Division of Career and College Readiness

December 2021 Legislative Report





MARYLAND STATE DEPARTMENT OF EDUCATION

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Table of Contents

Background	3
Accomplishments	6
P-TECH Data Collection and Performance Outcomes	
P-TECH Funding	19
Next Steps	



Background

Pathways in Technology Early College High (P-TECH) schools are innovative programs that create clear pathways from high school to college and careers for students from all academic backgrounds. IBM created the P-TECH program to link education to economic development and illuminate a pathway from high school to college and career. In six years or less, students graduate with a high school diploma and a no-cost, two-year Associate of Applied Science (AAS) Degree. Each P-TECH program requires a partnership among a local school system, institution of higher education, and employer. P-TECH schools work with industry partners and community colleges to implement a curriculum that is academically rigorous, economically relevant, and aligned to workforce needs. The program includes one-on-one mentoring, workplace visits, skills instruction, paid summer internships, and first-in-line consideration for job openings with partnering companies.

Each P-TECH program incorporates a career and technical education (CTE) pathway. CTE in Maryland provides the opportunity for students to engage in career programs of study that align to high-skill, highwage, and/or in-demand careers; lead to earning industry-recognized and/or postsecondary credentials that will allow entrance and/or advancement in a specific career cluster; and provide work-based learning experiences that require the application of academic and technical knowledge and skills in a work setting. Table 1 provides an overview of CTE programs implemented at each P-TECH school along with a list of industry partners.

The Maryland State Department of Education (MSDE) is required to report annually to the Governor and General Assembly on P-TECH implementation as defined in the P-TECH Act of 2017. This report contains required data on the progress and outcomes of P-TECH programs in Maryland.

TABLE 1: OVERVIEW OF INDUSTRY PARTNERS AND CTE PROGRAMS AT EACH P-TECH SCHOOL

School Systems / Community Colleges	Schools	Industry Partners	CTE Programs
Allegany County Public Schools / Allegany College of Maryland	Allegany High School, Fort Hill High School, Mountain Home School, and Center for Career and Technical Education	 UPMC Western Maryland Exclamation Labs Willets Systems, Inc. First United Bank and Trust IBM Northrop Grumman 	Information TechnologyCybersecurity
Baltimore City Public Schools / Baltimore City Community College	Paul Laurence Dunbar High School	 Johns Hopkins Hospital Kaiser Permanente University of Maryland Baltimore 	 Nursing Respiratory Care Physical Therapy Assistant Health Information Technology Surgical Technology General Science Cybersecurity
	Carver Vocational Technical High School	• IBM	Assurance and Computer Information Systems
	New Era Academy	Port of Baltimore	Supply Chain Management
Baltimore County Public	Dundalk High School	 Whiting-Turner Contracting KCI Technologies Stanley Black and Decker Carter CAT 	Engineering Technology
Schools / Community College of Baltimore County	Owings Mills High School	 Becton Dickinson McCormick & Company North American Millwright Northrop Grumman Potomac Photonics Strategic Factory 	Design, Fabrication, and Advanced Manufacturing



School Systems / Community Colleges	Schools	Industry Partners	CTE Programs
Harford County Public Schools / Harford Community College	Joppatowne High School	U.S. Army Communications- Electronics Command (CECOM) at Aberdeen Proving Ground	 Computer Information Systems Information Assurance and Cybersecurity
Montgomery County Public Schools / Montgomery College	Clarksburg High School	 Daly Computers, Inc. Information Technology Foundation Dataprise 	Network and Information Technology
Prince George's County Public Schools / Prince George's Community College	Frederick Douglass High School	 Continental Societies Incorporated Smart1 Management Solutions MedStar Six Flags Employ Prince George's Prince George's County Youth/Summer Youth Employment Program Marriott MGM National Harbor 	 Health Information Management Hospitality Services Management



Accomplishments

In the 2020-2021 school year, six school systems offered P-TECH programs. Each school system implementing a P-TECH program is required to submit accomplishments from their program to MSDE. Tables 2-7 outline accomplishments of Maryland P-TECH schools reported by school systems for the 2020-2021 school year.

