MONTGOMERY COUNTY PUBLIC SCHOOLS' CAREER- AND LIFE-READINESS PROGRAMS

OFFICE OF LEGISLATIVE OVERSIGHT
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Montgomery County Public Schools' (MCPS) middle and high schools offer students an array of career- and life-readiness programs aimed at enabling them to earn livable wages, manage their assets, and live independently as adults. Historically, most of these programs were offered in vocational and special education and were isolated from the general education curriculum. Today, MCPS is transforming these programs to increase their academic rigor and improve their alignment with system-wide efforts aimed at ensuring that all MCPS students graduate ready for college and careers.

Career- and Life-Readiness Programs Overview

MCPS' career- and life-readiness programs share a common goal of preparing students for college and work; they include the following program baskets: career and technology education (CTE), transition services for students with disabilities, Students Engaged in Pathways to Achievement (SEPA), and secondary school counseling services. As shown below, programs place different emphasis on preparation for work, college, or both.

Career- and Life-Readiness Program by College and Work Readiness Emphasis

MCPS Career- and Life-Readiness Programs	College Readiness	Work Readiness	College & Work Readiness
Career and Technology Education (CTE) Clusters			✓
Arts, Humanities, and Communication			✓
Biosciences, Health Sciences, & Medicine	✓		
Business Management and Finance	✓		
Construction and Development		✓	
Education, Training and Child Studies			✓
Engineering Technology	✓		
Environmental Resources			✓
Human and Consumer Sciences		✓	
Information Technology			✓
Law, Government, & Public Safety			✓
Transportation		✓	
Work-Based Learning		✓	
Transition Services for Students with Disabilities		✓	
Transition planning			✓
Vocational education		✓	
Independent living skills		✓	
Students Engaged in Pathways to Achievement (SEPA)		✓	
Academic Courses		✓	
Technical Courses		✓	
Secondary School Counseling Services			✓
Academic four year plan			✓
High school career centers and website			✓

MCPS' career- and life-readiness programs must comply with federal, state, and local mandates and policies; operate within a context of other MCPS education goals and strategies for secondary schools; and align with state and local graduation requirements. MCPS' standards often exceed federal or state requirements. For example, MCPS' requires 22 credits for a diploma, whereas the state requires 21 credits, and MCPS' targets for student achievement embedded in their Seven Keys for College Readiness exceed federal requirements for student proficiency on state assessments.

Overall, MCPS' career- and life-readiness programs are aimed at ensuring that students performing at- or above-grade level graduate ready for college and entry-level careers. Among MCPS' portfolio or career- and life-readiness programs, only transition services for students with disabilities and SEPA are aimed at ensuring that students who are unlikely to earn a diploma exit MCPS ready for the world of work. A description of each career- and life-readiness program basket follows.

Career and Technology Education (CTE) Programs

MCPS' CTE programs consist of elective, career-focused courses offered at every middle and high school. Most career pathway programs are a sequence of four, year-long CTE courses that prepare students for a career or occupation. MCPS students can choose from 38 career pathway programs; 24 of these prepare students to earn industry recognized licenses or certifications as noted in the table below.

MCPS' Career Clusters and Career Pathway Program Offerings

Arts, Humanities, and Communications	**Environmental Resources**
Broadcast Media	Environmental Horticulture
Printing, Graphics, and Electronic Media	Green Industry Management
Biosciences, Health Sciences, and Medicine	Landscape Design
Academy of Health Professions and Biosciences	**Human and Consumer Sciences**
Biomedical Sciences (Project Lead the Way)	Academy of Hospitality and Tourism
Biotechnology	Cosmetology*
Medical Careers*	Hospitality Management*
Business Management and Finance	Manicuring/Nail Technology*
Academy of Finance*	Professional Restaurant Management*
Accounting*	**Information Technology**
Business Administration and Management*	Academy of Information Technology*
Marketing*	Cisco Networking Academy*
Construction and Development	Network Operations (Foundations)*
Carpentry*	Oracle Academy*
Construction Electricity*	**Law, Government, and Public Safety**
Heating, Ventilation, and Air Conditioning*	Fire and Rescue Services/EMT*
Masonry*	Justice, Law, and Society
Plumbing*	**Transportation**
Principles of Architecture and CAD Technology*	Automotive Body Technology/Dealership Training*
Education, Training, and Child Studies	Automotive Technology/Dealership Training*
Academy for Teacher Education	Foundations of Automotive Technology*
Early Child Development*	**Work-Based Learning**
Engineering Technology	Cooperative Work Experience
Advanced Engineering (Project Lead the Way)	
Pre-Engineering	* Prepares students to earn certification or license.

