

Maryland's System of CTE:

Promoting College and Career Readiness

Maryland Commission on Innovation and Excellence in Education

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P-20 System of Education



*Every step along the pathway is crucial
to making each student's future a
success*

Employment: Career Advancement

Continuing education and lifelong learning

Post-secondary: Career Preparation

Achieving credentials: college, certifications, apprenticeships, military

9–12: Career Preparation

Participating in academic and technical courses with guidance on graduation plans

8: Transition

Choosing a program of study and a career major (can change as a student matures)

6–8: Career Exploration

Discovering interest areas, identifying an educational path aligned with interests

K–5: Career Awareness

Learning about the world of careers and the ways in which people make a living



CTE: High Quality Pathways Leading to Career & College Readiness



- Programs must include a sequence of courses (at least 4 credits) leading to advanced career entry and further study.

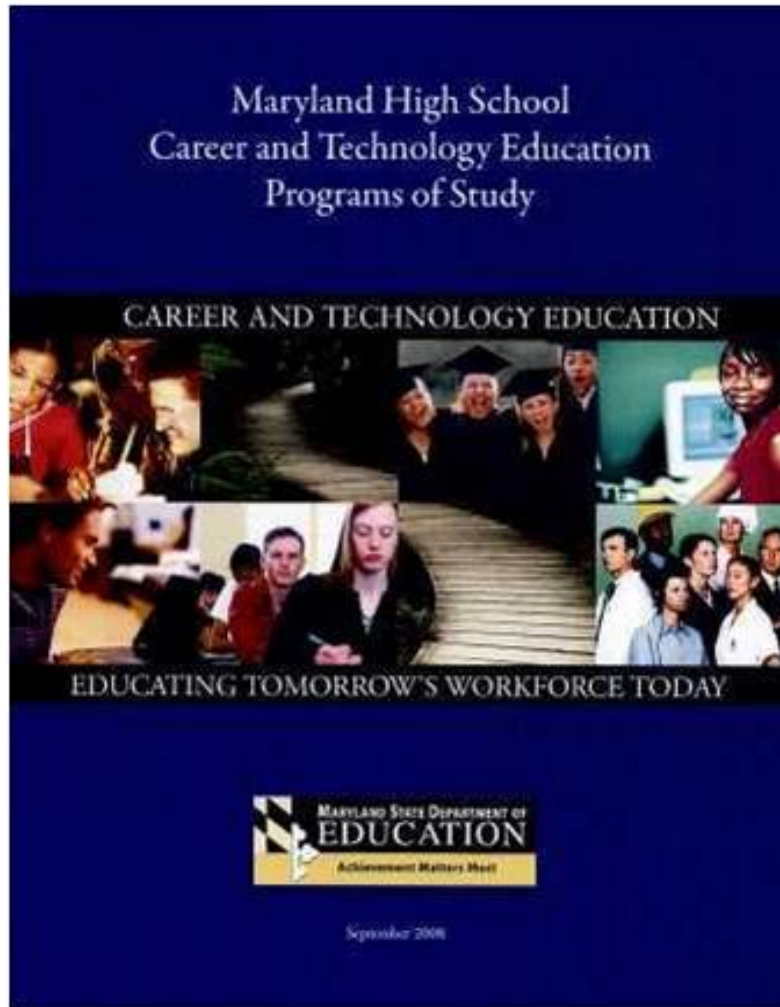


- All programs must be state-approved. Local school systems adopt/develop and administer programs in partnership with community colleges and industry/business.



- Federal funding is used for new program development, improvements, and professional development.

10 CTE Career Clusters

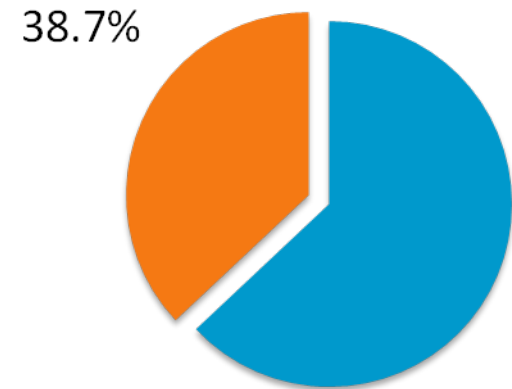


- Arts, Media, & Communication
- Business, Management & Finance
- Construction & Development
- Consumer Services, Hospitality, & Tourism
- Environmental, Agricultural, & Natural Resources Systems
- Health & Biosciences
- Human Resource Services
- Information Technology
- Manufacturing, Engineering & Technology
- Transportation Technologies

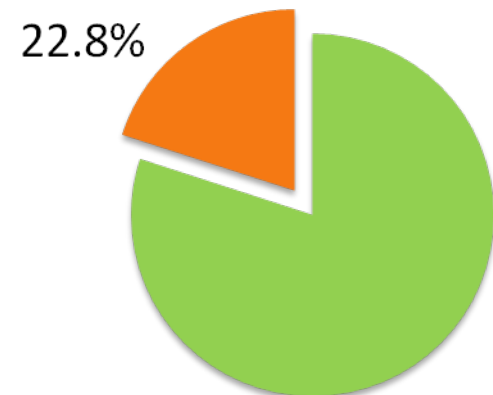
Quick Facts About Maryland CTE - 2016

- 98,857 or more than one third (38.7%) of all high school students enrolled in 148 CTE programs in 237 high schools
- 22.8% of the class of 2016 completed a CTE program of study (13,258)
- 58% of the CTE graduates also completed the coursework for entrance to USM, this is a “Dual Completer” (7,703)

