career, as they learn and earn.
  - On-demand **academic support** through tutoring.
- Students are concurrently enrolled at their home high school and in the TAWS program, allowing them to **benefit from the education and support services of both facilities.**
- TAWS has helped over **100 students graduate over the past 5 years.**

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Financial Implications

Direct and indirect costs to consider and address

Financial Implications

- To implement an apprenticeship program, there are **a few direct and indirect costs** that are **manageable, but must be considered and addressed**. Below is a list of some costs that **may be incurred depending on the specific apprenticeship**. This list is not exhaustive, and other costs may also apply in different circumstances.

- **Costs for the student:**
  - Uniforms and personal safety equipment
  - Background checks
  - Driver's license, transportation, gas, etc.
- **Costs for the employer:**
  - Related instruction courses
  - Time investment to mentor and train the apprentice
  - Additional stipends for mentors

- **Costs for the school/district:**
  - Safety and certification courses for the student
  - Stipend to teachers for teaching outside of the school day
  - Additional compensation and operational costs for implementing flexible scheduling

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Spotlights

Getting to know a few Youth/High School Apprenticeship participants

Student Spotlight: Suzanne H.

Brunswick High School

- Completed an **apprenticeship with Insul-Tech, which insulates commercial and industrial ductwork**, during her senior year.
- At Insul-Tech, she apprenticed as an estimator, completing **nearly 40 individual jobs during the school year.**
- She had previous experience though the **Frederick County Career and Technology Center, where she studied architecture** and worked with blueprints.
- She graduated **in 2016 and continues to work part-time at Insul-Tech** while attending WVU.

INSUL-TECH INC.

COMMERCIAL & INDUSTRIAL MECHANICAL INSULATION

Student Spotlight: Alan Y.

Queen Anne's High School

- Completed an **apprenticeship with Dixon Valve, a valve manufacturing company**, during his senior year.
- At Dixon Valve, he apprenticed as a **machinist on all the manufacturing equipment.**
- He was a **third-generation employee** at Dixon Valve.
- He received **online training** through ToolingU.
- He graduated **in 2020 and is attending Delaware Technical Community College and plans on returning to Dixon Valve upon graduation.**

Student Spotlight: Tre'Shaun C.

Cambridge South Dorchester High School

- Completed an **apprenticeship with Quevera, which provides custom software solutions to government customers**, during his junior and senior year.
- At Quevera, he was a member of the administrative support team as **entry level IT support.**
- He worked on commercial contracts including **website development and maintenance and mobile app development.**
- He graduated **in 2022 and continues to work part-time at Quevera** while starting at Morgan State University**.**

Quevera

Discovering the Truth behind the Question

Employer Spotlight: Dynamic Auto

- Dynamic Auto, in Frederick Maryland, needed **highly educated technicians to maintain and repair the vehicles of today and tomorrow.**
- They have robust High School and adult Apprenticeship programs, which are the **exclusive options for recruiting talent.**
- Their High School Apprenticeship Program is the **door for someone that is considering a career in the Automotive Repair and Service industry.**

"There are more lines of computer code in today's car than in the F35 strike fighter, a lot more."

https://dynamicautomotive.net/about/apprenticeship/

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Next Steps

Continuing to support apprenticeships across Maryland

Next Steps

- MSDE is committed to **ensuring that apprenticeship opportunities** are available for **all high school students in a high-growth and high-demand industry**. To achieve the 45% goal by 2030, Maryland will need a **coordinated concerted effort to expand opportunities**. MSDE's role in this effort will include:
  - Working closely with the Department of Labor and the CTE Committee to **encourage and incentivize employers to register as a sponsor.**
  - Supporting school districts to **develop schedules that facilitate the flexibility needed to complete the apprenticeship and graduation requirements.**
  - Prioritizing that apprenticeship opportunities are **focused in high-growth and high-demand industries.**

Maryland Public Schools Strategic Planning Survey

This survey is intended to allow everyone in the state to provide information that will be the basis for transformative change.

Please use this survey as an opportunity to share your thoughts.

MarylandPublicSchools.org/Survey

More information is available at: MarylandPublicSchools.org/Blueprint

Connect with the MSDE *Blueprint* implementation team: Blueprint.MSDE@Maryland.gov

Questions