The Thomas Edison High School of Technology (Edison) offers 19 career pathway programs. Admission to most of these programs is on a first come, first served basis with most programs having excess capacity. Enrollment at Edison has declined 30% since 2006, and it currently operates at half its capacity.

Most MCPS students take CTE courses to satisfy the technology education requirement for graduation. In FY 2008, approximately one-third of MCPS' high school students (14,256) enrolled in a CTE course, 3,349 students concentrated in a career pathway program, and 1,058 students graduated as career pathway program completers.

In recent years, MCPS has focused on expanding career pathway programs within its Biosciences, Business, Engineering, and Information Technology Clusters. This new CTE focus on enhancing the academic rigor of courses and enhancing students' readiness for college aligns with promising practices for effective CTE programs. Yet, the new focus may diminish access for students traditionally served by vocational education programs. For example, students performing below grade level who struggle to complete required classes for graduation often do not have time to complete a career pathway.

Transition Services for Students with Disabilities

Transition services are designed to improve the academic and functional achievement of students with disabilities as they transition out of secondary school. By law, MCPS must begin transition planning for every student with a disability by age 14 and articulate transition services within their IEP by age 16. In FY 2008, MCPS managed transition plans for 5,605 students.

The type and intensity of transition services MCPS provides depends on whether a student is on track to exit MCPS with a diploma or a certificate. For a diploma-bound student, MCPS offers transition services that focus on enhancing both work and college readiness, such as career counseling and guidance, self-advocacy training, and assistive technology. MCPS offers intensive transition services for students who are certificate-bound and enrolled in a Functional Life Skills (FLS) curriculum. These services, which focus more explicitly on enhancing work readiness, often include social skills instruction, in-school and community internships, on-the-job training opportunities, and independent living skills instruction.

Students Engaged in Pathways to Achievement (SEPA)

The SEPA program serves older, Spanish-speaking ESOL students who have interrupted educations and are unlikely to complete state graduation requirements by the age of 21. This program provides English language instruction, literacy training, and career education knowledge and skills. Currently, this program serves 20 students in academic classes at Wheaton and Einstein High Schools and in technical courses in construction, auto trades, manicuring, and restaurant management at Edison High School.

Secondary School Counseling Services

MCPS' secondary school counseling services provide information on postsecondary options, including advice on academic scheduling to meet career and college goals. At minimum, school counselors meet with each student annually to provide academic counseling. Some of the services offered include:

- Notifying students of academic and career programs available at MCPS;
- Assisting students in developing their four year plan for high school;
- Enrolling students in courses that prepare them for college and career;
- Informing students about career options; and
- Assisting students in planning and applying for college and financial aid.

Each MCPS high school also has both an on-site and web-based career center that provides information on postsecondary training and education, financial aid, professional skills, and career options. In FY 2008, middle schools counseled 31,087 students, and high schools counseled 44,648 students.

Administration of Career- and Life-Readiness Programs

MCPS' Career- and Life-Readiness Programs are administered by three offices:

- The Office of Curriculum and Instruction centrally administers MCPS' career and technology education programs across the Instructional Technology and Partnership Unit, the Foundations Office in the Department of Instructional Programs, and Department of Curriculum and Instruction. This office also manages SEPA in the Division of ESOL/Bilingual Education.
- The Office of Special Education and Student Services provides central office administration of transition services and secondary school counseling via the Transition Services Unit in the Department of Special Education's Division of School-Based Special Education Services and the School Counseling Services Unit in the Department of Student Services.
- The Office of School Performance provides oversight of all school-based personnel including teachers and counselors who deliver career and technology education, transition services, SEPA programming, and student counseling in MCPS' comprehensive middle and high schools.

Costs of Career- and Life-Readiness Programs

OLO estimates the FY 2009 budget for MCPS' career- and life-readiness programs totals about $98 million. It funds 947.7 full time equivalents (FTE's) across the four program areas. Two areas – CTE and secondary school counseling services– account for over 90% of the budget.

FY 2009 FTEs and Budget of MCPS Career and Life Readiness Programs

Career- and Life-Readiness Programs	# FTEs	Budget
Career and Technology Education (CTE)	457.5	$47,824,021
Transition Services for Students with Disabilities	72.8	$6,395,253
Students Engaging in Pathways to Achievement (SEPA)	4.4	$462,152
Secondary School Counseling Services	413.0	$43,336,431
Total	**947.7**	**$98,017,857**

Recommended Discussion Issues

This report identifies seven issues that the Council may wish to address with MCPS representatives:

Issue #1: **Understanding MCPS' Vision and Administration of CTE.** MCPS has expanded its vision for CTE beyond the original "education for work" approach of CTE to increase the number of student who meet federal and state skill attainment goals. MCPS' recent changes to decentralize CTE administration likely reflect its pursuit of these goals.

