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; Final Financial Reports; the Local Plan for CTE Program Improvement and annual updates; Bridge to Excellence Master Plan Annual Updates, 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 and 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 Local School Systems (LSSs) are preparing CTE completers to also meet the entrance requirements of the University System of Maryland (USM). 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.

The Bridge to Excellence legislation requires that the Master Plan Update “shall include goals, objectives, and strategies” for the performance of students enrolled in CTE programs. This section of the Master Plan is reviewed and approved by the CTE Systems Branch.
During Program Year (PY) 10-11; six LSSs and five 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), the Governor’s Workforce Investment Board, and The Maryland Higher Education Commission (MHEC). Each of the 11 sites 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.

As outlined in *The Maryland Educational Technology Plan for the New Millennium: 2007-2012*, teachers and library media specialists are working to meet state-established standards for technology-related knowledge and skills. Through the adoption of statewide CTE Programs of Study (POS), MSDE has developed opportunities for on-going professional development (PD) related to instructional technology. Teachers are working to successfully integrate instructional technology into the classroom through the support of face-to-face and online PD experiences. Both formal and informal opportunities exist to showcase best practices and to discuss the use of emerging technologies. Further, MSDE has incorporated recommendations made in the *Investing in Instructional Technology: Accelerating Educational Reform in Maryland, June 2011* report by providing digital resources to teachers and students. Through an instructional tool known as a common course syllabus, CTE Programs of Study (POS) provide teachers with the opportunity to work across the state to develop and share instructional resources, engage in professional learning communities and focus on increased student achievement. The resources shared within a common course syllabus are often instructional tools that help educators differentiate instruction and help students apply content knowledge. Common course syllabi are developed in partnership with post-secondary program affiliates and are shared electronically.

A number of steps have been taken to improve and expand the use of technology in CTE. Examples include the use of Wikis, Blackboard, Whiteboard, Webex, Voice Thread and online learning platforms being integrated into CTE curriculum and teacher PD.

Local CTE administrators are also making use of these technologies as they oversee and manage all of the CTE program offerings in their school systems. One example of this is in the annual submission of the CTE Local Plan for Program Improvement application. During PY 08-09 MSDE staff developed a web-based application process for local CTE administrator use. Local CTE administrators also use DocuShare to upload all grant applications, program proposals, amendments and the required Interim and Final Perkins reports. Enhancements to the web-based plan are made on an annual basis, as feedback is gathered and technology advances.

3. **Offers PD programs, including providing comprehensive PD, (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’s CTE system of Career Clusters and state-developed POS provide MSDE with the opportunity to target comprehensive, technically focused PD 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 PD for faculty and administrators. Partnerships include, but are not limited to, the: Maryland Restaurant Association, American Hotel and Lodging Association, National Center for Construction Education and Research (NCCER), National Automotive Technicians Education Foundation (NATEF), and PrintEd. These partnerships allow Maryland to offer high quality, technically relevant PD that directly supports the curriculum of the CTE POS. Maryland has also partnered with Stevenson University, the University of Maryland at Baltimore County and at College Park, the University of Baltimore, Towson University, the Community College of Baltimore County and the Baltimore International College to offer PD aligned to the following MSDE CTE POS: Project Lead the Way Biomedical Sciences and Pre-Engineering, Curriculum for Agricultural Science Education (CASE), Interactive Media Production, Teacher Academy of Maryland (TAM), IT Networking (Cisco), IT Database Management, Automotive Technology, and American Culinary Federation POS. Faculty participating in the PD had the opportunity to earn graduate level credits from these institutions. Continuing PD Credit (CPD) was also offered by MSDE to teachers who participated in the PD events. This included opportunities for work-based learning instructors participating in PD to earn CPD credit. These instructors teach the Career Research and Development (CRD) POS. This program (formerly known as cooperative education) was upgraded to ensure that two, one-credit courses taught in school are focused on preparing students for the 21st Century workplace.

Many of Maryland’s CTE POS require teacher participation in the state-sponsored PD. To help defray the costs of participation, MSDE offers school systems and community colleges grant opportunities for PD through the Perkins Reserve Fund.