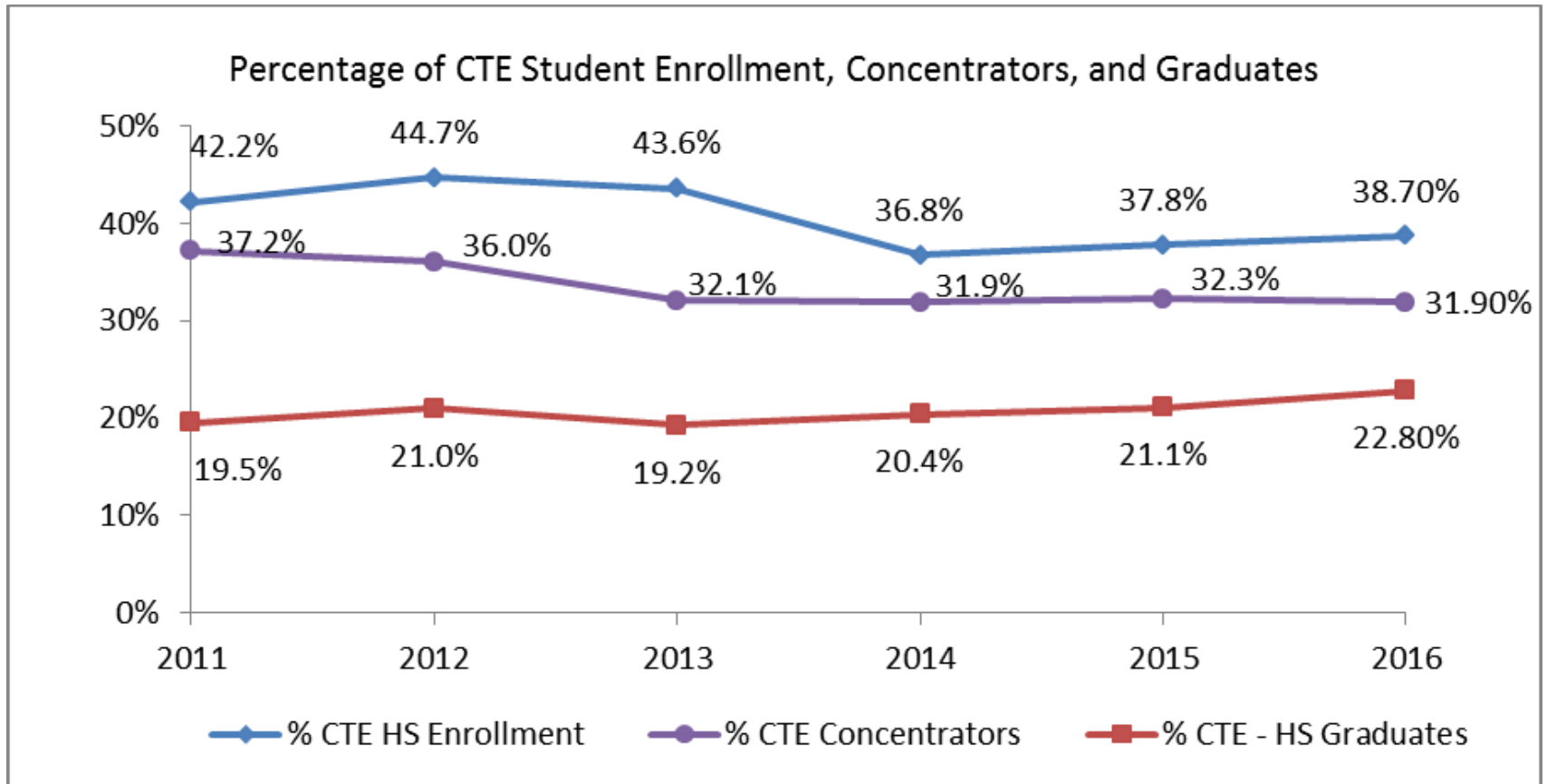
Percent of High School
CTE Enrollment



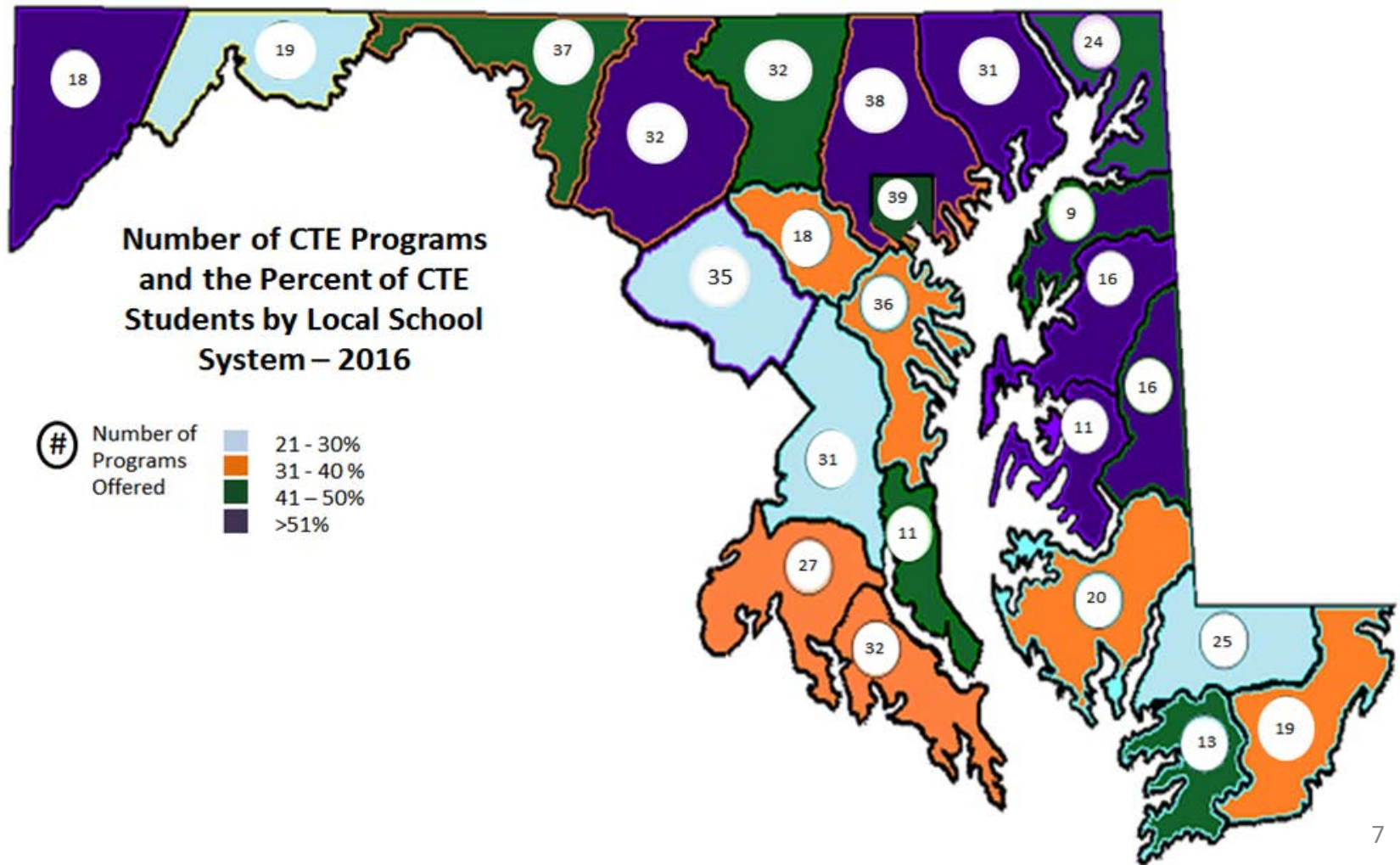
Percent of High School
CTE Graduates



Career Exploration Through Career Preparation

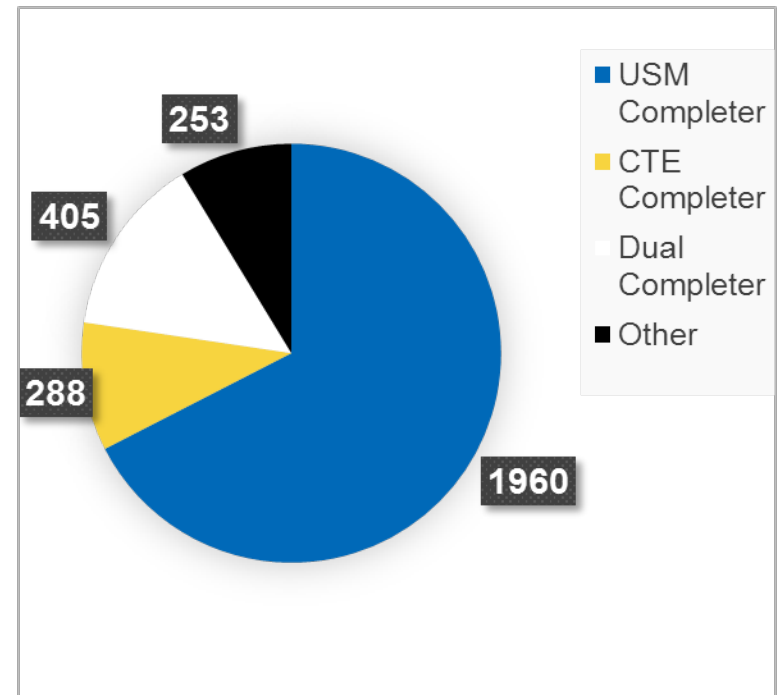


A Key Component of the High School Experience



Quick Facts About FCPS CTE

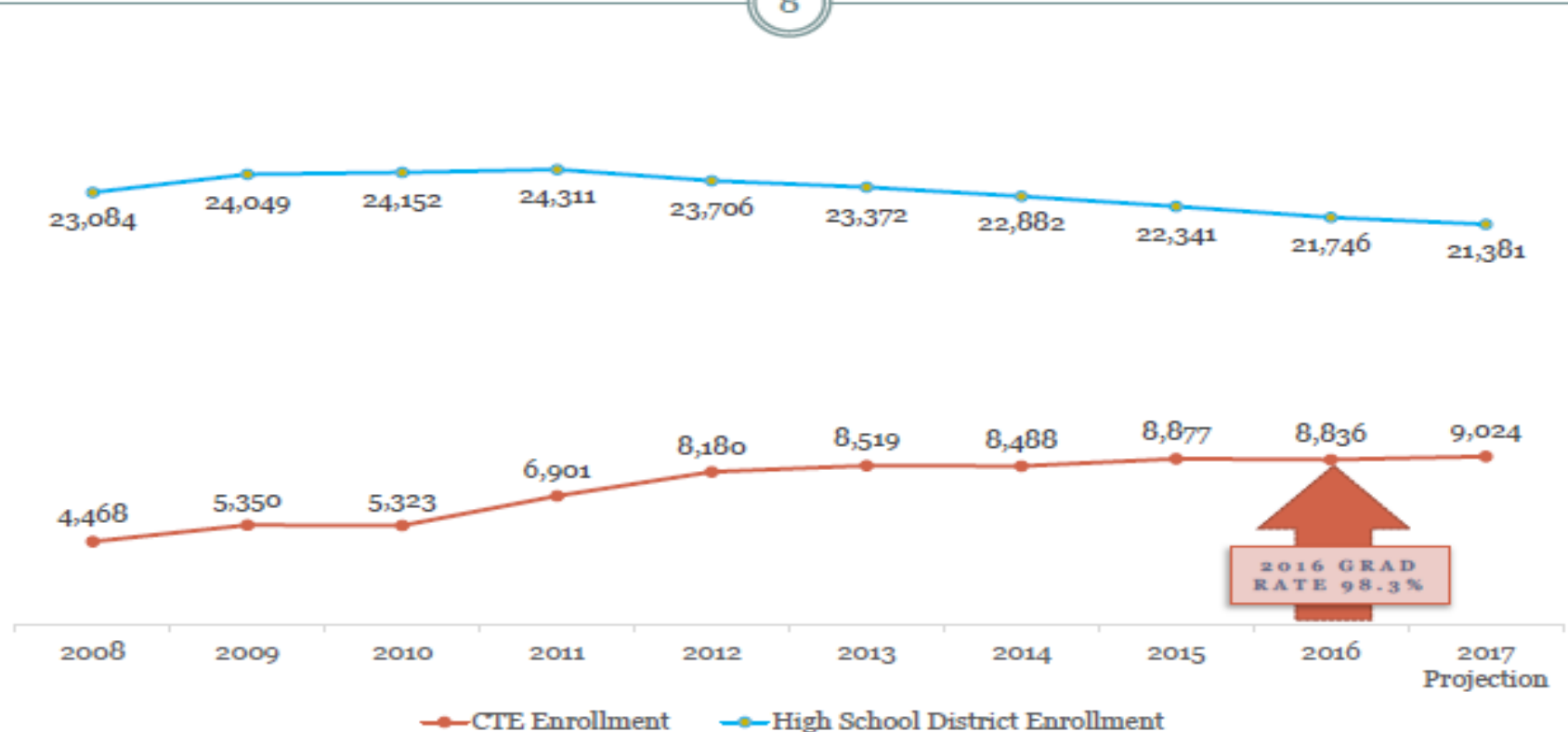
- More than half (56.4%) of HS students participate in CTE
- 24% of the Class of **2016** completed a CTE program of study (693 out of 2906)
- 59.7% of the CTE graduates also completed the coursework for entrance to USM, this is a “Dual Completer” (405)
- 93.37% CTE Concentrators earn Industry Certifications



Increasing Enrollment in CTE

CTE Enrollment vs High School Enrollment

8