Issue #2: **Assessing the New College Readiness Focus of CTE.** MCPS has changed from a more traditional approach to CTE to a more academically rigorous program that strives to improve students' college and work readiness. This may diminish access for those students who are performing below grade level or who struggle to meet higher standards.

Issue #3: **Increasing Utilization of CTE.** Several indicators suggest MCPS' Career Pathway Programs may be under-enrolled for those students who are focused on finding full-time work immediately after high school. MCPS recognizes this issue and is committed to increasing the share of graduates who complete a career pathway from 11% to 30%.

Issue #4: **Expanding CTE Enrollment among At-Risk Students.** MCPS provides programs to support the transition of students with disabilities and students with limited English proficiency; however, students performing below grade level or in danger of dropping out do not have access to comparable programs.

Issue #5: **Using Data to Understand the Value of MCPS' CTE Programs.** MCPS currently measures the performance of career and technology education based on the requirements of programs funded by the Perkins grant. However, two key accountability areas are not tracked: the alignment of CTE with the demand of the current labor market or staffing costs for most school-based personnel who provide CTE instruction in secondary schools.

Issue # 6: **Using Secondary School Counseling Offices to Increase Awareness of CTE Programs.** School counseling services focus on academic advising and college admission and often do not actively counsel students about CTE options.

Issue # 7: **Expanding Work Readiness Opportunities for Students with Disabilities who are Diploma-Bound.** The transition services MCPS offers certificate-bound students typically consist of in-school and off-site vocational educational opportunities that emphasize work readiness. Currently, diploma-bound students do not receive comparable vocational educational, work readiness opportunities.

For complete OLO Report 2009-10 see www.montgomerycountymd.gov/olo.

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CHAPTER I: Authority, Scope, and Organization

A. Authority

Council Resolution 16-673, *FY 2009 Work Program for the Office of Legislative Oversight*, adopted July 29, 2008.

B. Scope, Purpose, and Methodology

The County Council requested this Office of Legislative Oversight (OLO) report to improve the Council's understanding of the career- and life-readiness programs that Montgomery County Public Schools (MCPS) provides to enable students to become self-sufficient adults. For this study, OLO identified the following MCPS career- and life-readiness programs:

- Career and technology education;
- Transition services for students with disabilities;
- The Students Engaged in Pathways to Achievement (SEPA) program; and
- Career counseling services.

Ideally, these programs enable students to earn livable wages, manage their assets, and live independently as adults.

MCPS' mission, to "ensure success for every student," includes a core goal of having "all graduates prepared for post-secondary education and employment."[1] The Council is increasingly familiar with the opportunities that MCPS provides to ensure that all graduates are ready for post-secondary education and college, such as the expansion of Advanced Placement and Honors programming. The Council is less familiar with the specific opportunities that MCPS provides to enable students to gain employment and achieve self-sufficiency upon graduation.

This OLO report compiles available data and information on MCPS' career- and life-readiness programming to describe:

- The career- and life-readiness programs that MCPS provides to students;
- MCPS' administration and outreach practices for these programs;
- Student enrollment in MCPS' career- and life-readiness programs; and
- Feedback from a sample of students, teachers, principals, and school counselors about career- and life-readiness opportunities that MCPS provides.

This report concludes with findings and recommendations for discussion to enhance the Council's oversight of MCPS' resources targeted to enabling students to achieve self-sufficiency upon graduation, particularly for students directly entering the workforce upon graduation.

[1] See MCPS' strategic plan, Our Call to Action, Milestone 7 of Goal 1.

Methodology: OLO staffers Elaine Bonner-Tompkins and Kristen Latham prepared this report with editorial assistance from Sue Richards and production assistance from Teri Busch. OLO conducted this study using a variety of information and data collection methods. To begin, OLO reviewed the policies and practices that shape MCPS' delivery of workforce training and related programs. This initial task also included a review of the research literature on promising practices in career and technology education, which is summarized in Appendix B.

Next, OLO interviewed MCPS staff responsible for the administration of career- and life-readiness programs in the Instructional Technology and Partnerships Unit, the Foundations Office, the Division of ESOL/Bilingual Programs, the Department of Special Education Services, and the School Counseling Services Unit.