TABLE 2: ALLEGANY COUNTY PUBLIC SCHOOLS / ALLEGANY COLLEGE OF MARYLAND P-TECH PROGRAM ACCOMPLISHMENTS

School Sites	C	CTE Pathways	2020-2021 Cohorts	2020-2021 P-TECH Accomplishments				
				 Two P-TECH seniors earned their Associate of Applied Science Degree in Computer Technology Cybersecurity. One of the two seniors transferred to a 4-year college with a full scholarship. The other senior has received several job offers from business partners and is currently in the process of selecting an offer. 				
Allegany High SchoolFort Hill High				 All remaining class of 2021 P-TECH students continue to work on their degree at Allegany College of Maryland, except for one student who moved out of state to work for the United States Department of Defense. 				
School		Information	Freshmen,	Seniors participated in a virtual field trip with the IBM cybersecurity team and received accounts with IBM to participate in IBM training modules on the software and				
Mountain Home High		Technology	Sophomores, Juniors, and	equipment from the virtual field trip.				
School	•	Cybersecurity	Seniors	 Freshmen and sophomores participated in virtual seminars with guest speakers from IBM, Frostburg State University, Allegany College of Maryland, UPMC Western 				
 Center for Career and 				Maryland, First United Bank, and Exclamation Labs.				
Technical Education								 All P-TECH students created accounts in IBM's Open P-TECH to start earning industry standard badges in cybersecurity and to complete training required for internships.
				 Over the last three years, Allegany County Public Schools implemented Girls Who Code summer camps to encourage more girls to enter the information technology field. This year, the majority of the girls who applied for P-TECH in grade eight were girls from Girls Who Code summer camps or middle school clubs. 				

TABLE 3: BALTIMORE CITY PUBLIC SCHOOLS / BALTIMORE CITY COMMUNITY COLLEGE P-TECH PROGRAM ACCOMPLISHMENTS

School Sites	CTE Pathways	2020-2021 Cohorts	2020-2021 P-TECH Accomplishments
Carver Vocational- Technical High School	Cybersecurity AssuranceComputer Information Systems	Freshmen, Sophomores, Juniors, Seniors, and Year 5 Students	 72% of the class of 2021 completed their high school graduation requirements. 50% of the P-TECH class of 2021 is continuing to 4-year institutions of higher education. 35% of all P-TECH Carver students took college classes during the 2020-2021 school year.
Paul Laurence Dunbar High School	 Nursing Respiratory Care Physical Therapy Assistant Health Information Technology Surgical Technology General Science 	Freshmen, Sophomores, Juniors, Seniors, and Year 5 Students	 Over half of P-TECH students who earned their high school diploma in 2021 are continuing in Baltimore City Community College to complete the associate degree. 6.5% percent of the P-TECH class of 2021 are continuing to 4-year colleges. Workplace learning trainings and introductions to healthcare careers through P-TECH pathways were offered virtually through the University of Maryland School of Nursing, Johns Hopkins Sports Medicine, and Kaiser Permanente. Internship-ready students participated in exclusive virtual internships hosted by the Johns Hopkins Department of Workforce Development. There was a 60% increase in first time student passage college biology 107/202 after being enrolled in Project Lead the Way Biomedical Sciences in high school.
New Era Academy	 Transportation and Supply Chain Management 	Freshmen, Sophomores, and Juniors	 P-TECH students enrolled in the following classes at Baltimore City Community College: Introduction to Transportation, Commercial Transportation Systems, and Geographic Information Systems Applications. Freshman students participated in a Summer Bridge Program that served as an introduction to high school and college including registering for courses and identifying high school resources.

