

Part B: Narrative Performance Information
Maryland

B1. Implementation of State Leadership Activities

B1a. The state provides a summary of its major initiatives and activities for each of the required uses of state leadership funds:

1. Conducts an assessment of the vocational and technical education programs funded under Perkins IV

Maryland uses numerous tools to assess Career Technology Education (CTE) programs funded under Perkins IV. These include local recipients' Interim and Final programmatic reports; the Local Plan for CTE Program Improvement; , and CTE On-site Monitoring, as well as the approval process for all new CTE programs based on The Policies and Procedures for the Development and Continuous Improvement of Career and Technology Education Programs. The Policies and Procedures document can be found at the Maryland State Department of Education (MSDE) web site:

http://www.marylandpublicschools.org/MSDE/divisions/careertech/career_technology/programs/

The CTE Local Plan for Program Improvement requires local recipients to analyze program performance and describe plans to improve CTE programs in order to meet/exceed targeted levels of performance for core indicators. These include increasing the number and/or percentage of students achieving rigorous levels for academic, technical and related workplace skill proficiencies. CTE students are required to meet the same graduation requirements as any student seeking a high school diploma in Maryland. This includes passing state assessments in Algebra/Data Analysis, English II, Biology and Government. The first two assessments constitute Maryland's required secondary assessments under No Child Left Behind (NCLB). Student achievement on English II and the Algebra/Data Analysis exams are used to determine success on core indicators of performance 1S1 and 1S2. The annual percentage and increase of CTE concentrators/completers who receive their high school diploma, 4S1, is also significant, as the students will have to be successful in meeting the challenging academics that are part of high school graduation program requirements.

MSDE provides each local recipient with an annual Program Quality Index (PQI) Report that describes the recipient's success in meeting Perkins Core Indicators of Performance, as well as in the case of secondary participants how well LSSs are preparing CTE completers to also meet the entrance requirements of the University System of Maryland. These reports are reviewed in annual Regional Meetings where local recipients learn how to identify root causes so that Local CTE Program Plans can address continuous improvement

During Fiscal Year (FY) 09 five LSSs and four Community Colleges received on-site monitoring visits. The monitoring team consisted of MSDE staff, representatives from LSSs, Community Colleges, the Department of Labor, Licensing and Regulation (DLLR), and The Maryland Higher Education Commission (MHEC). Each site received a follow-up report detailing strengths, opportunities for improvement, and recommendations. Prior to the monitoring team's visit, each local recipient completed a self-assessment which provided the monitoring framework

2. Develops, improves, or expands the use of technology in Career Technology Education

In keeping with the Maryland Plan for Technology in Education, Maryland's 24 LSS are each responsible for ensuring that teachers are competent in using and integrating technology into student learning activities. An annual survey by the Maryland Business Roundtable for Education (MBRT) Committee on Technology in Education assesses the availability and use of technology to enhance instruction in Maryland classrooms.

One of the targets in *The Maryland Educational Technology Plan for the New Millennium: 2007-2012* calls for all teachers and library media specialists to meet state-established standards for technology-related knowledge and skills. Teachers need to understand how to integrate technology into their everyday classroom practice in order for students to gain the knowledge and skills they need to be successful as they move on to college or into the workforce. For the first time this year, teachers (including library media specialists) were asked to take the Maryland Teacher Technology Measure, an instrument designed to assess their technology skills and identify the particular technology literacy standards on which to target additional professional development.

Results of the measure are as follow:

	Teachers	Library Media Specialists
Number completing the inventory	20,449	1,030
Number proficient	18,223	1,007
Percent proficient	89%	98%

In addition, all seventh-grade students were measured on their technology literacy skills. The results of the Maryland Measure of Student Technology Literacy (MMSTL) are as follow:

State Student TLA Results

	Students
Number completing the MMSTL	59,303
Number proficient	29,381
Percent proficient	50%
Response Rate	96%

- The student to computer ratio in 2008 was 2.7:1.
- 98% of all Maryland classrooms are connected to the Internet.

Use of VTECS Software as a Technology Tool for Program Development and Curriculum Planning

VTECS Connect is a relational database designed to manage information concerning students participating in work-based learning opportunities. This software allows work-based learning coordinators to customize work plans for students to align what they learn in school (both academic and technical) with on-the-job skills. In an on-going effort to align standards and increase access to high quality work-based learning opportunities, Maryland delivered the following:

- In FY 09, Maryland provided on-site training for 39 schools in 11 school systems, training 45 CTE faculty members and work-based learning coordinators.
 - Maryland conducted a statewide survey in FY08 to gather information to better meet customer needs in terms of using software, providing training and identifying best practices. As a result of the survey, in FY09, training was upgraded to offer an introductory session and then beginner, intermediate and advanced levels. In addition software was customized to meet individual school system needs.
 - Maryland continues to make the use of VTECS Connect software systemic throughout local school systems. Two local school systems require the use of specific reporting functions for students in work-based learning experiences and have contracted with the VTECS software engineers to customize those reports to meet their needs. A third school system received training in order to switch from its current reporting system to VTECS Connect in the FY 10 fiscal year.
 - Statewide training was completed with work-based learning supervisors on developing authentic, high quality work-plans with the VTECS Connect Database Management System. An audit of work plans is planned for the upcoming year to assess the quality of local school system plans. This information will be used to create additional professional development for developing meaningful work plans for students and employers.
3. **Offers professional development programs, including providing comprehensive professional development, (including initial teacher preparation) for career and technical education teachers, faculty, administrators, and career guidance and academic counselors at the secondary and postsecondary levels**