OLO then conducted a review of web-based and hard copy literature on MCPS programs and services for career- and life-readiness. Specifically, OLO conducted a review of key program, budget, participant, and performance data for career- and life-readiness programs provided by MCPS' central offices and the Maryland State Department of Education website.

Lastly, OLO staff conducted site visits at four MCPS secondary schools: Rock Terrace School, Thomas Edison High School of Technology, Wheaton High School, and Thomas Wootton High School. OLO interviewed administrators, teachers, counselors, and students to gain a school-based perspective on the strengths and weaknesses of MCPS' delivery of career- and life-readiness programs.

C. Organization of Report

Chapter II, Background on Career- and Life-Readiness Programs, describes what career- and life-readiness programs are, the policy frameworks that authorize the provision of these programs, and how these programs fit into MCPS' overall secondary school improvement strategy.

Chapter III, Career and Technology Education (CTE), provides an inventory of CTE programs in secondary schools and describes other details about the budget, student enrollment and performance data, and feedback about the CTE program.

Chapter IV, Transition Services for Students with Disabilities, describes the transition process that MCPS facilitates for secondary students with disabilities along with details about program administration, the program budget, student enrollment and performance data, and feedback about the program.

Chapter V, Students Engaged in Pathways to Achievement (SEPA), describes this program aimed at enhancing the literacy and vocational skills of secondary English language learners with interrupted educations, and information about this programs' administration, budget, participation data, and perspectives about the program.

Chapter VI, School Counseling Services, summarizes the counseling services available to MCPS secondary students aimed at enhancing their career-readiness and provides details about program administration, the program budget, and perspectives of program strengths and opportunities for improvement.

Chapter VII, Summary of Findings, presents OLO's key project findings.

Chapter VII, Recommended Discussion Issues, concludes this report with a set of recommended discussion issues aimed at improving the Council's understanding and oversight of funds aimed at enabling students to achieve self-sufficiency upon graduation.

D. Acknowledgements

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Dr. Karen Woodson, Director, ESOL/Bilingual Education Programs

Dr. Kathy Kolan, Supervisor, Transition Services

Mr. Steven Boden, Coordinator, Foundations Office

Mr. Kent Weaver, Supervisor, School Counseling Services Unit

Mr. Carlos Hamlin, Principal, Thomas Edison High School of Technology

Ms. Patricia Hurley, Assistant Principal, Thomas Edison High School of Technology

Ms. Faustina Quist, Principal Intern, Rock Terrace School

Mr. Kevin Lowndes, Principal, Wheaton High School

Dr. Michael Doran, Principal, Thomas Wootton High School

Mr. Edward Owusu, Principal Intern, Thomas Wootton High School

Key Terms and Definitions

The field of career and technology education and workforce readiness uses several terms that assign special meanings to everyday words. The following list defines some of the key terms in career and technology education used in this report. The definitions are compiled from the National Research Center for Career and Technology Education (http://136.165.122.102/mambo/) and the MCPS website.

Career Clusters are groupings of occupations/careers that require a set of common knowledge and skills. For example, the Business Management and Finance career cluster consists of a common set of core courses that prepare students for careers in accounting, finance and marketing. MCPS offers CTE courses in 11 career clusters, plus a Cooperative Work Experience (CWE) Cluster.

Career Pathways are sequences of academic and technology courses in a particular career field. In MCPS, a sequence of eight semester CTE courses make up a career pathway program. MCPS offers 38 different career pathways among the 12 career clusters (including CWE).

Carl D. Perkins Career and Technical Education Act 2006 (Perkins Act) is federal legislation authorizing: funding, eligibility, and accountability of career and technology education.

Career and Technical Education Completer is a student who finishes a career pathway program. For MCPS, this is completion of four credits in a pathway program.

Career and Technical Education Concentrator is a student who has completed at least 50% of high school credits in a career pathway program. For MCPS, at least two credits are required to be considered a concentrator.

Dual Enrollment is the enrollment of a student in a postsecondary course creditable toward high school completion and a career certificate or an associate or baccalaureate degree. This term differs from the conception of *dual completers* that refers to students who complete a CTE program and University System of Maryland requirements for graduation.

Career and Technical Education Participant is a student who earns at least one career and technology education course credit.

Tech Prep is a program between high schools and community colleges that combine two-year high school programs with two-year college programs that lead to a certificate or a degree.

CHAPTER II: Background

The career- and life-readiness programs MCPS offers its students align with the vision for MCPS established by the Board of Education and the MCPS Strategic Plan.