TABLE 4: BALTIMORE COUNTY PUBLIC SCHOOLS / COMMUNITY COLLEGE OF BALTIMORE COUNTY P-TECH PROGRAM ACCOMPLISHMENTS

School Sites	CTE Pathways	2020-2021 Cohorts	2020-2021 P-TECH Accomplishments
			 A virtual summer institute for rising freshmen was offered to students. P-TECH industry partners provided an overview of their business models and industry structure.
			 Community College of Baltimore County offered a developmental math course to a small group of P-TECH students to provide additional academic support and to ensure greater success in credit bearing courses.
Dundalk High School	 Engineering Technology 	Freshmen, Sophomores and Juniors	 Virtual study sessions were held for all P-TECH students, which resulted in the first cohort being on track to complete the program in five years.
Series	. 335138)		 Several Dundalk P-TECH students have been invited to be part of the Honors Program at the Community College of Baltimore County.
			 Industry partners and mentors participated in virtual mentor meetings with freshmen throughout the school year.
			The P-TECH program at Dundalk successfully recruited the fourth cohort of students.
	 Design, Fabrication, and Advanced Manufacturing 	Freshman	The Owings Mills High P-TECH program officially launched in fall 2020.
			 Students participated in a virtual summer institute where they learned about P- TECH, met with industry partners, and prepared for the upcoming school year.
Owings Mills High School			 Students participated in virtual trips with the Community College of Baltimore County and several industry partners.
			 At the completion of the 2020-2021 school year, students completed an orientation with the Community College of Baltimore County to prepare them for the fall semester of college coursework.
			 In January 2021, recruitment for cohort two concluded with another 30 students being selected.

TABLE 5: HARFORD COUNTY PUBLIC SCHOOLS / HARFORD COMMUNITY COLLEGE P-TECH PROGRAM ACCOMPLISHMENTS

School Site	CTE Pathways	2020-2021 Cohorts	2020-2021 P-TECH Accomplishments
School Site Joppatowne High School	 Computer Information Systems Cybersecurity 		 The Joppatowne High P-TECH program officially launched in fall 2020. The first cohort of P-TECH students at Joppatowne High School earned a 3.0+ GPA for the 2020-2021 school year. Students were able to connect with their mentors from CECOM on a bi-weekly basis. Mentors assisted with schoolwork, student presentations, held activities for students during Cyber Week, and conducted sessions with students teaching critical thinking skills and coding skills. Several students took at least one college class during their freshmen year. Students captured their P-TECH journey of their first year through portfolios and presentations. The focus for the first year was on self-identification and advocacy. Students attended the BEYA conference virtually in connection with our Industry partner CECOM.
			 31 new students were accepted in March of 2021 to the Joppatowne P-TECH program.
			During the summer, both cohorts attended the P-TECH summer institute.
			Students attended in-person sessions over the course of three days and visited Harford Community College and CECOM at the Aberdeen Proving Ground campus.



TABLE 6: MONTGOMERY COUNTY PUBLIC SCHOOLS / MONTGOMERY COLLEGE P-TECH PROGRAM ACCOMPLISHMENTS

School Site	CTE Pathway	2020-2021 Cohorts	2020-2021 P-TECH Accomplishments
Clarksburg High School	 Network and Information Technology 	Freshmen, Sophomores, and Juniors	 Most of the first-cohort students currently on track to complete the full P-TECH program (high school diploma and associate degree) in four years. Students participated in a virtual Summer Bridge Program, which included online robotics activities, a virtual field trip of Montgomery College Germantown campus, a virtual computer build, and online modules to explore industry partner facilities.