To assist LSS CTE administrators in planning PD for CTE teachers and staff, MSDE developed an online PD catalog. The catalog provides a comprehensive listing of PD opportunities offered within a fiscal year. The link appears below.

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

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 CTE through a variety of initiatives. State sponsored PD, geared specifically to the state CTE 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, or integrated, into 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 community’s 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 worked with LSS and individual high schools to align courses and CTE 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 (AP). Maryland’s State CTE POS show students how they can include CTE and AP courses into their high school plan. CTE programs are aligned with these initiatives and support students taking challenging academic and technical coursework. As part of its emphasis on career and college readiness, Maryland has Skills for Success, standards-based workplace knowledge and skills, which are integrated into both academic and technical instructional programs across the state.

Maryland has identified technical assessments by career cluster and program. Students can receive national or state certifications or licenses and/or early college credit when they pass these industry recognized technical assessments and state licensures. To view the Program Certification Chart-2010 go to the MSDE website: [http://www.marylandpublicschools.org/MSDE/divisions/careertech/career_technology/funding_reporting/perkins_IV_secondary.htm](http://www.marylandpublicschools.org/MSDE/divisions/careertech/career_technology/funding_reporting/perkins_IV_secondary.htm). The chart is updated annually to ensure the most current technical assessments, certifications, licenses, and/or early college credit opportunities are listed.

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

Maryland is one of 45 states that has adopted the Common Core standards and is one of 24 member states in the Partnership for Assessment of Readiness for College and Careers (PARCC). The goal of PARCC is to create an assessment system and supporting tools that will help states dramatically increase the number of students who graduate high school ready for college and careers and provide students, parents, teachers and policymakers with the tools they
need to help students, from grade three through high school, stay on track to graduate prepared. With increased alignment to the common core standards, graduation requirements that include the passing of high school assessments and participation in the PARCC, fewer school systems participated in the HSTW initiative. In the 2010-2011 school-year, four school systems, (six sites), participated in HSTW. Each site received funds for local, state and national PD 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.

Maryland received a Rigorous Program of Study (RPOS) grant for the Transportation, Distribution, and Logistics Cluster. One of the goals of the grant is to create a curriculum aligned with NATEF industry standards and the Common Core Academic Standards. Maryland also has three CTE projects in its Race To The Top grant. In one project, Maryland is working with the Southern Regional Education Board in its Preparation for Tomorrow project to develop a program of study in Construction Design and Management. Another project includes statewide adoption and implementation of a Science, Technology, Engineering, and Mathematics (STEM) curriculum based on the International Technology and Engineering Educators Association standards and instructional materials. The third project is targeted to 10 low-performing middle schools on implementing Project Lead The Way’s Gateway To Technology program.

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

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 STEM programs in CTE have also included a focus on non-traditional fields and emerging professions. Maryland has 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.

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 programs 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, Maryland
Business Round Table (MBRT), Governor’s Workforce Investment Board (GWIB), and the Local Advisory Committees (LACs) 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 POS related to Maryland’s 10 Career Clusters.

In PY08 – 09, the Assistant State Superintendent for CTE co-chaired a CTE Task Force appointed by Maryland’s Governor O’Malley that was broadly representative of parents, teachers, businesses and labor organizations. 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 careers.

In PY10 – 11, continued progress was made on implementation of the CTE Task Force recommendations. The number of State CTE POS is 43 of 48, with updates and expansion to five current State POS. The number of students who completed a State CTE POS increased to more than 57%. There are now 20 postsecondary program affiliates and the number of statewide articulation agreements, providing students an opportunity for early college credit, is 11.

A CTE marketing campaign was established that involves a partnership among the Division of Career and College Readiness (DCCR), the Division of Library Development and Services, Public Libraries and LSS CTE Offices. Each program year, LSS CTE POS are featured at the public libraries. To date, 17 presentations in three school systems have been made. Lastly, all 24 school systems are implementing the career development standards by offering a program of instruction in career development.

Maryland statute requires every county and the City of Baltimore to establish a 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 CTE POS to have a Program Advisory Committee (PAC).

