

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 conducts assessments of the Career Technology Education (CTE) programs using numerous tools. These include the Interim and Final programmatic reports, the CTE Local Plan for Program Improvement, the self-assessment, a monitoring plan, and approval of 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 describes how recipients plan to improve CTE programs to meet core indicators targeted levels of performance. Strategies to increase the number and/or percentage of students achieving rigorous levels for academic, technical and related workplace skill proficiencies are incorporated. Maryland's graduation requirements for both CTE and non-CTE students are the same. CTE students must also pass the state assessments in Algebra/Data Analysis and English II which constitutes Maryland's required secondary assessments under No Child Left Behind (NCLB). Increased academic standards linked with NCLB measures have been established as a high school graduation requirement beginning with the class entering high school in 2005. Student achievement on these exams will be 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.

Students in Maryland's CTE programs are also encouraged to meet University System of Maryland (USM) entrance requirements and become "dual completers." This is not part of the Perkins core indicators but it is part of each school systems' accountability report. In Maryland, almost 50% of all CTE completers also meet the USM entrance requirements. This is up from 14% in 1993. This criterion is another means of demonstrating academic achievement.

The Policies and Procedures for the Development and Continuous Improvement of Career and Technology Education Programs clearly outline that the academic expectations of CTE students are the same as students in non-CTE programs. Local School Systems (LSS) will also begin reporting their use of Accuplacer and PSAT exams to determine high school students' college academic readiness. Based on the results of these assessments, students are provided with targeted support to reduce the need for remediation when they enter college. Baseline data will

be collected to determine remediation needs. Many of Maryland's CTE programs of study, which have been developed in conjunction with LSS, postsecondary partners and local business and industry, also include licensure and certifications. Students who take and pass the appropriate industry certification exams can earn recognition or a professional designation. The percentage of students who successfully pass the exam will be used to measure technical skill attainment. Annual improvement is required to satisfy core indicator 2S1. Local school systems are encouraged to adopt CTE programs of study through technical assistance, professional development and program implementation grants. As school systems increase the adoption of Maryland CTE programs of study, additional opportunities are available to students to earn industry certification.

During the development of the Maryland State Plan, enhanced monitoring of CTE programs was identified for further improvement. A monitoring workgroup was formed to review the current monitoring plan and develop additional monitoring guidance based on Perkins IV. The new monitoring program includes a self-assessment checklist and on-site visits to at least five LSS and community colleges each year for the next five years.

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

Maryland Plan for Technology in Education

In keeping with the Maryland Plan for Technology in Education, Maryland's twenty-four 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.

The results of the 2007 survey indicate:

- 98% of all Maryland classrooms are connected to the Internet - up from 96% in 2006;
- 78% of all Maryland teachers have intermediate or higher knowledge of computer skills - up from 76% in 2006;
- 72% of all Maryland teachers have intermediate or higher knowledge of Internet use - up from 70% in 2006;
- 74% of all Maryland teachers have intermediate or higher knowledge of technology integration- up from 72% in 2006: and
- Student to computer ratio is 3.4:1, compared to 3.7:1 in 2007 and compared to the Maryland target of 5:1;

NOTE: The 2007 data reflects 2006 survey information. More recent data was not available at the time of this report.

The Educational Technology Plan for the New Millennium 2007-2012 is Maryland's blueprint for the effective utilization of technologies in schools statewide. This revised five-year plan is currently being implemented.

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 training 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 08, Maryland provided on-site training for 17 school systems (up from 7 in 2006), training 144 CTE faculty members and work-based learning coordinators (up from 77 in 2006).
- Maryland continues to survey statewide users to better meet customer needs in terms of using software, providing training and identifying best practices. As a result of the survey, training has been upgraded to offer an introductory session and then beginner, intermediate and advanced levels. In addition software has been 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 upcoming fiscal year.

VTECS Direct is a database program designed to manage information about technical standards, performance measures and academic standards linked to technical standards. Along with the alignment of academic and industry standards, Maryland continues to work with the software developers to align Maryland's Career Cluster framework with VTECS Direct-5. VTECS Direct is used to house model career pathways of high quality, industry validated CTE programs so all staff in local school systems can access standards as they build their CTE programs.

- 3. Offers professional development programs, including providing comprehensive professional development, (including initial teacher preparation) for career technical education teachers, faculty, administrators, and career guidance and academic counselors at the secondary and postsecondary levels**

Maryland's adoption and implementation of Career Clusters and Career and Technology Education programs of study provided the Maryland State Department of Education (MSDE) with the opportunity to offer comprehensive, technically focused professional development aligned with industry standards. The majority of Maryland's CTE programs of study align with national technical standards and Maryland has partnered with several statewide and national organizations and associations that are able to deliver up-to-date, technically relevant professional development to teachers and school system staff. For example, Maryland has partnerships with the Maryland Restaurant Association, the American Hotel and Lodging Association, the National Center for Construction Education and Research (NCCER), and

PrintEd to name a few. These partnerships allow Maryland to offer high quality, technically relevant professional development that directly aligns to the curriculum of the CTE program. Maryland has also partnered with Stevenson University, the University of Maryland at Baltimore County and Towson University. These university affiliates offer professional development aligned to Project Lead The Way Biomedical Sciences and Pre-Engineering programs, as well as the Teacher Academy of Maryland, respectively. Teachers 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.