December 2021

TABLE 7: PRINCE GEORGE'S COUNTY PUBLIC SCHOOLS / PRINCE GEORGE'S COMMUNITY COLLEGE P-TECH PROGRAM ACCOMPLISHMENTS

School Site	CTE Pathways	2020-2021 Cohorts	2020-2021 P-TECH Accomplishments
			 In May 2021, P-TECH at Frederick Douglass High School graduated 44 scholars. This was the first P-TECH Cohort.
			 The inaugural cohort embodied the college-going culture with full-ride scholarships to: John Hopkins University; University of Rochester; Benedict College; Morgan State University; Hood College; and Bowie State University.
			Class of 2021 Accomplishments:
			 Over \$1.5 million in scholarships
			o 100% high school graduation rate
			 3 scholars enrolled in military branches
Frederick Douglass	 Health Information Management Sophomores, Juniors, and Seniors Health Information Management P-TECH successfully held virtual tutoring sessions through and wellness component was added. Students had the opyoga and discuss ways to navigate living through a panded. P-TECH hosted College Advisement and College Essay Vand year 4 students in preparation for their senior year a process. P-TECH continues to have an active mentoring program and held virtual mentor/mentee sessions each month for 	Management and the Hospitality Services Management pathways completed the 2020-2021 fall and spring college semesters with a 91% pass rate, earning a C or	
High School		Juniors, and	Institutes of Health Community College Day. P-TECH scholars had the opportunity to network and learn about the various career paths in the biomedical and health
			P-TECH successfully held virtual tutoring sessions throughout the academic year. Tutoring sessions focused on the academic needs of the students and incorporated work-based learning. To address the social and emotional needs of students, a health and wellness component was added. Students had the opportunity to participate in yoga and discuss ways to navigate living through a pandemic.
			and year 4 students in preparation for their senior year and the college application
			 P-TECH continues to have an active mentoring program. The P-TECH team pivoted and held virtual mentor/mentee sessions each month for each cohort. P-TECH also held a Summer Social for mentors at Prince George's Community College. The



CTE Pathways	2020-2021 Cohorts	2020-2021 P-TECH Accomplishments
	Control	 purpose of the summer social was to engage the mentors and seek new mentors for incoming students. P-TECH held a 2-week virtual summer bridge experience for all cohorts. Highlights from P-TECH Summer Bridge 2021 include academic skill-building, character education, a virtual culinary demo, and P-TECH mentoring. During P-TECH Summer Bridge 2021, the upperclassmen served as student leaders and mentors to the incoming scholars.
-	TE Pathways	TF Pathways



P-TECH Data Collection and Performance Outcomes

P-TECH data is submitted by school systems to the Division of Career and College Readiness and Division of Assessment, Accountability, and Performance Reporting at MSDE according to established policies and processes. The P-TECH Act of 2017 defines the data the must be reported by each P-TECH school. Table 8 provides the data for each required reporting element by school.

Some P-TECH data was unable to be reported. For example, P-TECH student performance on state assessments for English language arts, mathematics, and science were not reported because state assessments were not administered in the 2020-2021 school year. Also not reported are P-TECH completers employed two quarters after graduation and P-TECH completers enrolled in a 4-year institution of higher education two quarters after graduation. There were no P-TECH completers in the prior year to report on two quarters after graduation. When the data becomes available, it will be included in future reports.

TABLE 8: P-TECH REPORTING REQUIREMENTS BY SCHOOL

	Baltimore City			Allegany County	Prince George's County	Baltir Cou		Harford County	Montgomery County
P-TECH Reporting Requirement	Carver	Dunbar	New Era Academy	Allegany, Fort Hill, Mountain Home, and Career Center	Frederick Douglass	Owings Mills	Dundalk	Joppatowne	Clarksburg
Number of students enrolled in each P-TECH school	146	190	72	73	184	29	149	34	163
Grade 9 attrition rate	10.2%	13.0%	46.3%*	12.0%	7.1%	3.8%	14.5%	11.8%	9.8%
Grade 10 attrition rate	8.7%	11.9%	40.0%*	5.3%	4.5%	0.0%	10.0%	Not Applicable	10.7%

December 2021



	Baltimore City			Allegany County	Prince George's County	Baltir Cou		Harford County	Montgomery County
P-TECH Reporting Requirement	Carver	Dunbar	New Era Academy	Allegany, Fort Hill, Mountain Home, and Career Center	Frederick Douglass	Owings Mills	Dundalk	Joppatowne	Clarksburg
Grade 11 attrition	0.0%	0.0%	12.5%	5.6%	0.0%	Not Applicable	4.7%	Not Applicable	10.9%
Number of P-TECH students who have an Individualized Education Program (IEP)	25	17	16	4	2	4	9	1	6
Number of P-TECH students who have a 504 plan	4	13	3	1	6	2	10	1	10
Number of P-TECH students who are English Language Learners	1	0	5	0	0	1	8	0	4
Percentage of P-TECH students who meet the free and reduced meal plan income criteria at each P-TECH school	62.3%	60.0%	70.8%	43.8%	39.7%	24.1%	40.9%	58.8%	19.0%
Number of P-TECH students on track for high school graduation in 4 years	71	188	44	72	184	29	149	32	162