CTE enrollment Data is per official submissions to MSDE and is reported as posted on mdctedata.org. The MSDE CTE data reporting cycle is on a one year lag. Official data is as of school year 2015-16. High School district enrollment data is current through school year 2016-17 and is per official September Enrollment submissions to MSDE.

Benefits of the “New” CTE

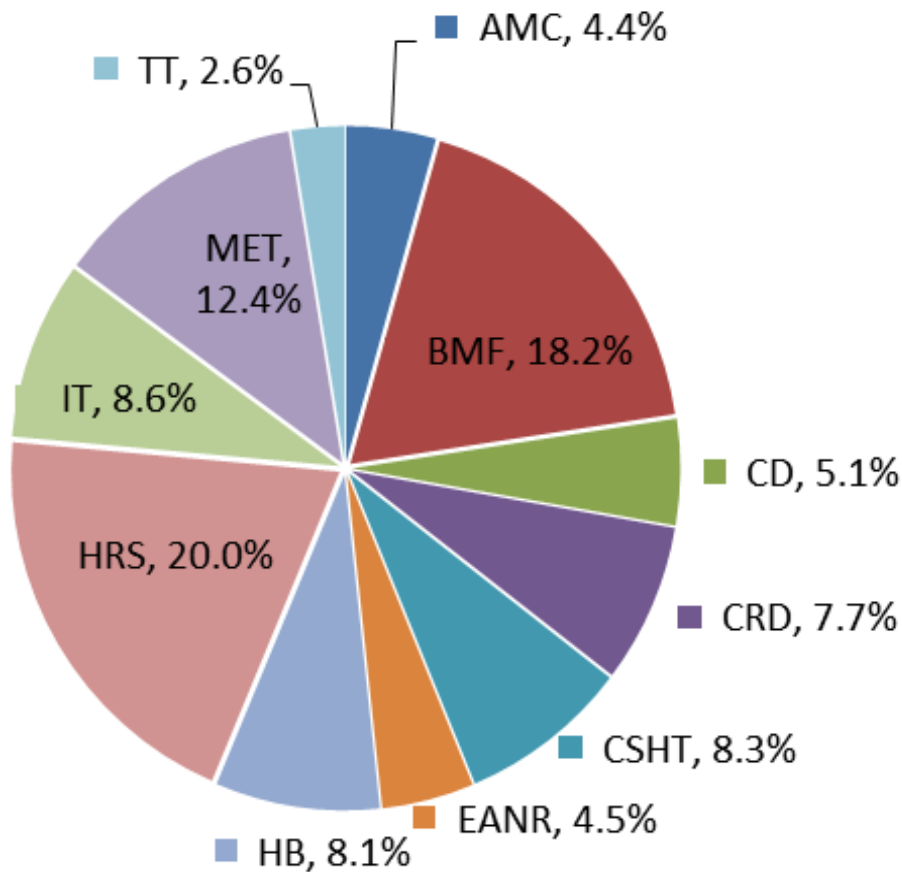
Students

- CTE and College Prep Academic Curriculum
- Sequenced Program of Study
 - Typically 4 Credits
- Value-Added Options:
 - Industry Recognized Credentials and/or
 - Early College Credit
- Work-Based Learning Experiences
- Leadership Skills – CTE Student Organizations

Stakeholders

- Standardized program design and delivery
- Industry partnership support for program implementation and improvement
- Statewide professional development opportunities
- Industry recognized certifications and licenses
- College credit and program articulation