Maryland CTE's system of Career Clusters state-developed Programs of Study (POS) provide MSDE with the opportunity to target comprehensive, technically focused professional development aligned with industry standards. Since many of Maryland's State CTE POS align with national technical standards, MSDE has partnered with statewide/national organizations and/or associations to deliver up-to-date, technically relevant professional development for faculty and administrators.. Partnerships include the Maryland Restaurant Association, the American Hotel and Lodging Association, the National Center for Construction Education and Research (NCCER), and PrintEd. These partnerships allow Maryland to offer high quality, technically relevant professional development that directly supports the curriculum of the CTE program. Maryland has also partnered with Stevenson University, the University of Maryland at Baltimore County, the University of Baltimore and Towson University to offer professional development aligned to Project Lead the Way Biomedical Sciences and Pre-Engineering programs, as well as the Interactive Media Production and Teacher Academy of Maryland

programs, respectively. Faculty participating in the professional development have the opportunity to earn graduate level credits from these institutions. MSDE also offers Continuing Professional Development Credit (CPD) for teachers participating in almost all the professional development events. In addition, MSDE offers CPD credit for work-based learning instructors teaching the Career Research and Development POS. This program (formerly known as cooperative education) was upgraded to ensure that two, one-credit courses are taught in school are focused on preparing students for the 21st Century workplace.

Many of Maryland's State CTE POS require teacher participation in the state-sponsored professional development. To defray the costs of participation MSDE offers school systems and community colleges grant funds through the Perkins Reserve Fund.

Additionally, over the last several years, MSDE has received foundation funding to provide in-depth professional development through the Citi Foundation Schools That Work Institute and Coaching Series. Annually, over ten *High Schools That Work (HSTW)* sites learn how to create conditions that improve student academic and technical achievement and completion rates. In FY '09, MSDE was able to make the Institute and coaching series available to two CTE central office teams in Anne Arundel and Prince George's Counties. Each LSS Central Office Team was assisted in steps needed to upgrade the availability and rigor of its CTE programs of study.

4. Provides support for career technical education programs that improve the academic and career and technical skills of students through the integration of academics w/career technical education

Integrating Academic and Career and Technology Education

Maryland supports the integration of academic and career and technology education through a variety of initiatives. State sponsored professional development, geared specifically to the state POS, has served as a catalyst for school systems to adopt the State CTE POS where academic and technical education is fully integrated into the high school program. Maryland's Career Clusters which have been adopted by all 24 school systems provide a functional framework for the integration of academic and technical studies. Maryland also supports schools redesigning around career-focused smaller learning communities that result in upgrading CTE programs around broad career clusters and pathways. The smaller learning communities model creates a system where all students are challenged to higher academic achievement through a sequence of courses and instructional practices that require students to demonstrate mastery of both academic and technical content. Maryland supported this initiative in the following ways:

- State staff works with LSS and individual high schools to align courses and POS around career clusters and pathways. The development of career pathways includes sequencing academic and technical courses at the secondary and postsecondary levels to ensure student success after high school.
- MSDE uses Perkins Reserve Fund Grants to incentivize the adoption and implementation of the State CTE POS as well as to strengthen specific components of a school system's or community college's CTE system.

Improving the Academic and Technical Skills of Students Participating in Career and Technology Education Programs

Maryland currently has in place a number of initiatives that are designed to raise academic expectations. These initiatives include the Maryland School Assessment Program which is helping to ensure that more students enter high school ready for 9th grade level work. The High School Assessment Program which became a graduation requirement for the Class of 2009 established higher academic expectations and provided a series of supports, including a Bridge Plan for Academic Success resulting in increased academic success for CTE students. The statewide assessment system promotes rigorous higher-level skills, which are demanded in the workplace and higher education. In addition, Maryland is a leader in promoting access and achievement in Advanced Placement. Maryland's State CTE POS show students how they can include a CTE program of study and Advanced Placement courses into their high school plan. Career and Technology Education programs are aligned with these initiatives and support. As part of its emphasis on career and college readiness, Maryland has iterated its *Skills for Success*, standards-based workplace knowledge and skills that are integrated into both academic and technical instructional programs across the state.

Maryland has developed a chart for use by local school systems and community colleges that identify each of these assessments. To view the list of technical assessments (Program Certification Chart-2009) that were identified by Career Cluster Teams go to the MSDE website: http://www.marylandpublicschools.org/MSDE/divisions/careertech/career_technology/funding_reporting/perkins_IV_secondary.htm

Ensuring That Participants in Career and Technology Education Programs are Taught Challenging Academic Proficiencies

The *HSTW* initiative has provided Maryland with a vehicle for ensuring that CTE students are taught at challenging academic levels. *HSTW* provides a framework of key practices for accelerating learning and setting higher standards. This framework includes increasing access to challenging CTE studies coupled with academic studies from the college preparatory curriculum. Sixteen *HSTW* sites received over \$75,500 in funds for local, state and national professional development during FY 09. Professional development opportunities were aligned to the key practices of *HSTW*, specifically those related to raising the academic achievement of all students, but especially to those enrolled in State CTE POS. In FY 09, MSDE provided two Citi Foundation Schools That Work Institutes and one coaching series. Ten *HSTW* sites participated in the first Institute, and eight sites participated in the second Institute that also included the onsite coaching series.