	Baltimore City		Allegany County	Prince George's County	Baltimore County		Harford County	Montgomery County	
P-TECH Reporting Requirement	Carver	Dunbar	New Era Academy	Allegany, Fort Hill, Mountain Home, and Career Center	Frederick Douglass	Owings Mills	Dundalk	Joppatowne	Clarksburg
Number of P-TECH students on track for P- TECH completion (associates degree and high school diploma) in 4 years	9	59	3	7	177	22	0	12	155
Number of P-TECH students on track for a P- TECH completion in 5 years	17	7	5	62	0	6	21	7	3
Number of P-TECH students on track for P- TECH completion in 6 years	31	121	28	4	0	1	128	15	5
Number of P-TECH student internship placements	17	48	0	0	27	0	0	0	0
Number of P-TECH student internship placements with an industry partner	16	48	0	1	0	0	0	0	0



	Baltimore City		Allegany County	Prince George's County	Baltimore County		Harford County	Montgomery County	
P-TECH Reporting Requirement	Carver	Dunbar	New Era Academy	Allegany, Fort Hill, Mountain Home, and Career Center	Frederick Douglass	Owings Mills	Dundalk	Joppatowne	Clarksburg
High school 4-year graduation rate (diploma only)	72.0%	79.6%	The program does not yet have any grade 12 students enrolled	27.3%	100%	The program does not yet have any grade 12 students enrolled	The program does not yet have any grade 12 students enrolled	The program does not yet have any grade 12 students enrolled	The program does not yet have any grade 12 students enrolled
P-TECH 4-year graduation rate (diploma and associate degree)	Data will be available in the 2021- 2022 Report	2.0%	Data will be available in the 2021- 2022 Report	18.2%	93.2%	The program does not yet have any grade 12 students enrolled	The program does not yet have any grade 12 students enrolled	The program does not yet have any grade 12 students enrolled	The program does not yet have any grade 12 students enrolled

Student outcome data is based on data from June 30, 2021.

^{*}There is a pending set of recommendations before the Baltimore City Board of School Commissioners to close New Era Academy in June 2022. This may account for the high grade 9 and 10 attrition rates.



TABLE 9: P-TECH ENROLLMENT FOR THE 2021-2022 SCHOOL YEAR

There are 1,234 students enrolled in P-TECH in the 2021-2022 school year. Enrollment is based on data reported by school systems on September 30, 2021.

School System / Community College	School Site	2021-2022 Student Enrollment
Allegany County Public Schools/ Allegany College of Maryland	Allegany, Fort Hill, Mountain Home, and Center for Career and Technical Education	 24 Freshmen 22 Sophomores 19 Juniors 17 Seniors 7, Year 5 Students Total Enrollment: 89 Students
	New Era Academy	 22 Freshmen 18 Sophomores 7 Juniors 12 Seniors Total Enrollment: 59 Students
Baltimore City Public Schools / Baltimore City Community College	Carver Vocational-Technical High School	 71 Freshmen 28 Sophomores 34 Juniors 16 Seniors 12, Year 5 Students 6, Year 6 Students Total Enrollment: 167 Students
	Paul Laurence Dunbar High School	 64 Freshmen 54 Sophomores 45 Juniors 30 Seniors 15, Year 5 Students 11, Year 6 Students Total Enrollment: 219



School System / Community College	School Site	2021-2022 Student Enrollment
Baltimore County Public Schools / Community College of Baltimore County	Dundalk High School	 51 Freshmen 47 Sophomores 44 Juniors 36 Seniors Total Enrollment: 178 Students
community conege of Building Country	Owings Mills High School	 30 Freshman 29 Sophomores Total Enrollment: 59 Students
Harford County Public Schools / Harford Community College	Joppatowne High School	 31 Freshman 29 Sophomores Total Enrollment: 60 Students
Montgomery County Public Schools / Montgomery College	Clarksburg High School	 60 Freshmen 55 Sophomores 49 Juniors 42 Seniors Total Enrollment: 206 Students
Prince George's County Public Schools / Prince George's Community College	Frederick Douglass High School	 66 Freshmen 49 Sophomores 42 Juniors 40 Seniors Total Enrollment: 197 Students



P-TECH Funding

P-TECH students earn a high school diploma and associate degree in six years or less at no cost to students. MSDE provides grants to school systems and community colleges to support the cost of P-TECH programs.