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, 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 CTE POS that prepare students to enter the workplace.
in high growth and high wage areas. One example of CTE program development in response to new occupational opportunities is the incorporation of cyber security in the Information Technology (IT) Career Cluster. In partnership with CyberWatch and Cisco Academies, new CTE courses and program options are available throughout the state. In program year 2010-2011, more than 500 CTE students participated in cyber security courses and competitive events.

**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 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 CTE 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 improve learner outcomes in preparing students for full participation in the Maryland economy. The Governor’s P-20 Leadership Council now includes the Secretaries of DLLR and DBED to promote an aligned educational system with workforce and economic development. The expansion of CTE, increasing opportunities for work-based learning, and supporting the implementation of Maryland’s Career Development Framework are included in the Council’s priorities for 2012.

7. Serves individuals in State Institutions

Adult Correctional Education offered offenders 18 occupational training programs taught by 33 instructors in nine institutions. Student enrollment for PY 10 – 11 totaled 1706, with 850 earning state occupational certificates. In addition, 374 of those students earned an additional 655 national certifications in the courses list below.

<table>
<thead>
<tr>
<th>Correctional Education Occupational Program</th>
<th>National Certificate</th>
<th>Number Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive Mechanics and Automotive Body Repair</td>
<td>Automotive Service Excellence (ASE)</td>
<td>23</td>
</tr>
<tr>
<td>HVAC/R*</td>
<td>EPA CFC Refrigerant Management Test</td>
<td>56</td>
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<tr>
<td>Printing &amp; Graphics</td>
<td>PrintEd</td>
<td>14</td>
</tr>
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Table Continued

<table>
<thead>
<tr>
<th>Correctional Education Occupational Program</th>
<th>National Certificate</th>
<th>Number Awarded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction: CORE, Residential Carpentry, Electrical HVAC/R Masonry, Plumbing HVAC/R Masonry, Plumbing *</td>
<td>National Center for Construction and Research and Education (NCCER)</td>
<td>555</td>
</tr>
<tr>
<td>Office Technology</td>
<td>Microsoft Office Specialist</td>
<td>7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>655</strong></td>
</tr>
</tbody>
</table>

Note: * These programs offer several levels of competencies that allowed students to earn more than one certificate.

A major emphasis this past year was to adapt national certification standards that bring Correctional Education (CE) occupational courses in line with those in secondary schools and community colleges. CE expanded NCCER certification in construction by certifying the instructors in the Sheet Metal, HVAC, and carpentry programs at three locations. Training took place in the winter of 2010, and accounts for the nearly 20% increase in the number of NCCER certificates awarded.

In addition, CE began offering Microsoft Office Specialist (MOS) certification exams. The exams offered were MS Word, Excel, Access, and Power Point. Because the testing is done online, a special access system was set up so the examination process went through each principal’s computer. This special access system provided the needed internet security.

CE also began offering an Introduction to the Computer course. All correction students are encouraged to take this course prior to release. The course covers basic computer operations, all four Microsoft Office software programs, and the internet through ‘dummy’ software. National certification is anticipated through IC3 testing.

Traditionally, student training has been done by the CE instructors in classrooms and labs. This past year, due to limited funding and an increase in the number of inmates being released without training, CE developed “On the Job Training” (OJT) programs which utilize the skills and resources of DOC. The first program with OJT was Food Service. This short term training program covers basic kitchen operations and food preparation. The CE staff identified which skill sets would be taught. At the end of the course students, who were ready for release, had demonstrated skill sets needed by employers in this field.

PD also improved this year. For the first time in years, all instructors came together to discuss goals and objectives, form subcommittees and began work on a variety of issues that needed instructor input. Some of the items addressed included: uniform curriculum, testing standards, integration of employability skills into all occupational programs, and strategies for increasing business involvement. In addition new programming began which engaged staff in a lot of in-service training, emphasizing work force development and business involvement.
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 new programs are designed, LSS 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, B-4, and in other areas throughout the local plan/application. As part of the Bridge to Excellence Master Plan Annual Update, each LSS includes a summary of actions taken to ensure access and success for every CTE POS student, including students who are members of special populations.