Maryland also continues to promote and invest in challenging CTE programs that include rigorous academic study, such as Project Lead the Way's Pre-Engineering and Biomedical Sciences programs, the Cisco Networking Academy, and the Oracle Database Academy.

- 5. Provides preparation for non-traditional fields in current and emerging professions, and other activities that expose students, including special populations, to high skill,**

high wage occupations, except that one-day or short-term workshops or conferences are not allowable

Maryland has developed partnerships with other agencies and educational institutions to promote non-traditional occupations to students across the state. State-wide initiatives to expand Science, Technology, Engineering, and Mathematics (STEM) programs in CTE have also included a focus on non-traditional fields and emerging professions. In the past year, Maryland also identified several non-traditional State CTE POS, such as construction, engineering, manufacturing and health professions, for expansion as a state-wide initiative in preparation for the Base Realignment and Closure (BRAC) impact in Maryland.

MSDE continues to work with the Maryland Business Roundtable for Education (MBRT) and its website, www.bewhاتيwanttobe.com to add profiles of workers from across the state employed in non-traditional professions and students studying in non-traditional programs of study such as female students in Project Lead The Way (PLTW). MBRT publishes a companion magazine that details the workers profiles and labor market information on the careers and it is distributed across the state in Maryland middle school classrooms by members of MBRT's Speakers Bureau, many of whom are employed in non-traditional professions.

- 6. Supports partnerships among LEAs, institutions of higher education, adult education providers, and, as appropriate, other entities, such as employers, labor organizations, intermediaries, parents, and local partnerships, to enable students to achieve state academic standards, and career technical skills, or to complete career and technical program of study**

Involving Parents, Teachers, Local Businesses and Labor Organizations in Career and Technology Education Programs:

Maryland's history of education reform is based on a collaborative model inclusive of many stakeholder groups. Groups such as the High School Assessment Task Force, MBRT, Governor's Workforce Investment Board (GWIB), and the Local Advisory Committees all involve parents, teachers, business and industry. Most notably, Maryland has continued to use these as well as specific industry stakeholder groups in developing CTE programs related to Maryland's 10 Career Clusters.

In FY 09, the Assistant State Superintendent for CTE co-chaired a CTE Task Force appointed by Governor O'Malley that was broadly representative of parents, teachers, businesses and labor organization. The Task Force made 11 recommendations on ways to expand CTE while ensuring Maryland CTE POS supported the needs of the State's economy and included sufficient rigor and relevance to allow CTE students to graduate from high school prepared for both college and career.

Maryland statute requires every county and the City of Baltimore to establish a Local Advisory Committee (LAC) to advise the board of education and each postsecondary institution in the county that receives federal support for CTE on the adequacy of the program, the distribution of funds, and program accountability. In addition to educators and administrators, each LAC must

include representatives of business, industry, and organized labor. Maryland CTE Policies and Procedures require each state or locally developed program of study to have a Program Advisory Committee.

The Maryland General Assembly passed a tax credit for employers who hire students in approved CTE Work-Based Learning POS. This incentive for employers further encourages the development of partnerships between employers, labor organizations and apprenticeships, and State CTE POS.

Career and Technology Education and State and Regional Occupational Opportunities

Maryland's workforce development agencies collaborate on numerous economic priorities. These agencies include: MHEC, Governor's Workforce Investment Board (GWIB), DLLR, Maryland Department of Business and Economic Development (DBED); as well as local entities such as school systems, representatives at the postsecondary level, business and labor. This collaboration has led to the development of cluster templates for Maryland's growing industries. The mapping of ten career clusters has led to the development of new programs that prepare students to enter the workplace in high growth and high wage areas. Maryland's new State CTE POSI in Interactive Media Production is the most recent outcome of this collaboration to address state and regional occupational opportunities.

Methods for Joint Planning and Coordination of Perkins IV Programs with Other Federal Education Programs

Maryland CTE faculty and staff serve on the committees of the GWIB, Maryland's workforce development entity, to develop and continually improve Maryland's workforce preparation system. The State Superintendent of Schools is a member of the Board and its Executive Committee. The Assistant State Superintendent for the Division of Career and College Readiness (DCCR) serves on GWIB's Interagency Workforce Committee. Maryland's Unified Plan requires that the local superintendent of schools and the occupational dean of the community college serve on the Local Workforce Investment Board (LWIB). Local Directors of Career and Technology Education are also significantly engaged in the work of the LWIBs.

GWIB's Center for Industry Initiatives was established as a cluster-based approach to workforce development. GWIB has shifted to a demand-driven workforce development system. CTE faculty and staff are a part of each targeted industry for the state.

The Governor's P-20 Leadership Council of Maryland includes the Assistant State Superintendent for DCCR as a member. The Council seeks to improve interagency and intersegment coordination to improved learner outcomes in preparing students for full participation in the Maryland economy. The Governor's P-20 Leadership Council now includes the Secretaries of Labor, Licensing and Regulation and Business and Economic Development to promote an aligned educational system with workforce and economic development. The expansion of CTE is one of the Council's three priorities.