- The Board of Education's vision for MCPS is that "all children will receive the respect, encouragement, and opportunities they need to build the knowledge, skills, and attitudes to be successful, contributing members of a global society."

- The MCPS' Strategic Plan seeks to "ensure success for every student," and expects that "all students will graduate prepared for post-secondary education and employment."

The design of MCPS' career- and life-readiness program offerings must meet several objectives simultaneously. They must comply with an array of federal, state, and local mandates and policies; they must operate within a context of other MCPS education goals and strategies for secondary schools; and, they must align with state and local graduation requirements.

Postsecondary Plans of MCPS Students, 2008

To provide context for this report, the data from the Graduate/High School Exit Survey demonstrate that the vast majority of MCPS graduates (77%) plan to enroll full-time in either a four or two year college after graduation. In particular:

- Less than 1% of Grade 12 students plan to enter employment related to their high school program (i.e. a career pathway);
- 2% indicate that they will enter employment unrelated to high school program;
- 17% indicate that they will juggle either full- or part-time employment with college; and
- 3% indicated other or no response.

2008 Grade 12 Documented Decisions for All Students

Documented Decisions	Number of Students	Percent
Attend a four-year college	5,192	63.6%
Attend a two-year college	1,080	13.2%
Attend a specialized school or training	63	0.8%
Enter employment related to high school program	51	0.6%
Enter employment unrelated to high school program	177	2.2%
Enter the military	67	0.8%
Enter full-time employment and school	534	6.5%
Enter part-time employment and/or school	775	9.5%
Other and no response	230	2.8%
Total Students Grade 12	**8,169**	**100.0%**
Source: 2008 Maryland Report Card		

This chapter provides background information about the context and factors that shape the definition and delivery of MCPS' career- and life-readiness programs. It is organized as follows:

- **Part A, The Legal and Policy Framework**, presents the federal, state, and local mandates and policies that authorize and shape MCPS' delivery of career- and life-readiness programs;
- **Part B, State and Local Graduation Requirements,** explains the graduation requirements that MCPS graduates must complete to receive a regular diploma;
- **Part C, MCPS' Offerings of Career- and Life-Readiness Programs,** describes the four groups of programs that comprise MCPS' portfolio of career- and life-readiness programs and shows how they align with the policy framework; and
- **Part D, Other Secondary School Investments,** summarizes other major MCPS investments aimed at ensuring that all students graduate ready for college or work.

A. The Legal and Policy Framework for MCPS' Career- and Life-Readiness Programs

Several specific federal, state, and local laws and policies shape the career- and life-readiness programs offered by MCPS. These mandates require MCPS to provide services such as school counseling for all students, transition goals and services for students with disabilities, and programs to narrow the achievement gap between English proficient and English language learners. For example,

- At the federal level, MCPS' programs must comply with requirements of the Carl D. Perkins Career and Technical Education Act (see text box next page), the Individuals with Disabilities Education Act, and Title III of the No Child Left Behind Act;

- At the state level, MCPS' programs must comply with the State's Career Development Framework, state regulations for students with disabilities, and the requirements for English language learners in the State's Bridge to Excellence Act.

- At the local level, four Board of Education Policies articulate guidance for MCPS' delivery of career- and life-readiness services.

    - BOE Policy IGK – *Career and Technology Education*, provides an assurance that all students choosing either college or careers will be fully served;
    - BOE Policy IJK – *School Counseling Programs and Services*, establishes that the goal of counseling is to remove barriers to learning and to promote the knowledge and skills necessary for academic achievement and personal growth for all students;
    - BOE Policy IOB – *Education of Students with Disabilities*, articulates MCPS' commitment to collaborating with government agencies, the business sector, and families to provide an educational program that prepares students with disabilities for self-sufficient and productive lives as adults; and
    - BOE Policy IOD – *Education of English Language Learners*, requires MCPS to submit an annual report to the Board on the number and progress of English language learners.

The Carl D. Perkins Act Career and Technical Education Act

The Carl D. Perkins Act (Perkins) aims to increase the quality of career and technical education within schools. The Act was reauthorized in 2006 (Perkins IV) and changed the content and focus of the law to include: improving the accountability for state and local school systems, increased coordination within the CTE system, stronger academic and technical integration, and links to local business and postsecondary institutions. The Act also did the following:

- Used the term "career and technical education" instead of "vocational education;"
- Maintained the Tech Prep program as a separate federal funding stream within the legislation; and
- Maintained state administrative funding at 5% of a state's allocation.