Each year, school systems receive a P-TECH supplemental school grant. The amount of the grant is based on student enrollment. By October 30th of each year, school systems submit a P-TECH Program Fall Enrollment Validation File to MSDE identifying the number of students enrolled in P-TECH. School systems are granted \$750 per P-TECH student enrolled. Local school systems must match 100% of supplemental school grant funds. Table 10 identifies the grant award to each school system for fiscal year 2021.

TABLE 10: FISCAL YEAR 2021 P-TECH SUPPLEMENTAL SCHOOL GRANTS

Grant Recipient	School	Grant Award Amount
Allegany County Public Schools	Allegany, Fort Hill, Mountain Home, and Center for Career and Technical Education	\$53,250
	Carver Vocational-Technical High School	\$111,000
Baltimore City Public Schools	New Era Academy	\$57,750
	Paul Laurence Dunbar High School	\$147,750
Baltimore County	Dundalk High School	\$119,250
Public Schools	Owings Mills High School	\$22,500
Harford County Public Schools	Joppatowne High School	\$22,500
Montgomery County Public Schools	Clarksburg High School	\$122,250
Prince George's County Public Schools	Frederick Douglass High School	\$142,500
Total Amount Granted	\$798,750	

December 2021



Local funds are also used to support P-TECH programs. Local funds are defined as local money spent in support of P-TECH outside of grant and matching funds. Funds must be solely dedicated to P-TECH. <u>Table 11</u> identifies the amount of local funds used to support P-TECH for each school system.

TABLE 11: FISCAL YEAR 2021 LOCAL FUNDS USED TO SUPPORT P-TECH

School System	School	Amount of Local Funds
Allegany County Public Schools	Allegany, Fort Hill, Mountain Home, and Center for Career and Technical Education	\$0
	Carver Vocational-Technical High School	\$1,173,966
Baltimore City Public Schools	New Era Academy	\$333,752
	Paul Laurence Dunbar High School	\$1,415,979
Baltimore County Public	Dundalk High School	\$361
Schools	Owings Mills High School	\$ O
Harford County Public Schools	Joppatowne High School	\$121,191
Montgomery County Public Schools	Clarksburg High School	\$91,431
Prince George's County Public Schools	Frederick Douglass High School	\$695,602



MSDE provides a P-TECH Supplemental College Grant to community college P-TECH partners to support the cost of tuition and mandatory fees that would normally be charged for classes in which P-TECH students enroll. The state's share of the P-TECH Supplemental College Grant equals 50% for counties that received a Disparity Grant in the prior fiscal year or 25% for counties that did not received a Disparity Grant in the prior fiscal year. If funds distributed to the college from the state are not enough to cover the cost of tuition and fees, then the local share of a P-TECH Supplemental College Grant shall be calculated and distributed by a county board to college partners and equal the amount not paid by the state.

TABLE 12: FISCAL YEAR 2021 P-TECH SUPPLEMENTAL COLLEGE GRANTS

Grant Recipient	Grant Award Amount	Disparity Grant Recipient
Allegany College of Maryland	\$18,726	Yes
Baltimore City Community College	\$217,803	Yes
Community College of Baltimore County	\$35,636	No
Harford Community College	\$2,775.48	No
Montgomery College	\$55,274	No
Prince George's County Community College	\$207,130	Yes



Next Steps

MSDE is committed to continuing to support P-TECH programs statewide. MSDE annually convenes P-TECH representatives from school systems, community colleges, and industry to share effective practices aimed at supporting students to successfully complete the program and transition into 4-year institutions of higher education and/or careers. MSDE provides additional grants to school systems and community colleges to support the cost of equipment and supplies to implement career programs and train educators to facilitate instruction in career programs associated with the implementation of P-TECH. With continued support from the Governor and the General Assembly, Maryland is building a strong statewide network of P-TECH stakeholders working together to prepare Maryland students for high-wage, high-skill, and in-demand career opportunities.