7. Serves individuals in State Institutions

Maryland's Correctional Education Occupational Programs are located in 11 State Adult Correctional Institutions and one external facility. Eighteen different disciplines are included in the thirty-seven programs that are offered. The total enrollment for FY'09 was **1,603** students with **1029** completions.

In all the institutional programs, occupational instructors have actively developed linkages and partnerships with private business and industry through private contacts and career day activities. Such partnerships have provided valuable material and equipment donations for instruction in several programs at the Occupational Skills Training Center and the HVAC program at Maryland Correctional Training Center. These partnerships result in valuable input for curriculum updating with instructors, as well as material gains for the programs.

The addition of the Introduction to Telecommunications "C-Tech" Program at the Eastern Correctional Institution – E Annex in the Eastern Region, enabled correctional education to increase enrollment and completions. This program provides curriculum in network cabling with shortened hours of instruction for inmates soon to be released. The C-Tech Program is nationally recognized in the Telecommunications Industry, which is in critical need of skilled workers.

Occupational programs offer six different external certifications that are nationally recognized:

- EPA CFC Refrigerant Management Test for HVAC-R students;
- National Center for Construction Education and Research (NCCER) certifications are offered to students in all construction programs;
- Automotive Service Excellence (ASE) for Auto Mechanics & Auto Body Students;
- A+ certification test is offered for computer repair students;
- Telecommunications Certification (C-Tech); and
- PrintEd Certification (Graphic programs)

A total of 672 External Certificates were awarded in FY09. In addition pre-tests for Microsoft Office Specialist (MOS) are also provided for Office Technology Students.

The important activity of formally establishing advisory/craft committees is ongoing and continuous meetings are planned for the Occupational Skills Training Center for the Greater Baltimore Businesses. It is anticipated that these meetings will continue to translate into committed job opportunities for all correctional education program completers.

Employment/transition training was added to the FY 09 professional development offerings attended by the instructors. Perkins funding provided Instructors the opportunity to attend workshops on career development, employability factors, and made resources available that could be utilized in the classroom.

8. Provides support for programs for special populations that lead to high skill, high wage and high demand occupations

As CTE programs are updated and as new programs are designed, local school systems and community colleges are required to identify how they will meet the needs of members of special populations and prepare them for high skill, high wage, and high demand occupations. The CTE Local Plan for Program Improvement requires local recipients to address how members of special populations will be served on a designated strategy worksheet and in other areas throughout the plan/application.

Maryland has successfully used the Support Services Team approach, which provides both direct and indirect services to special populations enrolled in CTE programs. During the transition year, Maryland convened a Students with Disabilities Workgroup to identify strategies to ensure success for CTE students who are members of this special population. The outcomes of the Workgroup focused on strengthening collaboration with guidance, special educators, transition coordinators and other individuals who work closely with members of special populations, to share best practices, and create joint professional development opportunities. The Workgroup continues to meet annually. In addition, Maryland has two Memoranda of Understanding to ensure success for members of special populations. One involves coordination among other Divisions within the Maryland State Department of Education and the other addresses collaboration among several state agencies serving students with special needs.

9. Offers technical assistance for eligible recipients

Technical assistance to local recipients of CTE funds is provided by the staff of the three CTE branches within DCCR at MSDE. DCCR administers CTE programs. This Division is led by an Assistant State Superintendent and reports to the State Superintendent of Schools.

The CTE Instructional, CTE Student and Assessment Services, and CTE Systems Branches deliver services to implement and assess the CTE programs within the local school systems and community colleges. Staff from all three branches provide direct programmatic technical assistance as members of the ten Career Cluster Teams as they lead the development of Maryland's state-developed CTE POS.

The CTE Instructional Branch is responsible for providing: leadership; coordination; technical expertise; program development; and program improvement activities to local programs of CTE. This includes all 24 local school systems, 16 community colleges and other agencies and groups in the occupational program areas. The instructional areas of technology education, technical preparation, curriculum development, and the integration of academic education with career and technology education responsibilities fall within this branch.

The CTE Student and Assessment Services Branch is responsible for developing systems of assessment and accountability for career and technology education programs. In addition they are responsible for providing leadership, coordination, and technical assistance for the CTE student organizations, CTE equity and special populations services, work-based learning products and services, and CTE student organizational assessment and credentialing.

The CTE Systems Branch is responsible for managing all CTE grants including: the CTE Local Plan for Program Improvement; Reserve Funds; Leadership Grants; and state general fund revenues. The branch is comprised of four regional coordinators who provide technical assistance to the primary contact for each of the 24 local school systems and 16 community colleges in Maryland within an assigned region of the State. Additionally the branch has responsibilities for federal and state legislation; fiscal procedures; inventory control of equipment purchased with federal monies, career and technology education program approval, and assistance with program implementation.

The three CTE branches meet with the Local Directors of Career and Technology Education from each of Maryland's 24 local school systems at least four times a year to discuss local and State initiatives that impact career and technology education. These meetings are held to provide technical assistance to these individuals. In addition, other meetings are scheduled throughout the year such as the regional planning meetings which take place to assist local recipients with the CTE Local Plan for Program Improvement application and technical assistance to support the implementation of CTE/Tech Prep POS.