Many of Maryland's programs of study require teacher participation in the professional development offered as a requirement to teach the program of study. To defray the costs of participation MSDE offers school systems and community colleges grant funds, through the Perkins Reserve Fund Grant.

Another area identified for further improvement during the development of the Maryland State Plan was the CTE Local Plan for Program Improvement. The Maryland CTE Local Plan for Program Improvement workgroup developed a plan that not only met the new requirements in Perkins IV, but focused on analyzing data enabling the writer to make data driven decisions. To support the increased focus on data driven decision making Maryland provided CTE administrators considerable professional development on analyzing data through a series of statewide workshops. The State also offered local recipients the option of customized work sessions using local data to drill down to root causes. Several local recipients used this opportunity as well.

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 programs of study, has served as a catalyst for school systems to adopt the state CTE programs of study where academic and technical education is fully integrated into the high school program of study. Maryland's Career Clusters which have been adopted by all 24 school systems provides 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 work with LSS and individual high schools to align courses and programs of study 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 the Perkins Reserve Fund Grant to incentivize the implementation of the Maryland CTE programs of study as well as 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 and the High School Assessment Program. A statewide assessment system promotes rigorous higher-level skills, which are demanded in the workplace and higher education. Career and Technology Education programs are aligned with these initiatives and support higher achievement through application and extension of academic standards through curriculum integration and/or Blended Instruction. Maryland's *Skills for Success* are standards-based workplace knowledge and skills that are integrated into both academic and technical instructional programs across the state.

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

The *High Schools That Work (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 that teach the essential concepts from the college preparatory curriculum by encouraging students to use academic content and skills to address real-world projects and problems. There were fifteen *HSTW* member sites in Maryland during FY 08. These sites receive professional development through local, state and national workshops. More than \$63, 000 was awarded to these sites to support professional development opportunities that are aligned to the key practices of *HSTW*, specifically those related to raising the academic achievement of all students, but especially to those enrolled in CTE programs.

Maryland also continues to promote challenging CTE programs such as Pre-Engineering - Project Lead The Way, Cisco Networking Academy, and Oracle Database Academy. Academic components of these rigorous programs are aligned to the industry-related curricula.

- 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 CTE programs, 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.

MBRT continues to work with CTE through the 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.

In addition, CTE has partnered with the University of Maryland Baltimore County (UMBC) to support Computer Mania Day (CMD). CMD provides a day of technology-related activities for up to 800 middle school girls and their parents and teachers to provide a broad-based introduction to the ways in which different careers make use of technology. Several sessions exploring high tech occupational areas are offered by adult mentors from technology companies such as Cisco, Oracle, Microsoft and Sun Systems. Students are encouraged to take advantage of CTE programs of study in information technology, manufacturing and engineering. In addition the adult mentors challenge students to take more rigorous mathematics and science courses when they enter high school. Partners from UMBC and the Center for Women in Technology (CWIT) also provide guidance and support to Maryland in the development of a new CTE program of study in Information Technology – Computer Programming.

- 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, in this past year, 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 addition, as part of the revision of the CTE program approval process, LSS are realigning and upgrading CTE programs using the Career Cluster Frameworks. As new programs are developed, LSS are required to use Program Advisory Committees (PAC) that represent the full range of occupations in a career cluster.

Career and Technology Education and State and Regional Occupational Opportunities

Maryland's workforce development agencies collaborate on numerous economic priorities. These agencies include: Maryland Higher Education commission (MHEC), Governor's Workforce Investment Board (GWIB), Maryland Department of Labor, Licensing and Regulation (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 CTE programs in Homeland Security and the Teacher Academy of Maryland are two outcomes 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 Governor's Workforce Investment Board (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. Another method of joint planning is the requirement that the local superintendent of schools and the occupational dean of the community college serve on the Local Workforce Investment Board. Many times the superintendent appoints the Local Director of Career and Technology Education to serve in his/her place on this committee.

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 Career Technology and Adult Learning 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 Council under Governor O'Malley's direct leadership has established a CTE Task Force to develop an action plan for the expansion of rigorous CTE programs of study.

7. Serves individuals in State Intentions

Correctional Education Occupational Programs are located in 10 State Adult Correctional Institutions and one external facility, Anne Arundel Community College (AACC). Eighteen different disciplines are included in the thirty-seven programs that are offered. The total enrollment for FY08 was **1,972** students with **1085** completions.