Maryland has successfully used the Support Services Team approach, which provides both direct and indirect services to special populations enrolled in CTE POS. During the transition year, Maryland convened Students in CTE with Disabilities Workgroup to identify strategies to ensure success for CTE students who are members of this special population. The workgroup meets annually and the outcomes focus 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 PD opportunities. In addition, Maryland has two Memoranda of Understanding (MOU) to ensure success for members of special populations. One involves coordination among other Divisions within MSDE and the other addresses collaboration among several state agencies serving students with special needs.

9. Offers technical assistance for eligible recipients

Leadership and technical assistance to local recipients of CTE funds is provided by the staff of the three CTE branches within DCCR at MSDE. DCCR administers the system of CTE. This Division is led by an Assistant State Superintendent who 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 LSS and community colleges. Staff from all three branches provides 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 LSSs, 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 CTE responsibilities fall within this branch.

The CTE Student and Assessment Services Branch is responsible for developing systems of assessment and accountability for CTE 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 three regional coordinators who provide technical assistance to the primary contact for each of the 24 LSSs 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, CTE program approval, monitoring of CTE POS, and assistance with program implementation.

The three CTE branches meet with the Local Directors of CTE from each of Maryland’s 24 LSSs at least four times a year to discuss local and State initiatives that impact CTE. These meetings are held to provide technical assistance to these individuals and their staff. 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 POS.

Maryland convenes joint meetings of LSS directors of CTE 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 CTE, 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 13A.10.04) 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. This comprehensive instructional program shall provide for diversity of student needs, abilities, and interests at the early, middle, and high school learning years and shall include the career development content standards. In addition, the COMAR requires that prior to grade 9 all students must develop an academic and career plan that is updated in subsequent years.
The framework is a companion document to the Maryland Career Clusters and Maryland CTE POS booklet. The purpose of this standards-based framework is to enable students to select a career cluster and develop a program sequence. The sequenced POS becomes part of a secondary-postsecondary academic and career plan in reference to the COMAR 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 framework is based on the National Career Development Association (NCDA) Career Development Guidelines. The six standards define the process for implementing an instructional program in career development for all students. The process steps include: 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, 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.

From 2003 through 2010, funding from the Citi Foundation was used to provide PD to administrators, teachers and school counselors to implement an instructional program in career development. The Citi Foundation Schools That Work Institute and Coaching Series included a focus on schools establishing career guidance and advisory systems, and the Maryland Career Development Framework served as the foundation of the system.

Beginning in PY 2009 – 2010, MSDE Division of Career and College Readiness staff was invited to participate in Pupil Services Visits. These visits provide opportunities to see and provide feedback on LSS implementation of career development. The process occurs every five years for each local school system. Since 2009, DCCR staff has participated in nine visits with three of the nine occurring in PY 2010 - 2011.

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 LSSs 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 TAM and the Pre-engineering program through Project Lead The Way. The Policies and Procedures for the Development and Continuous Improvement of Career and Technology Education Programs define the requirement for the development and implementation of articulated CTE POS.

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.
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 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 CTE POS is the establishment of articulation agreements with its two- and four-year postsecondary institutions. Currently, Maryland has 43 State POS, and established baccalaureate-level statewide articulation agreements. The following statewide articulation agreements were signed during PY 10-11: Automotive Technology Technician, Autobody/Collision Repair Technician, Graphic Communications (PrintED). The Automotive Technology Technician, Autobody/Collision Repair Technician articulation agreements are at both the community college and four-year college level.

Articulation Agreements signed prior to PY 10 include: Project Lead The Way Pre-Engineering, Project Lead The Way Biomedical Sciences Program, Food and Beverage Management ProStart, American Culinary Federation, Lodging Management, and the TAM. National programs, such as the Lodging Management Program, are recognized by industry and have both secondary and postsecondary components. In some instances a CTE POS may have a statewide articulation agreement with more than one postsecondary institution.

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, 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.

In PY 10 – 11, more than 10,000 secondary CTE students participated in one of the four 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 four organizations as well as directs and hosts an annual CTSO Officer and Advisor Training. In PY 10-11 46 CTE Student Officers and 120 CTE teachers were trained. 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 CTE POS development and implementation.