Maryland convenes joint meetings of local school system directors of career and technology education and community college Perkins contacts on an as needed basis to provide technical assistance and discuss items of mutual concern regarding CTE POS.

B1b. The state provides a summary of its major initiatives and activities for one or more of the permissible uses of State leadership funds:

1. Improves Career Guidance and academic counseling programs

Maryland's Career Development Model

The Maryland Career Development Framework was designed in 2003 by a large stakeholder group called the State Career Development Council. The Council is made up of representatives from several organizations including Community Colleges, LSS, MHEC, USM, GWIB, DLLR, DBED and leadership from the Career Technology Education, and Student, Family and School Support Divisions from MSDE.

Maryland's Career Development Framework Standards and indicators were adopted into the Code of Maryland Regulations (COMAR) in June 2008. The regulation requires that by September 2009 and each five years after, local superintendents of each school district must certify that the instructional programming in grades kindergarten-12 meets the requirements set forth in the regulation.

The framework is a companion document with the Maryland Career Clusters and Maryland CTE program of study booklets. The purpose of this standards-based framework is to enable students to select a career cluster and develop a program sequence. The sequenced program of study becomes part of a secondary-postsecondary academic and career plan in reference to the Code of Maryland Regulations for Pupil Services.

Maryland's Career Development Framework is standards-based and aligned with the format of the State Curriculum and levels of cognitive demand represented in the State Curriculum. The six standards are based on six process steps including: Self Awareness; Career Awareness; Career Exploration; Career Preparation; Job- Seeking/Advancement, and Career Satisfaction; Re-Focus; and Transition. Decision-making skills are incorporated as indicator statements for each standard. Additional content is derived from the revised National Career Development Guidelines, Maryland's *Skills For Success*, and the National Standards for School Counseling Programs. Decision-making is a cross-cutting skill that is included in each of the standards.

Through the Citi Foundation Schools That Work Institute and Coaching Series, the Maryland Career Development Framework is used in the Career Guidance and Advisory Systems learning strand to guide local school site implementation of systematic instructional programs in career development.

2. Establishes agreements, including articulation, between secondary and postsecondary career and technical education programs to provide postsecondary education and training opportunities for students

A number of processes are in place for students to gain advanced standing at the postsecondary level. In Maryland, almost every State CTE POS is considered to be Tech Prep, and many local school systems provide opportunities for students to dually enroll in postsecondary education while in high school. In addition Cluster Team members collaborate with secondary and postsecondary educators to develop statewide and local articulation agreements. Examples include the Teacher Academy of Maryland and the Pre-engineering program through Project Lead The Way. The *Policies and Procedures* define the requirement for the development and implementation of articulated CTE programs of study.

Maryland articulation agreements describe the State CTE POS and delineate the responsibilities of students, school systems, MSDE and the postsecondary partner in order for the student to earn the articulated credit. The following statewide agreements have been developed/implemented during FY 09:

- Baltimore International College and Anne Arundel Community College for three of Maryland's CTE programs of study (American Culinary Federation, Food and Beverage – ProStart, and Lodging Management);
- Towson University for the Teacher Academy Program; and
- University of Maryland, Baltimore County for the Project Lead The Way Pre-engineering Program
- Penn College and the Community College of Baltimore County for Automotive Technology and Autobody/Collision Repair Technician

Apprenticeship opportunities also exist for programs in the Construction and Development Career Cluster. Apprenticeship is a value added option for students in the Construction Trades and the Construction Maintenance State –developed CTE POS.

3. Supports initiatives to facilitate the transition of sub-baccalaureate career and technical education students into baccalaureate programs

As previously noted, an important feature of Maryland's State POS is the establishment of articulation agreements with its two- and four-year postsecondary institutions. Currently, Maryland has **38** State POS, and has established baccalaureate-level statewide articulation agreements for the following programs: Project Lead The Way Pre-Engineering, Food and Beverage Management ProStart, American Culinary Federation, Lodging Management, Teacher Academy of Maryland and. National programs, such as the Lodging Management Program, are recognized by industry and have both secondary and postsecondary components.

In addition, the Associate of Arts in Teaching earned at the community college, articulates into Maryland's baccalaureate degree teacher education programs, providing community college students to immediately enroll in upper division courses required by the degree. A new, fully articulated 2- to 4-yr degree in engineering was established in FY 09.

4. Supports CTE student organizations

Career Technology Student Organizations (CTSOs) help students acquire the employability and leadership skills that will enable them to succeed in the workplace. Through participation in Maryland sponsored CTOS (Future Business Leaders of America, DECA, FFA, Health Occupations Students of America, and SkillsUSA), students develop learning, thinking, interpersonal, technology, and communication skills, also known as Maryland's *Skills for Success*. Through participation in leadership and technical competitive events, students apply their leadership, academic, and employability skills to solve real-world problems.

Currently, nearly 10,000 secondary CTE students participate in one of the five Maryland CTOS. MSDE partners with the Maryland CTSO Boards and the National CTSO Chapters to provide leadership and technical assistance to CTOS. MSDE provides state-level staff and administrative support to each of the five organizations as well as directs and hosts an annual CTSO Officer Training for the 64 CTE Student Officers and an annual CTSO Advisor Training for some 110 CTE teachers. Maryland's Policies and Procedures for the Development and Continuous Improvement of Career and Technology Education Programs require local recipients to include an appropriate CTSO as a part of program development and implementation.