Under the Perkins Act, states are required to report annually on the following core career and technical education indicators at the secondary level:

- Achievement in reading and math;
- Technical skill attainment;
- Secondary school completion;
- Student graduation rates;
- Secondary placement;
- Nontraditional participation; and
- Nontraditional completion.

For more information on the Perkins Act, please see Appendix A for a summary of the Act or the United States Department of Education's Career and Technical Education home page at http://www.ed.gov/about/offices/list/ovae/pi/cte/index.html.

B. A Review of How State and Local Graduation Requirements Align with Career- and Life-Readiness Programs

MCPS requires that students earn a minimum of 22 credits to receive a Maryland High School Diploma within the County. (Note: MCPS' requirement imposes a higher standard, i.e., one additional credit than that required by the Maryland State Department of Education [MSDE]) Currently, MCPS' graduation requirements have three parts: core credit requirements, technology education credit requirements, and additional credit requirements.

- **Core Credit Requirements.** MCPS requires that students meet core credit requirements in English, Social Studies, Science, Mathematics, Physical Education, Health Education, and Fine Arts.
- **Technology Education Credit Requirements.** MSDE requires that students complete one credit (two semester courses) in Technology Education (Tech Ed) to comply with the state's graduation requirements. Students must complete one year-long course from a list of 16 current CTE courses that award Tech Ed credits to meet the state's requirement.

- **Additional Credit Requirements**. MCPS requires that students complete a set of additional credit requirements. MCPS offers four options to meet this requirement. Three of these options allow a student to pair two credits - earned through courses in a foreign language, American Sign Language or Advanced Technology Education with 2.5 credits of other electives. CTE offers 24 year-long courses - mainly in the Engineering cluster - that earn Advanced Technology Education credits. The fourth option pairs four credits of a state approved CTE program with 0.5 credits of other electives.

Table 2-1 displays MCPS' core credit requirements for graduation; Table 2-2 on the next page displays the additional credit requirements.

Table 2-1: Core Credit Requirements for Graduation

Subject Area	Credit	Description
English	4	
Social Studies	3	U.S. History (1) National, State and Local Government (1) World History (1)
Science	3	Biology (1) Physical Science (1) Earth, life, or physical science (1)
Mathematics	4	Must include: Algebra (1) Geometry (1)
Physical Education	1	
Health Education	0.5	
Fine Arts	1	*Courses that satisfy listed in the course bulletin
Technology Education	1	*Courses that satisfy listed in the course bulletin

Source: 2009-2010 MCPS High School Course Bulletin

Table 2-2: Additional Credit Requirements for Graduation

Options	Subject	Additional Credits	Electives
1	Foreign Language	2.0	2.5
2	American Sign Language	2.0	2.5
3	Advanced Technology Education	2.0	2.5
4	Career and Technology Education Program	4.0	0.5

Source: 2009-2010 MCPS High School Course Bulletin

How MCPS Graduation Requirements Align with Career and Technology Education Courses. OLO's review of MCPS' graduation requirements shows:

- All MCPS graduates earning a regular diploma must successfully complete a sequence of two CTE courses to meet the State's Technology Education credit requirements. A list of CTE courses that meet the current requirements is listed in Appendix C;

- The Advanced Technology Education graduation option (Option 3) requires an additional two credits (i.e., four CTE courses) that meet the State's requirements. See Appendix D for a list of CTE courses that meet the current requirements; and
- The Career and Technology Education Program graduation option (Option 4) requires an additional four credits (i.e., eight CTE courses) in a State-approved career and technology pathway.

In sum, more schedule flexibility exists for students who complete a standard college preparatory curriculum, under Options 1 or 2, or a college preparatory curriculum that integrates advanced technology courses under Option 3. In contrast, less scheduling flexibility exists for students who wish to pursue the more traditional technical education under Option 4. This option affords the fewest opportunities to complete open electives for high school graduation.

C. An Overview of MCPS' Career- and Life-Readiness Programs

The definition and scope of programs that high schools offer to help prepare students for life after graduation has evolved over the years and distinctions between a vocational education career path and a college preparatory curriculum have blurred as well. Today, MCPS offers four groups of programs with services that address the transition from high school graduation to college and/or career. These four program areas are briefly described below. Chapters II, III, IV and V review each of these programs in more detail.

- Career and technology education (CTE) seeks to increase students' academic and technical knowledge in order to improve their college and career readiness. CTE was formerly referred to as vocational education. Examples of CTE classes include family and consumer sciences courses and career pathways among 11 career clusters. The Foundations Office administers the construction and transportation clusters and the network operations pathway within the information technologies cluster.1

- Transition services for students with disabilities focus on improving the academic and functional achievement of students with disabilities as they transition from school to postsecondary opportunities. Programs prepare students to transition to adult living, post secondary education, integrated employment, and participation in the community following graduation or exit from the school system.