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

Working with CTE leaders in Baltimore City Public Schools, three construction-related CTE POS were approved for the 2009-2010 school year at the Reach! Partnership School. In
addition, Baltimore City Public Schools support several charters and “Innovation Schools” which offer CTE POS in Engineering and Biotechnology. MATHS High School is a public charter which offers a CTE program in Biotechnology. Two Friendship Academy innovation schools offer CTE programs in Pre-Engineering. These programs continue and provide students with upgraded instruction.

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, the common core includes planning, management, finances, technical and production skills, underlying principles of technology, labor issues, and health and safety. Each State-developed CTE 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), MSDE convened tri-annual supervisors’ meetings to provide ongoing technical assistance to LSSs, identify potential partnerships and discuss curriculum initiatives in the area of financial literacy and nutrition education. MSDE began development for a statewide course in Personal Resource Management using instructional materials developed by Family Economics and Financial Education (FEFE) from the University of Arizona. In PY 10 – 11, FEFE provided an online PD session on behavioral economics to over 80 FACS teachers. Additionally, three FACS teachers applied and were accepted as FEFE Master Teachers. They were the second group to comprise the Maryland FEFE State Educator Team. FEFE also identified Maryland as its East Coast Training location allowing FACS teachers a continued opportunity to attend a combination of three-day PD workshops and follow-up trainings on the curriculum materials. MSDE was fortunate to receive a $48,000 grant from PNC Bank to support the three-day PD workshop and follow-up training. Funds were targeted to scholarship teachers to participate in the PY 11 PD. Lastly, in PY 10-11, the Maryland State Board of Education accepted a state curriculum in Personal Financial Literacy Education as well as adopted regulations requiring local school systems to provide in public schools an instructional program in personal financial literacy in the elementary, middle, and high school learning years.
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 and economic development initiatives and helps to reinforce and coordinate development, implementation, and updates to CTE statewide POS.

The Maryland Workforce Development Corporation was established by the Maryland General Assembly during the 2010 General Session. This quasi-government entity holds the IRS designation as a non-profit, and as such garners resources through grants and other means. The State Superintendent serves as a member of the Board of Directors but has designated the Assistant State Superintendent for Career and College Readiness to serve in his stead. Other Board members include other workforce development agencies, business and industry representatives, higher education, labor unions, and related partners. This corporation seeks funding to provide solutions to Maryland’s workforce development needs and emerging opportunities such as green construction. PY 2010 – 2011 was the first active year for this Board. Many important initiatives for Maryland are being addressed through this corporation.

Maryland has partnered with key stakeholders to develop CTE POS at the state level. Each of Maryland’s ten Career Clusters has a statewide 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.

A CTE Program Review Panel, consisting of economic and workforce representatives, higher education, local recipients, parents, labor and industry, reviews each locally developed secondary CTE POS that is submitted for 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. State developed CTE POS, that LSSs chose to adopt, are reviewed by the Career Cluster Team prior to recommending state approval. 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 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 CTE 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 POS that not only meet the requirements for state program approval, but also include curriculum and PD 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 43 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 POS;
- Oversight and quality assurance through program certification and/or industry advisory groups;
- Teacher PD 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 43 CTE POS, 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 PY 10 – 11 included:
- Construction and Development: Construction Design and Management;
- Environmental, Agriculture and Natural Resources: Curriculum for Agricultural Science Education (CASE), and;
- Information Technology: Computer Programming (with Cyber Security).

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 the National Foundation for Teaching Entrepreneurship (NFTE). More than 3,500 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.

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 POS. These assessments must lead to industry-recognized credentials or provide students with college credit. Maryland has developed a chart for use by LSSs and community colleges that identify each of these assessments. To view the list of technical assessments (Program Certification Chart-2010) that was 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. However, an ongoing challenge is the lack of financial support for costs associated with industry certifications. In some cases, industry certification exams may cost as must as $125.00. MSDE has statewide agreements with CompTIA and other assessment providers to reduce these costs in some areas (IT and Automotive), but cost remains a challenge for many students. In PY 10 – 11, 4,069 students earned industry certification. This is an increase in the attainment rate as well as an increase in the number of students with access to industry certification (more than 7,000).