CTE Provides Options and Opportunities

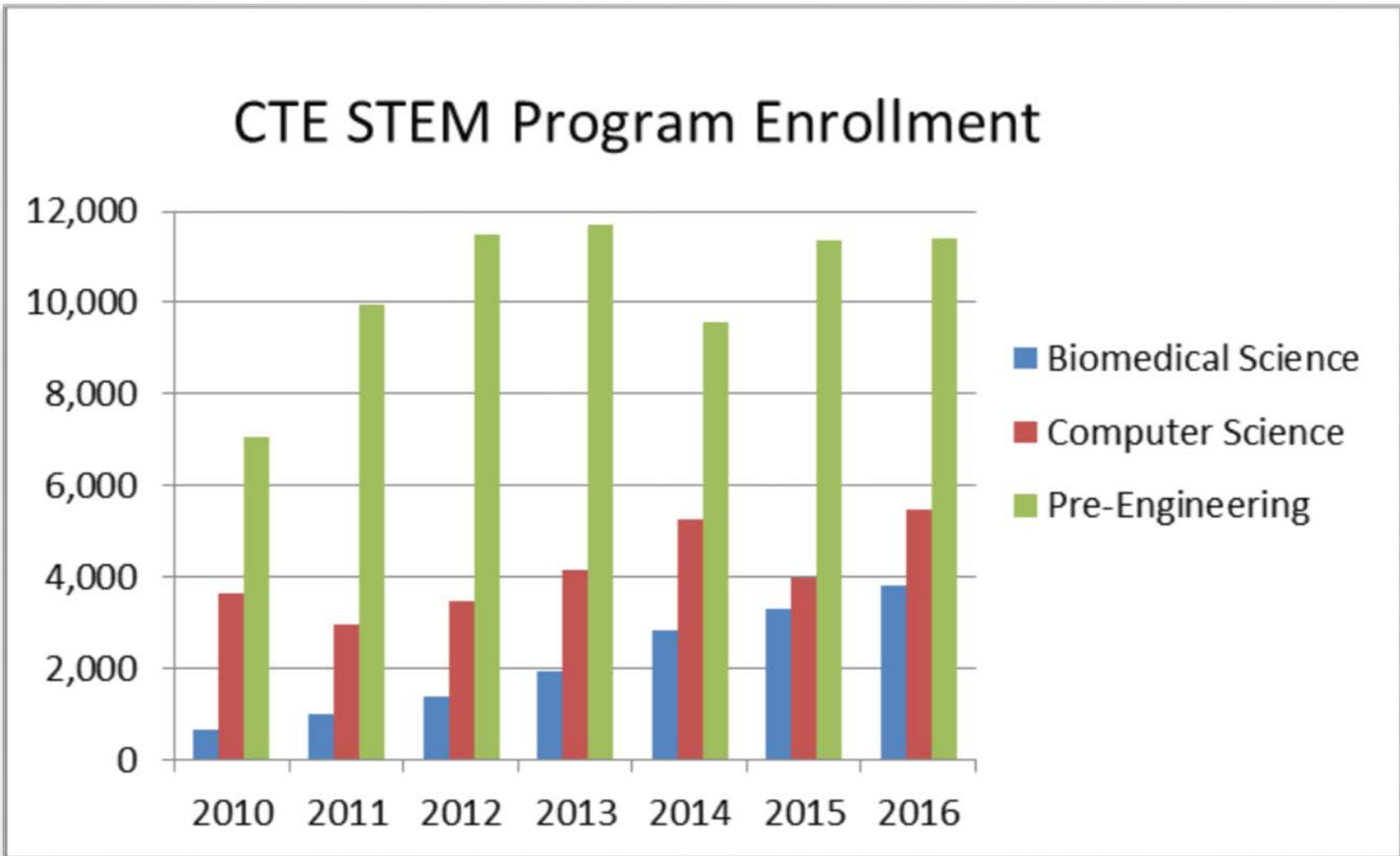


Statewide enrollment
by Career Cluster:

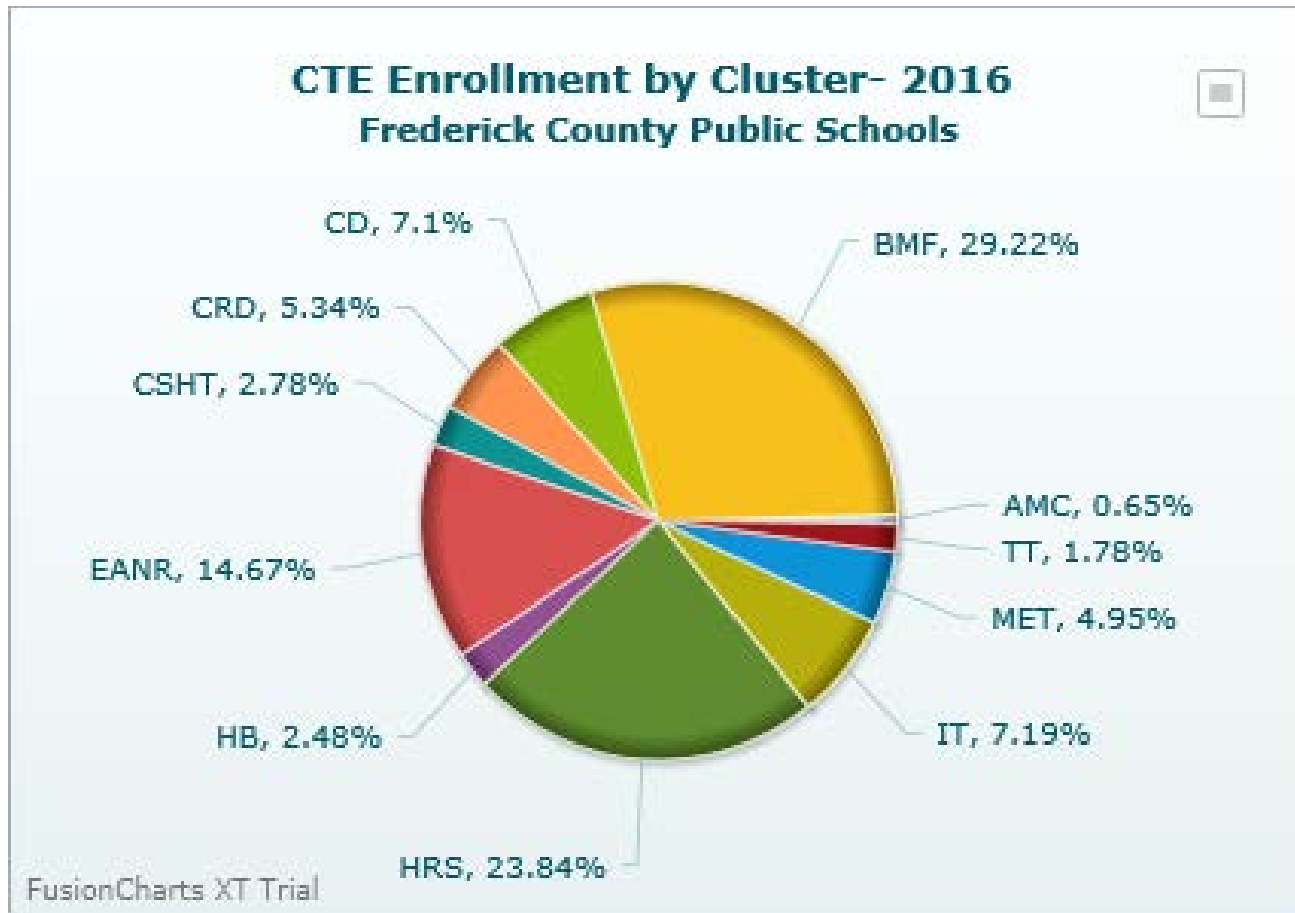
- *97,857 students*
- *148 programs*
- *237 high schools*