In all the institutional programs, occupational instructors have actively developed linkages with private business and industry through advisory committees. Such partnerships have recently provided valuable material and equipment donations for instruction in several programs at the

Occupational Skills Training Center and the Heating Ventilating and Air Conditioning (HVAC) program at Maryland Correctional Training Center. These partnerships not only have netted material gain to include raw construction materials, autos from the major auto manufacturers for diagnostic instruction, and cut-away demonstration models for theory instruction, but these companies also share valuable input for curriculum updates and access to industry certifications and accreditations

The addition of a new program beginning late last year, Telecommunications and Cabling known as “C-Tech,” at the Metropolitan Transitional Center in the Central 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 and Auto Body students;
- A+ certification test is offered for computer repair students;
- Telecommunications Certification (C-Tech); and,
- PrintEd Certification (Graphic programs).

A total of 707 External Certificates were awarded in FY 08. In addition, pre-tests for Microsoft Office Specialist (MOS) are also provided for Office Technology Students.

Professional development improved significantly this year due to the employment/transition training and professional workshops attended by the instructors. Federal 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 workgroup to look at strategies to ensure success for CTE students who are members of special populations. 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 will continue 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 address 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 the Division of Career Technology and Adult Learning (DCTAL) at MSDE. The MSDE is the recipient of the Perkins funds. DCTAL administers CTE programs. This Division is led by an Assistant State Superintendent and falls under the purview of the Office of the Deputy Superintendent for Instruction and Academic Acceleration.

The CTE Instructional; Student and Assessment Services; and Systems Branches deliver services to implement and assess the CTE programs within the local school systems and community colleges. Staff from all three branches provides technical assistance as members of the ten Career Cluster Teams.

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 program of study.

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 programs of study.

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 Voluntary State Curriculum (VSC) and levels of cognitive demand represented in the VSC. 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 CTE program of study is considered to be Tech Prep, and many local school systems provide opportunities for students to dual enroll in postsecondary 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 program of study and delineate the responsibilities of students, school systems, MSDE and the postsecondary partner in order for the student to earn the articulated credit. In the 2007-2008 school-year the following statewide agreements are in place or will be in place by 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

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 CTE program of study.

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

As stated in the previous question, an important feature of Maryland's CTE programs of study is the establishment of articulation agreements with its two- and four-year postsecondary institutions. Currently, Maryland has **30** state programs of study, 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. Maryland has adopted these as a CTE program of study facilitating the establishment of articulation agreements with postsecondary counterparts.

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. Other areas, such as engineering, are being developed.

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 CTSOs (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 CTSOs. MSDE partners with the Maryland CTSO Boards and the National CTSO Chapters to provide leadership and technical assistance to CTSOs. 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 CTE 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 (N/A)

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 programs of study 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. Learning and instruction are supported 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 FACS

MSDE convened a series of writing teams to develop, edit and implement a Voluntary State Curriculum (VSC) for Family and Consumer Sciences. VSCs are provided to local school systems to identify what students should know and be able to do in a variety of instructional areas.

As a part of the instructional program for Family and Consumer Sciences, the MSDE began development for a statewide course in Personal Resource Management. Lesson plans and units will include topics in financial goal setting, career planning, establishing good credit, taxes, insurance, and investing.

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 programs of study.

Local jurisdictions are required to have Local Advisory Committees (LAC). The role and composition of the LAC is specified in state statute.

Maryland has partnered with key stakeholders to develop CTE programs of study 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 Program Advisory Committees 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 program of study that is submitted for state approval. State developed CTE programs of study 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 programs of study has the required Advisory Committee and must also follow the approval process of the Maryland Higher Education Commission (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. Some local school systems and community colleges have convened joint Advisory Committees (both Local and Program) to ensure seamless transition between the learning levels and capture the postsecondary advanced standing, articulated or transcribed credit.

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 CTE programs of study. 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 CTE programs of study 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 30 program of study, with at least one in each of the 10 career clusters. By 2012 Maryland will have 48 programs of study. 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 programs of study 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 30 CTE programs of study. 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 program of study designation in FY 2009 include:

- Arts, Media and Communications: Broadcast Technology;
- Environmental, Agriculture and Natural Resources: Environmental Studies and;
- Information Technology: Computer Programming.

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 (N/A)

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 (N/A)

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 CTE program of study 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 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

It is expected that the workgroup 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.

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 in the past five years to ensure the accuracy of CTE data including:

- Updating the Classification of Instructional Programs (CIP) code for approved CTE programs of study;
- Updating the Concentrator Course designation(s) for each CTE program;
- 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; 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 DCTAL 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.

When Maryland CTE programs of study 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 encourages teachers from industry through alternate pathways to certification, such as Troops to Teachers.

Career guidance and academic counselors participate in professional development. Ongoing professional development enables counselors to understand CTE offerings and help with the recruitment and retention of students. Maryland’s Career Development resources for grades seven through twelve, developed previously with Perkins Section 118 funds, enable counselors to work with teachers to develop career advisories.

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.

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 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 number of students who are reported in the state's calculation of career and technical concentrators who took the assessments is 10%.

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. The goal for increasing coverage of programs and students reported is by the end of the Perkins Act in 2012.

B3. Implementation of State Program Improvement Plans

B3a and B3b. This section is not applicable for Maryland in FY 08, 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.