- Students Engaged in Pathways to Achievement (SEPA) is designed to meet the English language acquisition, literacy, and career education needs of older Spanish-speaking high school students who, due to interruptions in their education, are unlikely to complete State graduation requirements by the age of 21. SEPA is a pilot program embedded within MCPS' overall English for Speakers of Other Languages (ESOL)/Bilingual Programs.

[1] Since the 1970s, MCPS has partnered with County businesses to support non-profit organizations that provide hands on training for students who have an interest in certain fields. The MCPS Foundation Office manages these programs, works with business leaders, and staffs the various foundation boards. See Chapter III for more details.

- Secondary school counseling refers to the school system's delivery of information to students (and parents, as appropriate) regarding career awareness and planning, career options, financial aid, and postsecondary options, including college. This guidance is mandated by State regulation. It is intended to maximize the academic success and personal growth of every student across five domains of student development (academic, career, personal, interpersonal, and healthy development).

Alignment between MCPS' Programs and the Legal and Policy Framework. Three of MCPS' program groups – Career and technology education (CTE), Career guidance and academic counseling, and transition services for students with disabilities respond to specific sets of mandates. The fourth program area – Students Engaging in Alternative Pathways (SEPA) – was established in response to recommendations of the Montgomery County Latino Education Coalition; it also aligns with federal and state standards that mandate services to improve the achievement and English language proficiency of English language learners.

Table 2-3 shows how the four groups of MCPS career- and life-readiness programs align with these mandates.

Table 2-3: Summary of Mandates Affecting MCPS Career- and Life-Readiness Programs

MCPS Program	Mandates	Core Goals and Requirements
Career and Technology Education including Foundations Programs	Federal: Perkins Career and Technical Education Act	Federal accountability requirements include reporting on core indicators that include academic and technical skills attainment.
	State: MSDE policies and regulations on CTE	State policies require that local programs align with Maryland CTE Programs of Study and the Voluntary State Curriculum
	Local: BOE Policy IGK – Career and Technology Education	The goal of local policy IGK is an assurance that all students choosing either college or careers will be fully served.
Transition Services for Students with Disabilities	Federal: Individuals with Disabilities Education Act (IDEA)	IDEA mandates post secondary transition goals no later than age 16.
	State: Code of Maryland Regulations	COMAR requires that transition planning begin at age 14.
	Local: BOE Policy IOB – Education of Students with Disabilities	Local policy articulates MCPS' commitment to collaborating with government agencies, the business sector, and families to provide an educational program that prepares students with disabilities for self-sufficient and productive lives as adults.

Table 2-3: Summary of Mandates Affecting MCPS Career- and Life-Readiness Programs, Continued

MCPS Program	Mandates	Core Goals and Requirements
Students Engaging in Pathways to Achievement (SEPA)	Federal: Title III of No Child Left Behind Act	Both laws require school systems to develop standards and provide language instruction for limited English proficient students to attain English proficiency. They each require districts to deliver services aimed at narrowing the achievement gap between English proficient and non-proficient peers.
	State: Bridge to Excellence Act and Goals for English Language Learners	
	Local: BOE Policy IOD – Education of English Language Learners	Local policy requires MCPS to submit an annual report to the Board on the number and progress of English language learners.
Secondary School Counseling	State: Maryland regulations and Career Development Framework	Maryland regulations require each school system to provide a coordinated program of student services that includes guidance, pupil personnel, school psychology, and school health services.
	Local: BOE Policy IJK – School Counseling Programs and Services	MCPS policy and regulations expect school counseling programs to remove barriers to learning and to promote the knowledge and skills necessary for academic achievement and personal growth for all students.

Source: OLO compilation of federal, state, and local laws.

D. An Overview of MCPS' Other Secondary School Investments and its Career- and Life-Readiness Programs

MCPS' career- and life-readiness programs represent one aspect of the school system's overall efforts to ensure that all MCPS students graduate ready for post secondary education and employment. This section describes other major MCPS secondary school programs, initiatives and reforms which encompass MCPS' career- and life-readiness programming. It is presented in three parts.

- **Part 1** describes MCPS' Seven Keys to College and Career Readiness for students in Grades K-12;
- **Part 2** describes the three sets of MCPS' investments for secondary students that are offered according to various student performance levels;
- **Part 3** explains how MCPS career- and life-readiness programs tend to emphasize either college or work readiness and examines how this pattern aligns with its other secondary school initiatives.