For more information, please visit: MDctedata.org

Aligning to High Growth Industries



Adapting Programs of Study to Meet Labor Demand

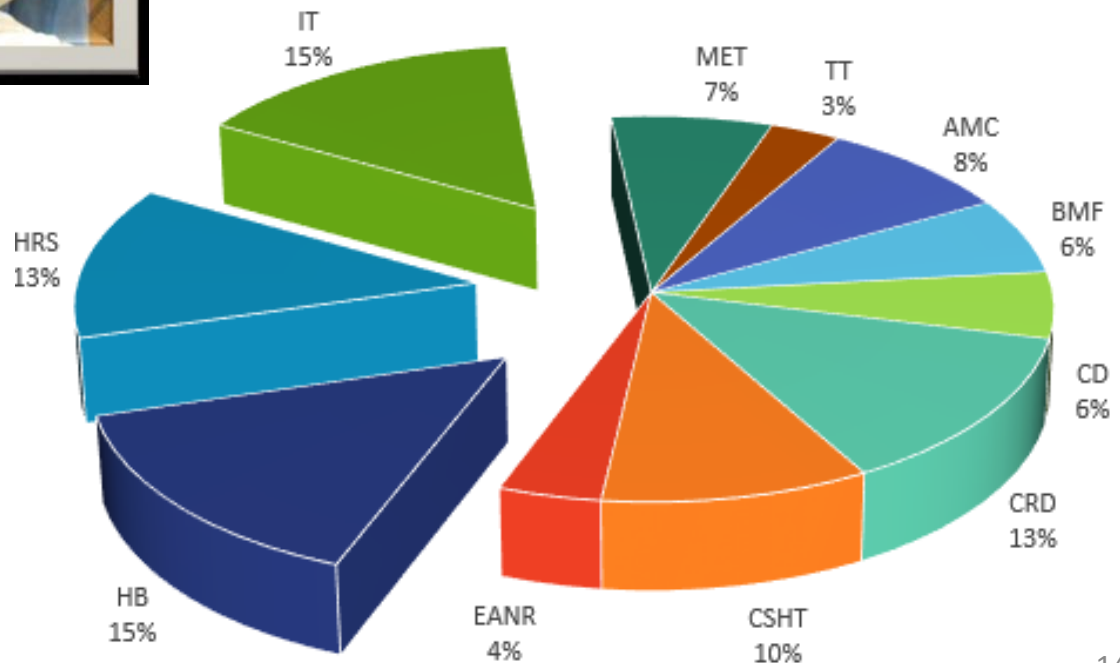


- Business Management and Finance - BMF 2,036
- Human Resource Services - HRS 1,661
- Environmental, Agricultural and Natural Resources - EANR 1,022
- Information Technology – IT 501

High Skill High Wage Options

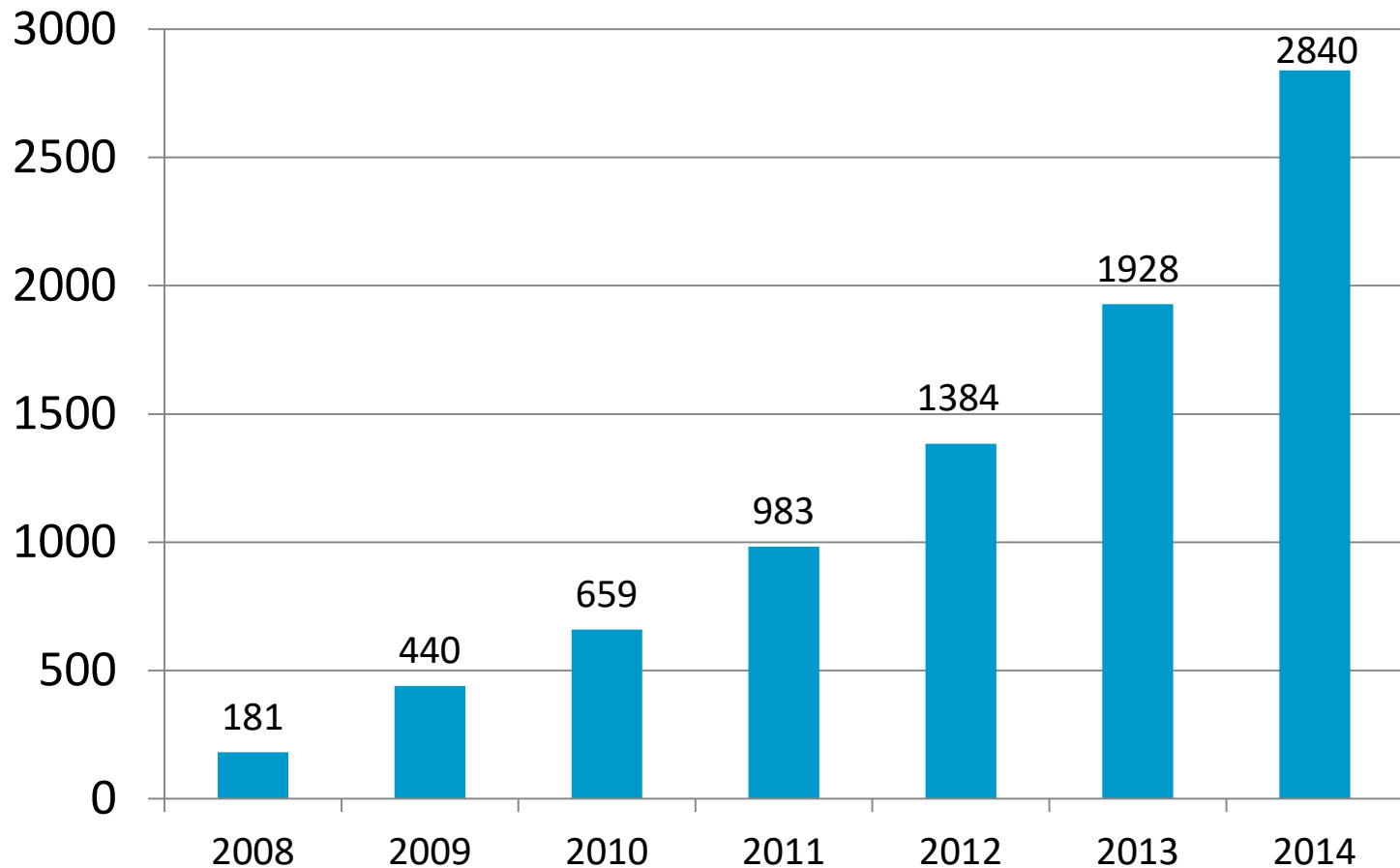


- Health and Bioscience
- IT and Computer Science
- Human Resource Services (Law and Leadership)