5. Supports public charter schools operating career and technical education programs

Working with CTE leaders in Baltimore City Schools, three construction-related CTE Programs of Study were approved for the 2009-2010 school year at the Reach! Partnership School.

6. Supports career and technical education programs that offer experience in, and understanding of, all aspects of the industry for which students are preparing to enter

Maryland CTE POS are designed around ten broad career clusters, based on all aspects of an industry, designed to help students make informed decisions regarding career pathways. Broad career clusters share a common core of knowledge and skills that provide students with an understanding of all aspects of the industry that they are planning to enter. For each cluster, these include planning, management, finances, technical and production skills, underlying

principles of technology, labor issues, and health and safety. Each State-developed POS includes a foundation course and capstone experience to teach and reinforce the knowledge and skills supportive of understanding all aspects of the industry. Learning and instruction are supported further by appropriate career development activities aligned with the Maryland Career Development Framework to help inform students' decisions and prepare them for lifelong learning.

7. Supports Family and Consumer Sciences

As a part of the instructional program for Family and Consumer Sciences (FACS), the MSDE convened quarterly supervisors' meetings to provide ongoing technical assistance to local school systems, identify potential partnerships and discuss curriculum initiatives in the area of financial literacy. MSDE began development for a statewide course in Personal Resource Management using instructional materials developed by Family Economics and Financial Education (FEFE) out of the University of Arizona. FACS Teachers attended a three-day professional development workshop on the curriculum materials, and they will receive a follow-up session in the next fiscal year.

8. Supports partnerships between education and business or business intermediaries, including cooperative education and adjunct faculty arrangements at the secondary and Postsecondary level

MSDE is an integral member of the GWIB which functions to ensure a state workforce system that assures coordination and collaboration among partner workforce agencies. GWIB is a business-led group of 45 members, a majority of whom represent the private business community. Other members include cabinet secretaries, college presidents, the state superintendent of schools, elected officials, labor, and representatives of nonprofit organizations.

The GWIB has identified industry sectors where there is a need to attract and retain future workforce participants in areas of high skill, high demand, high wage, and critical shortage areas. State CTE staff work closely with the GWIB on workforce development issues by serving as participants on these industry sector workgroups. GWIB has addressed the aerospace, health care, retail, transportation logistics, and education industry sectors by convening key stakeholders to identify and address workforce, workplace and policy issues. Summits and symposia have been held with state and national experts addressing the identified issues. A monograph produced after each summit/symposium documents not only the issues but action plans as well. Working with GWIB keeps CTE state staff on the leading edge of Maryland's workforce initiatives and helps to reinforce and coordinate development and implementation of the new CTE statewide POS.

Maryland has partnered with key stakeholders to develop CTE POS at the state level. Each of Maryland's ten Career Clusters has a statewide Program Advisory Committee (PAC) which consists of individuals representing parents, academic and career faculty, administrators, guidance, business and industry, labor organizations and other state economic and workforce agencies. These individuals cover all aspects of the industry.

At the local level a specific PAC, consisting of the same stakeholders identified above, provides the required input for planning, developing, implementing and evaluating CTE programs. The local counterpart for economic and workforce development are included in these PACs as well as parents, faculty, business and industry, and labor.

A CTE Program Review Panel, consisting of economic and workforce representatives, higher education, local recipients, parents, labor and industry, reviews each newly developed local secondary CTE POS that is submitted for state approval. State developed CTE POS that local school systems chose to adopt undergo similar review by the Career Cluster Team prior to recommending state approval. This provides stakeholder input on program development, implementation and evaluation to ensure that CTE programs are relevant to economic and workforce needs in Maryland and provide “value added” opportunities for Maryland students. Maryland’s Policies and Procedures for the Development and Continuous Improvement of Career and Technology Education Programs documents this process for secondary programs.

The process for the development and approval of postsecondary CTE POS has the required Advisory Committee and must also follow the approval process of the MHEC, the governing body in Maryland for postsecondary programs. Once a postsecondary program is approved by MHEC it is submitted to MSDE for inclusion on the community college’s list of programs eligible for the use of Perkins funds.

9. Supports the improvement or development of new career and technical education courses and initiatives, including career clusters, career academies, and distance education

Career Cluster Frameworks

Maryland’s Career Cluster system is described in a publication first published in 2003, which includes an overview and guide to the State’s 10 career clusters. This publication is updated as needed. The Career Clusters were developed and validated in facilitated, employer focus group sessions and represent key economic sectors of Maryland’s economy. Each career cluster is defined by the core business functions of the particular industry. These core functions became the career pathways for each cluster. Each career pathway also includes the full range of careers from those requiring an associate’s degree or less, a bachelor’s degree and those with more than a bachelor’s degree.