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 LSS’s Master Plan;
- Providing LAC and PAC 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:

- Incorporating CTE data collection elements into the State Longitudinal Data System (SLDS);
- Aligning CTE programs and CIP designation to the SLDS Transcript project to ensure student progression through CTE POS;
- Expanding data-sharing agreements based on the SLDS to increase data quality;
- 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 quarterly 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 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.

Maryland provides PD through summer training institutes and year-long PD 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 LSSs the option of growing their own pool of teachers to support the transition to teaching from business and
industry. LSSs 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 courses as part of the process to becoming fully certified.

MSDE, working in conjunction with LSSs, organized an open positions list for Technology Education. There continues to be a shortage of Technology Education teachers in Maryland and MSDE is encouraging the use of this list to assist in filling vacancies. The document is shared with potential graduates from nearby colleges and universities that have Technology Education pre-service programs. A continuing result is the ability of LSSs to fill vacant positions.

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

All Maryland Programs of Study lead college and career readiness through articulation agreements with institutions of higher education and/or through industry-recognized credentials (such as certifications and licensure). Maryland has increased the number of programs with industry certifications available and has increased the number of students in these programs. More than 73% of all CTE Concentrators who exited secondary education in 2011 were enrolled in a program with technical assessments aligned to industry certification, licensure and/or early college credit in the technical area. To view the list of technical assessments (Program Certification Chart-2010) that was 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 percentage of students who are reported in the state’s calculation of career and technical concentrators who took the assessments has increased to 35.7%. More than 6,100 CTE Concentrators took technical assessments related to their program in an attempt to earn industry certification and/or licensure. While the number of students enrolled in these program areas has increased, the cost of assessments/industry certifications remains a challenge for many students and LSSs. In most school systems, the cost of industry certification exams is the responsibility of the student. Based on feedback from most school systems, many students cannot afford these certifications. To address this challenge, MSDE has partnered with colleges and universities as well as business to sponsor students and/or schools as they establish assessment centers and/or provide vouchers for students.
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 reviews the process for identifying appropriate technical assessment options for CTE program areas; identifies strategies for ensuring access to technical assessments for CTE students based on their POS; and identifies support for student success in attainment of industry certification, licensure, and/or college credit. Maryland continues to make progress toward the goal for increasing coverage of programs and students while facing economic challenges which limit state and district-level support for the costs of industry assessments and certification.

**B3. Implementation of State Program Improvement Plans**

Maryland did not meet three of the Final Agreed Upon Performance Levels (FAUPL) during 2009 – 2010. Not met were 5S1 – Placement, 6S1 – Secondary Nontraditional Participation, and 5P1 – Postsecondary Nontraditional completion. An Improvement Plan was submitted that outlined improved data collection systems and improved outcomes in these areas. Work continues with local recipients to improve data collection and target interventions in these areas.

At the time the levels were negotiated, the State did not have complete data collection systems in place to establish an accurate baseline, particularly at the postsecondary level. Since then, MSDE CTE accountability staff met with postsecondary institutional researchers through the Maryland Community College Institutional Research Association and clarified data collection and reporting requirements. As a result, more complete information is being reported although two colleges are still having difficulty getting outcome data for 1P1-Technical Skill Attainment.

**B4. Implementation of Local Program Improvement Plans**

As reported in the 2009-2010 Maryland CTE PQI, for at least one of the Local Agreed Upon Performance Levels (LAUPL), all 24 LSSs and 15 community colleges missed the 90% threshold. Maryland developed an Improvement Plan which requires LSSs and community colleges not meeting the 90% threshold, to respond to the questions listed below, and submit action plans as part of the CTE Local Plan for Program Improvement (local application).

The Improvement Plan required responses to the following questions:

1. Identify the Core Indicator(s) of Performance that did not meet the 90% threshold.
2. Analyze why the indicator was not met, including any disparities or gaps in performance between any category of students and performance of all students.
3. For FY 11, indicate the section/subsection in the CTE Local Plan for Program Improvement where the improvement plan/strategy is described.

Approval of Improvement Plans was required prior to the release of Perkins funds.

**B5. Tech Prep Grant Award Information**  B5a, B5b, B5c, B5d. This section is not applicable for Maryland because Tech Prep was combined with Basic funds.