PLTW Biomedical Sciences

Statewide Enrollment in Biomedical Sciences (PLTW) 2008-2014



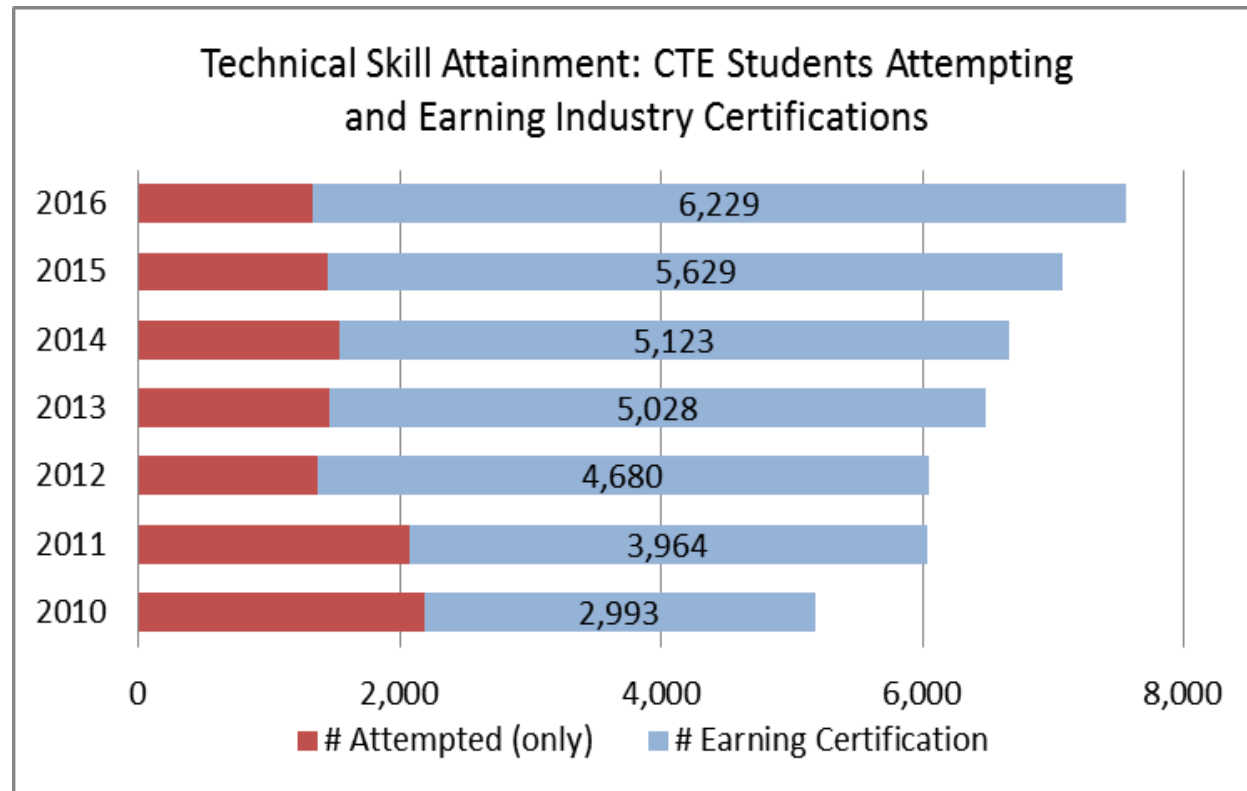
Supporting CTE Teachers

- Professional Development for teachers of State-approved programs through CTE Program Affiliates
- Access to Blackboard Resources and Professional Learning Communities
- Peer Instruction and Sharing of Best Practices





Programs are Aligned to Industry Standards and Economic Opportunity



82.4%
pass

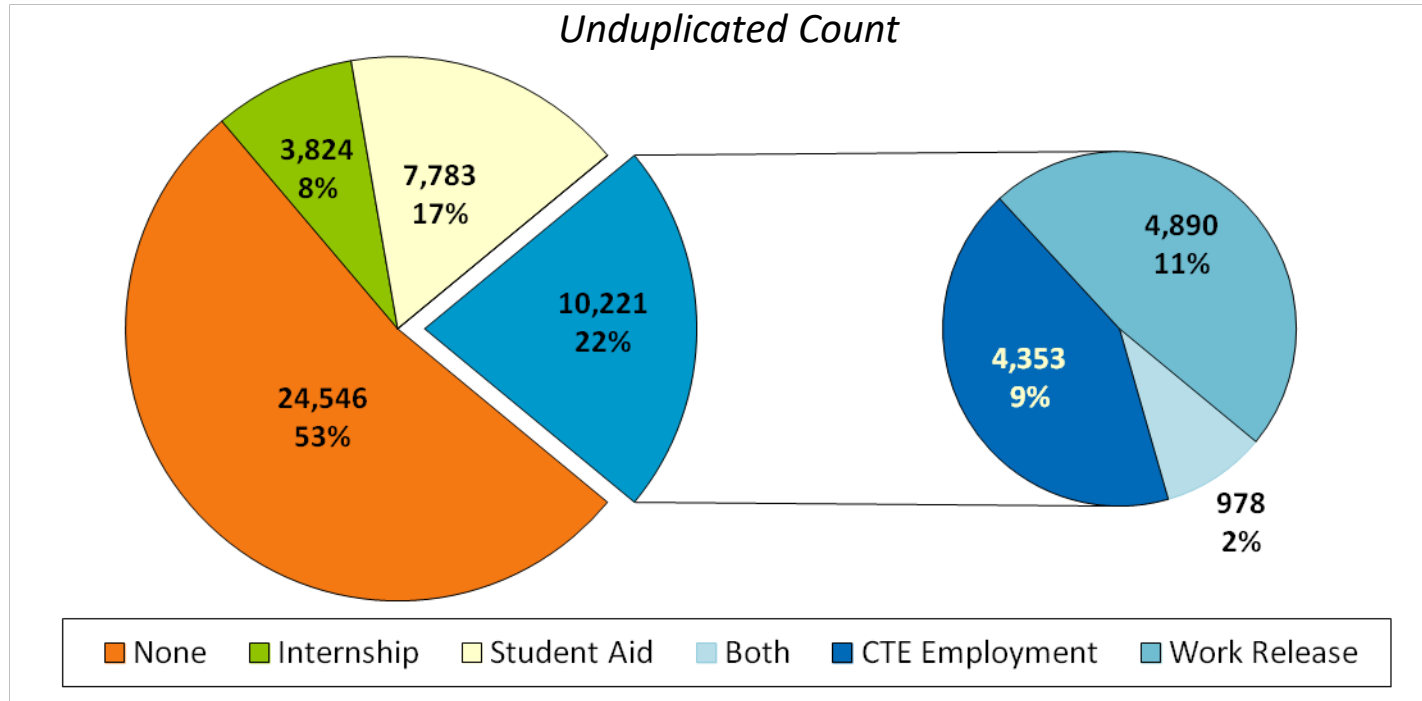
All programs include opportunities for students to earn industry certifications and/or early college credit

Work Experiences of Grade 12 Students

- New data collection includes course-level information if Work-based Learning (WBL) is part of the high school program.
- MSDE Graduate Survey is administered within 45 days of graduation (82% response rate).

12th Grade Student Work Experience – 2015

Unduplicated Count





Career Development and Work-based Learning

- CTE programs include options for supervised work-based learning through:
 - internships
 - mentorships
 - youth apprenticeships
 - school stores
 - clinics
 - live-work performed in CTE classrooms
 - Career Research and Development (CTE Program of Study Consisting of work experience and two in-school courses)
- More than 12,000 students participate in leadership and skill development activities in Career Technology Student Organizations





Frederick County Public Schools

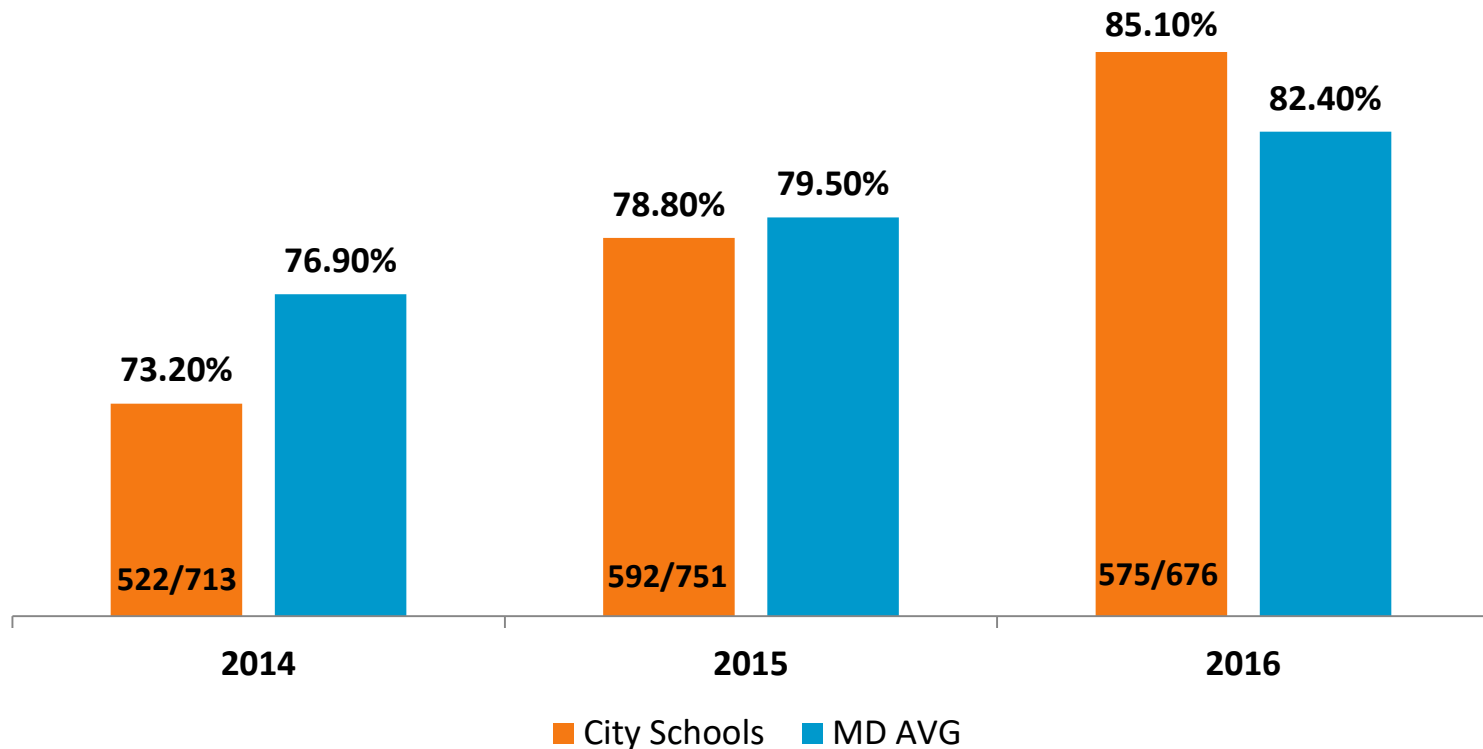
Reach. Challenge. Prepare.