To facilitate the development of new programs and the continuous improvement of existing programs, Maryland has identified State CTE POS. These are CTE programs that not only meet the requirements for state program approval, but also include curriculum and professional development resources that ensure high quality and allow them to be replicated locally. Maryland’s State CTE POS have been either partner developed (e.g. Pre Engineering – Project Lead The Way) or developed through a statewide collaboration process following the state policies and procedures (e.g. Teacher Academy of Maryland). To date Maryland has developed 38 State CTE POS, with at least one in each of the 10 career clusters. By 2012 Maryland will have 48 State POS. The following key elements are a part of all programs of study:

- Standards-based curriculum aligned to industry/technical skill standards, academic standards, and *Skills For Success*;
- Value-added options for students through industry certification, advanced standing, or college credit earned while in high school;
- Work-based learning opportunities for students directly related to the CTE program of study;
- Oversight and quality assurance through program certification and/or industry advisory groups;
- Teacher professional development for initiation and continuous upgrades of the program; and
- Program sustainability plan for costs associated with implementation and ongoing quality to keep pace with industry requirements.

Credentialing of Student Learning

Maryland State POS are CTE programs that meet additional standards for program quality including the certification or credentialing of students through industry certification and/or postsecondary credits. Currently, Maryland has 38 CTE programs of study, most of which have industry certifications students can earn while in high school. The list of programs can be found at the MSDE website:

http://www.marylandpublicschools.org/MSDE/divisions/careertech/career_technology/programs

Additional program areas under development for State POS designation in FY 10 include:

- Construction and Development: Design Technologies;
- Environmental, Agriculture and Natural Resources: Horticulture Services; Certified Professional Horticulturist and;
- Information Technology: Computer Programming.

To view the list of technical assessments (Program Certification Chart-2009) that were identified by Career Cluster Teams go to the MSDE website:

http://www.marylandpublicschools.org/MSDE/divisions/careertech/career_technology/funding_reporting/perkins_IV_secondary.htm

10. Awards incentive grants to eligible recipients for exemplary performance or for use for innovative initiatives under Sec. 135 (c) (19) of Perkins IV (NA)

11. Provides activities to support entrepreneurship education and training

Entrepreneurship education is a component of each of the five State CTE POS in the Business, Management and Finance (BMF) Career Cluster. All students in BMF engage in entrepreneurship education through required, foundation-level courses in BMF as well as through advanced-level courses in Business and Marketing. Resources are made available through partnership with Marketing and Business Administration Research and Curriculum Center (MBA Research and Curriculum Center formerly known as MarkED) and the National Foundation for Teaching Entrepreneurship (NFTE). More than 2,000 BMF students also participate in business-related CTSOs (DECA and FBLA) where they may compete in numerous entrepreneurship-based competitions.

12. Provides career and technical education programs for adults and school dropouts to complete their secondary education (N/A)

13. Provides assistance to individuals who have participated in Perkins assisted services and activities in continuing their education or training or finding appropriate jobs

As part of the development of State CTE POS, Maryland has partnered with several postsecondary institutions and industry partners to develop state-wide articulation agreements to award early college credit and pre-apprenticeship opportunities for CTE graduates. As a result, more CTE program completers have earned college credit and transition to postsecondary and advanced training programs. Maryland also provides employment services for more than 8,000 high school students enrolled in a State CTE POS, Career Research and Development.

Maryland conducts an annual Work-Base Learning Survey with employers who hire students in state approved CTE POS. Results from the survey continue to provide evidence that Maryland's CTE students are well prepared to enter the workforce.

14. Develops valid and reliable assessments for technical skills

Maryland has formed a state-wide CTE Technical Assessment Workgroup to establish the guidelines for the identification and use of technical assessments that align with Maryland's State CTE POS and meet the "gold standard" (national or state assessments, standardized, end-of-program exams developed by third-party partners, state licensing agencies, or national business and industry associations). The CTE Technical Assessment Workgroup includes representatives from secondary and postsecondary education as well as industry partners, key to the development and success of CTE programs. These assessments must lead to industry-recognized credentials or provide students with college credit. Maryland has developed a chart for use by local school systems and community colleges that identify each of these assessments. To view the list of technical assessments (Program Certification Chart-2009) that were identified by Career Cluster Teams go to the MSDE website:
http://www.marylandpublicschools.org/MSDE/divisions/careertech/career_technology/funding_reporting/perkins_IV_secondary.htm

The workgroup has established guidelines for: the process for identifying appropriate technical assessment options for CTE program areas; ensuring access to technical assessments for CTE students based on their POS; and supporting student success in attainment of industry certification, licensure, and/or college credit. Maryland has also partnered with industry and assessment providers to increase access to certification exams throughout the state. Through state-wide partnerships with CompTIA, Cisco, Oracle and other assessment providers, CTE programs have increased access and alignment to the industry requirements. As a result of this work, more than 3,480 Maryland high school CTE graduates earned industry certification or licensure related to their CTE POS. This represents a 47 percent increase from the previous year.

15. Develops enhancing data systems to collect analyze data on secondary and postsecondary academic and employment outcomes

MSDE collects, analyses, and disseminates performance information on secondary and postsecondary CTE students in partnership with the MHEC and the DLLR. The files collected by the CTE enrollment and outcome systems form the framework for much of this performance data. Currently, data collected through these files is used for the following:

- Determining eligibility for federal funds at the state level;
- Communicating overall CTE program performance to key stakeholders;
- Reviewing local Perkins Plans for alignment of resources and opportunities for improvement;
- Evaluating CTE student performance as part of the local school system Master Plan;
- Providing Local Advisory Councils and Program Advisory Committees with performance data on which to evaluate program performance;
- Identifying lowest relative performing programs to be targeted for revision; and
- Establishing performance levels and targets for increasing CTE student achievement, as required in Perkins IV.