Guided by Partnerships



Career Ready in City Schools

CTE Performance Indicators *Technical Skills Attainment



* CTE GRADUATES

Work-Based Learning Options

- Program completers are required to participate in a WBL experience
- Links classroom experiences with career tasks
- Students gain professional skills desired by future employers
- Resume building



**Industry Field
Trips**

Guest Speakers

Job Shadow Days

Mentorships

Internships

**Youth Works/
Externships**

**Pre-
Apprenticeships**

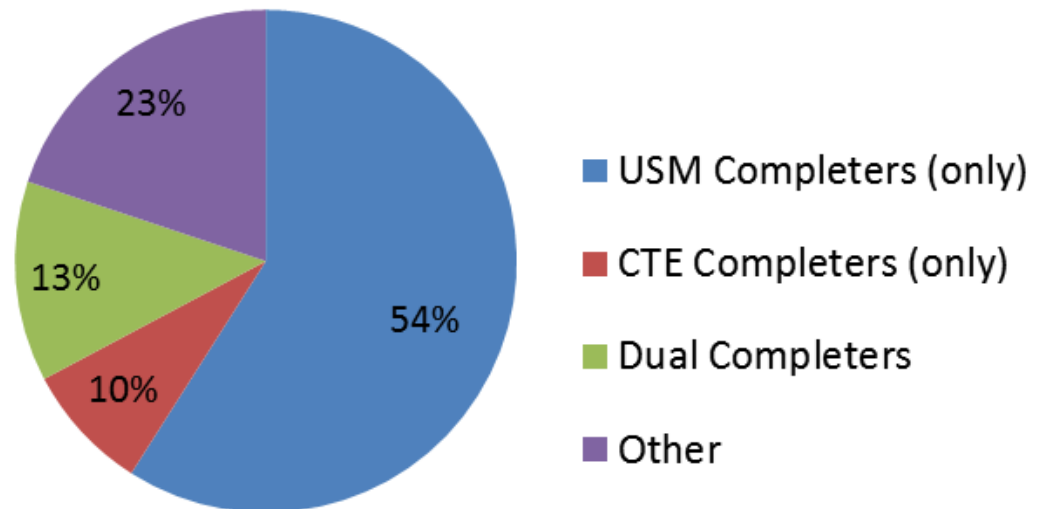
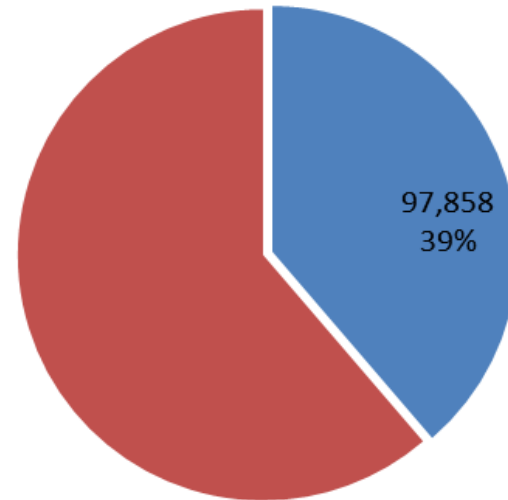
Work-Based Learning Options

- Fire Fighter and Emergency Medical Technician – approximately 4,500 training hours at the Fire Academy
- Academy of Health Professions – approximately 7,300 clinical hours at local hospitals, pharmacies, and nursing homes
- Cosmetology Students average 1,500 clinical hours (per student) to meet Board exam requirements.
 - 150+ Internships
 - 130+ Guest Speakers
 - 120+ Mentors
 - 100+ Field Trips
 - 60+ Job Shadowing Events



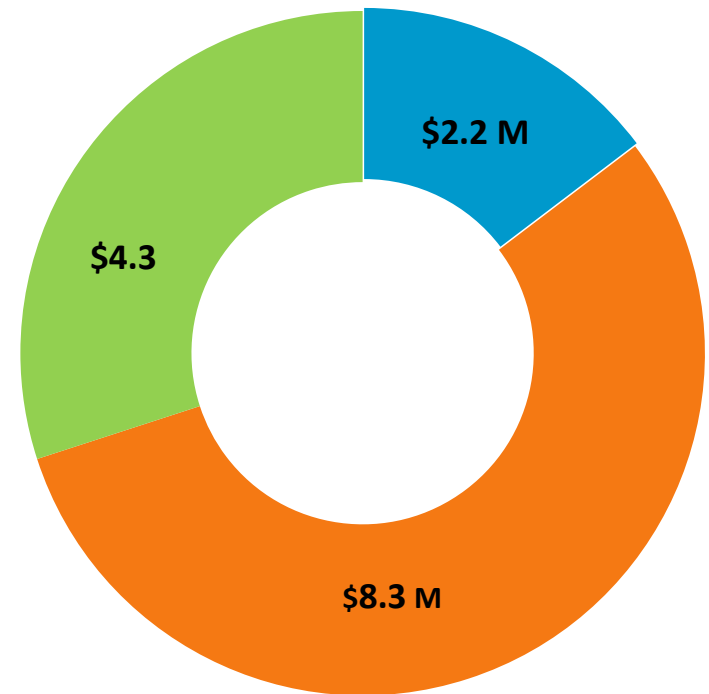
Quick Facts About Graduates

- More than one third (39%) of all high school students enroll in CTE courses (97,857)
- 23% of the Class of 2016 completed a CTE program of study (13,258 out of 58,042)
- 54% of graduates completed only the USM entrance requirements
- 10% of graduates completed only a CTE program



Federal Funding for CTE

- Federal appropriation comes from the Carl D. Perkins Career and Technical Education Improvement Act of 2006
- MD received \$15,086,746 in federal funds in FY 2016 (a 2% increase over 1999 or \$14,812,307).
- Thus, Perkins has been relatively flat funded for almost 20 years.
- 85% goes to eligible local recipients (24 school systems and 14 of 16 community colleges)
- Funds are to improve and upgrade state-approved CTE programs, provide professional development (may not go toward maintenance)



- MSDE Administration and Leadership
- Local School Systems
- Community Colleges

Apprenticeship Maryland Pilot Program

- Is for students ages 16 and up
- Designed to lead to sustainable employment and further education in STEM occupations and manufacturing

Participating Students:

- Start the program in the summer or fall of their junior or senior year in the program
- Complete at least 450 hours of work-based training under the supervision of an eligible employer and at least one year of related instruction

Apprenticeship Maryland Pilot Program



What is the Goal? The goal of Apprenticeship Maryland is to create compensated, high quality youth apprenticeships that prepare students to enter employment in high-skilled, high growth sectors in manufacturing and STEM occupations, such as healthcare, biotechnology, information technology, construction and design, and banking and finance.

Partners:

- Department of Labor, Licensing and Regulation
- Maryland State Department of Education
- Department of Commerce
- Frederick County Public Schools
- Washington County Public Schools

Maryland Youth Apprenticeship

Successes:

- Infrastructure refinement(Schools/DLLR/employers)
- Nine Employers approved by the Maryland Apprenticeship and Training Council (MATC)Resources
- Eight FCPS students participated in the first year
- Six students completed 450 on-the-job training hours and a year of related high school instruction



Challenges:

- Branding
- Limited resources
- Employer/Mentor Commitment

[2017 FCPS Youth Apprenticeship Video](#)

Pathways in Technology Early College High (P-TECH) Schools

- Early college high school model developed by IBM in partnership with NYC Public Schools (2011)
- Grades 9-14, must lead to an Associates Degree



Pathways in Technology Early College High (P-TECH) Schools

- Steering Committee must include College and Industry Partners, with K-12 District as fiscal agent
- Defining features include:
 - College-going climate/courses no later than grade 10
 - Well-defined pathway to two-year degree & employment
 - One-to-one mentoring and paid internships
 - “First in line” consideration for employment
 - Open enrollment and no cost to students

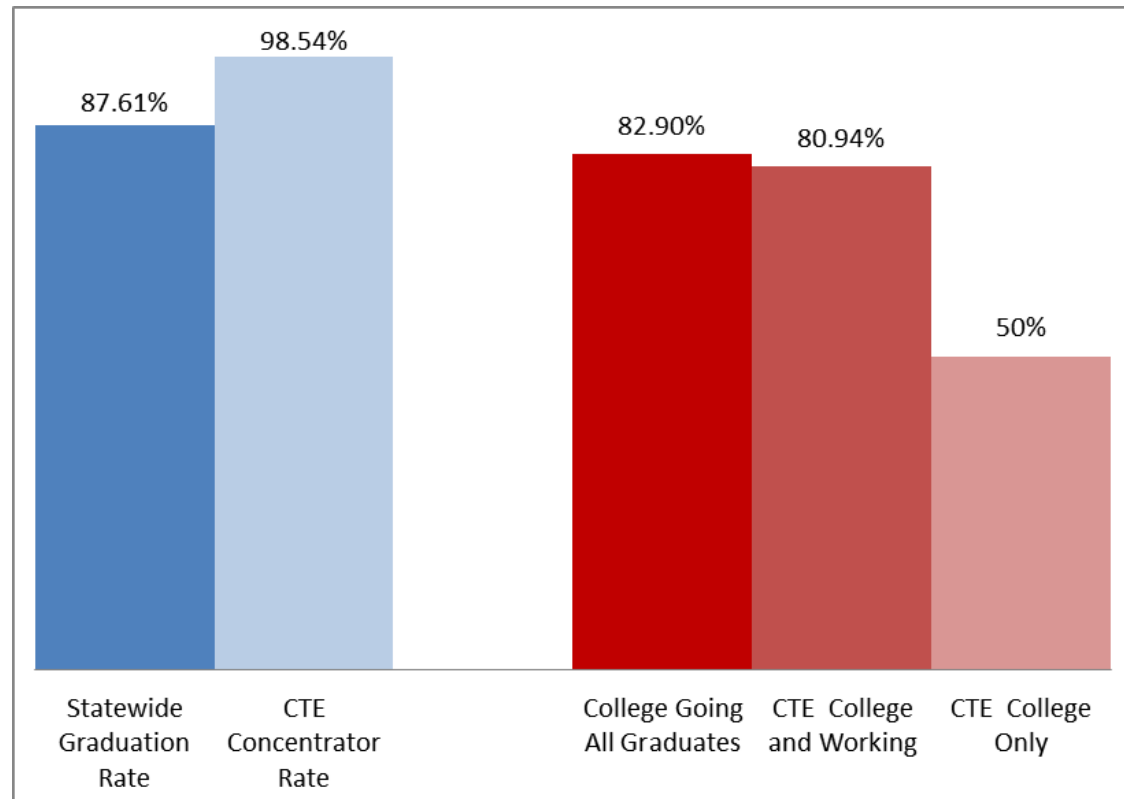
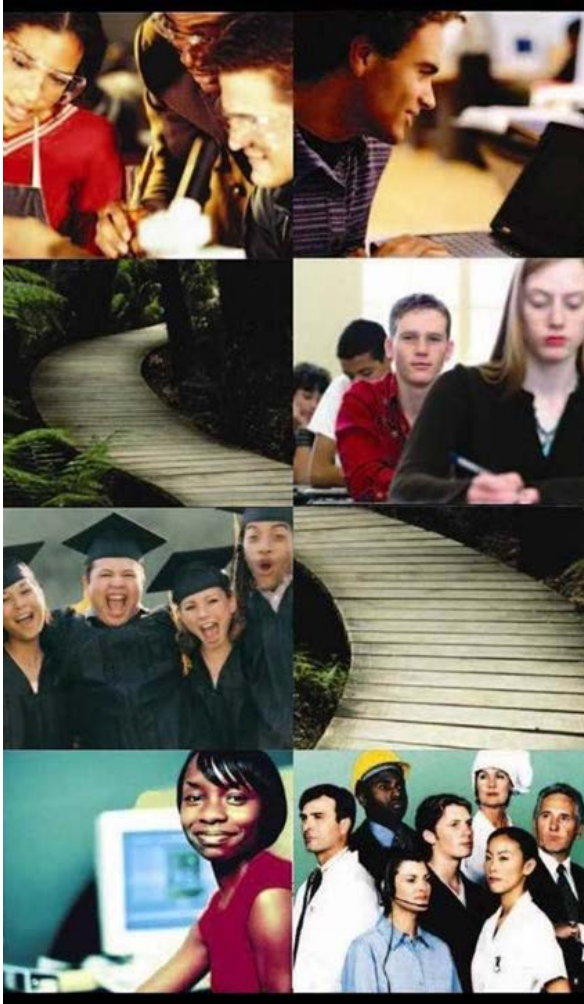


P-TECH Baltimore City

- **Dunbar:** Health Careers with Johns Hopkins, Kaiser Permanente, and University of Maryland Medical System
- **Carver:** IT / Computer Science in partnership with IBM
- **Postsecondary Partner:** Baltimore City Community College



Post Graduation and Further Schooling



Challenges to the System

- Level federal CTE funding and potential future cuts (15%)
- Resources for program expansion (Biomedical Science Example)
- Challenge to find qualified CTE teachers, especially in STEM areas
- More Jobs for Marylanders' Act – 45% CTE completers by 2025
- Costs for assessments leading to industry certifications
- Providing ongoing high-quality professional development for teachers (stipends or substitute fees, costs associated with PD)
- Need for students to have ongoing career development experiences
- Expanding professional school counselors' knowledge of career options in today's global economy
- Lack of parent understanding of CTE (Social Media Campaign)

Career and College Readiness

College and career readiness includes mastery of rigorous content knowledge and the abilities to apply that knowledge through higher-order skills to demonstrate success in college and careers.

→ This includes the ability to think critically and solve problems, communicate effectively, work collaboratively, and be self-directed in the learning process.