In addition to these uses of data for accountability and program evaluation, high quality data will allow local CTE staff to engage in “management by fact.” Analysis of accurate data will support evaluation, decision-making and operational improvement. Major steps have been taken to ensure the accuracy of CTE data including:

- Updating the Classification of Instructional Programs (CIP) code for approved CTE programs of study;
- Updating postsecondary approval process and CIP alignment to align to expanding postsecondary CTE programs at the two-and four-year colleges;
- Updating the Concentrator Course designation(s) for each CTE program at the secondary level and data collection alignment to credit-based designation of concentrators at the postsecondary level;
- Using internal statistical controls and data validation steps to ensure accurate reporting of CTE student outcomes;
- Updating file management and record-matching protocols to ensure alignment with federal NCLB measures and Perkins Core Indicators of Performance;
- Generating new data collection and report functions in order to capture student access and attainment of technical skills;
- Increase report generation and alignment to EDEN file submissions to meet new federal submission requirements; and
- Increasing collaboration with information management and institutional researchers to ensure accurate and complete file submissions.

Technical assistance on issues of data quality or the analysis and use of performance data for program improvement is available from DCCR staff on an on-going basis. Accountability updates are provided as a part of bi-monthly meetings with CTE Local Directors and at Perkins Regional Meetings with postsecondary partners.

16. Improves the recruitment and retention of career and technical education teachers, faculty, administrators, or career guidance and academic counselors and the transition to teaching from business and industry including small business

Partnering with the Division of Certification and Accreditation, Maryland has adopted procedures that help with recruitment and retention of CTE teachers. Examples of this include online teacher education programs as well as the ability to access certification records via the internet.

In order to help train and recruit certified Technology Education teachers, MSDE working in conjunction with Valley City State University (VCSU) has designed an undergraduate pathway in Technology Education which leads to a professional teaching certificate. MSDE and VCSU have also established two graduate level pathways which lead to either a Master's Degree or a Technology Education endorsement. All courses through VCSU are offered online and meet Maryland certification requirements for teacher education programs.

When Maryland State CTE POS are developed, teachers are recruited and hired locally. Maryland provides professional development through summer training institutes and year-long professional development with representatives from business and postsecondary education to help retain teachers. Maryland teachers are provided opportunities to apply for CPD credit which teachers use toward their recertification. Maryland encourages teachers from industry through alternate pathways to certification, such as Troops to Teachers.

Maryland's Resident Teacher Certification program offers local school systems the option of growing their own pool of teachers to support the transition to teaching from business and industry. Local school systems select potential teacher candidates from among individuals with baccalaureate degrees or higher; however, the degree areas are not necessarily in education. The candidates are employed and coached while taking local coursework as part of the process to becoming fully certified.

MSDE, working in conjunction with local school systems, has organized an open positions list for Technology Education. As there continues to be a shortage of Technology Education teachers in Maryland, MSDE is encouraging the use of this document to assist in filling vacancies. The document is shared with potential graduates from nearby colleges and universities that have Technology Education pre-service programs. As a result of the first document being shared with higher education, more than 15 teaching vacancies were filled in seven school systems.

17. Supports Occupational and employment information resources N/A

B2 Progress in Developing and Implementing Technical Skill Assessments

B2a. The state provides an update on the following aspects of its approved plan for developing and implementing technical skill assessments:

1. The program areas for which the state has technical assessments

To view the list of technical assessments (Program Certification Chart-2009) that were identified by Career Cluster Teams go to the MSDE website:

http://www.marylandpublicschools.org/MSDE/divisions/careertech/career_technology/funding_reporting/perkins_IV_secondary.htm

2. The estimated percentage of students who are reported in the state’s calculation of career and technical concentrators who took the assessments.

Maryland’s estimated percentage of students who are reported in the state’s calculation of career and technical concentrators who took the assessments has increased to 32 percent. Nearly one-third of all CTE concentrators are enrolled in CTE programs that have access to an aligned technical assessment.

3. The state’s plan and timeframe for increasing coverage of programs and students reported in the future

As detailed in number 14, section B1b, Maryland has a workgroup that will review the process for identifying appropriate technical assessment options for CTE program areas; identify strategies for ensuring access to technical assessments for CTE students based on their program of study; and identify support for student success in attainment of industry certification, licensure, and/or college credit. Maryland has made great progress toward the goal for increasing coverage of programs and students reported is by the end of the Perkins Act in 2012. Program coverage has increased to 32 percent and the number of students successfully earning industry certification has increased to more than 3,480.

B3. Implementation of State Program Improvement Plans

B3a and B3b. This section is not applicable for Maryland in FY09, but Maryland is developing and will have in use, if applicable, a state program improvement plan for FY2010.

B4. Implementation of Local Program Improvement Plans

B4a, B4b. This section is not applicable for Maryland, but Maryland is developing and will have in use, if applicable, local program improvement plans.

B5. Tech Prep Grant Award Information

B5a, B5b, B5c, B5d. This section is not applicable for Maryland as Maryland has combined Tech Prep with Basic funds.