1. Seven Keys to College and Career Readiness for Students in Grades K-12

MCPS recently established the Seven Keys to College Readiness to codify the school system's commitment to ensure that all students graduate ready for college by 2014.[3] Based on research suggesting that students must possess strong academic skills in math and English for success in college and most entry-level occupations, MCPS refers to its Seven Keys for College Readiness and its Seven Keys for College and Career Readiness.

The following MCPS goals articulate how MCPS middle and high schools intend to ensure that students graduate ready for college and/or work.

- At the middle school level, 80% of students will:
  - Demonstrate advanced performance on the Reading MSA in Grades 3-5; and
  - Complete Algebra 1 by Grade 8 with a Grade of C or higher.

- At the high school level, 80% of students will:
  - Complete Algebra 2 by Grade 11 with a C or higher;
  - Score of 3 or better on one ore more AP Exams or 4 or better on one or more IB exams; and
  - Attain a score of 1650 of higher on the SAT or 24 or higher on the ACT.

- And 100% of all high school students will graduate.

MCPS' Seven Keys has evolved from the school system's former Star Trajectory Goals that included even more ambitious student performance targets (See Appendix M). For example, the Star Trajectory Goals stated that 80% of all middle school systems would complete Algebra I by Grade 8 with an A or B. Nevertheless, the Seven Keys reflect MCPS' commitment to target performance goals for most students that exceed the school system's NCLB requirements of students demonstrating 100% proficiency on the Maryland State Assessments and High School Assessments by 2014.

2. A Summary of MCPS Secondary Level Strategies Grouped by Student Performance

To achieve the Seven Keys to College and Career Readiness goals, MCPS implements a number of strategies at the secondary level that include career- and life-readiness programs. The sets of strategies MCPS offers target different student groups, based on student performance:

a. One set of strategies targets all students, regardless of their performance levels;
b. A second set of strategies targets students performing at- or above-grade level; and
c. A third set of strategies targets students performing below grade level and at-risk of dropping out.

[3] See www.mcps7keys.org

a. Secondary School Investments for Secondary Students at All Performance Levels.

Many of MCPS' secondary school investments target students across the performance spectrum – those above, at, and below grade level. Table 2-4 provides a summary of MCPS' secondary school investments that seek to improve the performance of every student group.[4]

Table 2-4: MCPS Secondary Reforms Targeting All Students

Strategy	Key Elements
Reduce oversized classes	• MCPS allocated 162 additional teachers to reduce oversized academic classes in FY09.
Signature programs	• Offered in 23 of 25 high schools, signature programs integrate a specific focus/theme into a school's curriculum that is of high interest to students.
Smaller learning communities	• According to research, smaller learning communities offer personalized learning environments that foster stronger relationships between staff and students to improve student performance.
High school consortia	• The Northeast and Downcounty consortiums were designed to ease overcrowding, support integration, and enhance student achievement in the eastern part of the County. • Consortia students have greater access to signature programs, smaller learning communities, and freshmen academies.
Middle school magnet consortium (MSMC)	• This consortium of three middle schools was developed to enhance student achievement and enrollment with three school-wide magnet programs.
Middle school reform	• The intent of this effort is to revamp the County's 38 middle schools and to narrow the middle grades achievement gap by scaling up effective MSMC programs to all middle schools. Currently being piloted in 11 schools.
Student online courses	• MCPS offerings include three free sets of online study materials: SAT prep, HSA Prep on-line, and "Learn Algebra with the Math Dude". • MCPS also offers four for-fee courses: Health and Wellness, Advanced Placement courses, Foundations of Technology, and a pilot Personal Finance course.

Sources: MCPS Website and Recommended Operating Budgets

b. Secondary School Investments for Students At- or Above-Grade Level

Some of MCPS' secondary school investments focus on accelerating the performance of students who meet and exceed grade-level benchmarks. These strategies often include more rigorous, advanced coursework to enhance student preparation for higher education.

Table 2-5 provides a summary of MCPS' secondary reforms targeted to students performing at- or above-grade level.[5]

[4] MCPS identifies each investment as essential to "ensuring success for every student" and "providing an effective instructional program" (Goals 1 & 2 of Our Call to Action).

Table 2-5: MCPS Secondary Reforms for Students Performing At- or Above-Grade Level

Strategy	Key Elements
Expansion of Honors and Advanced Placement	• According to MCPS, "communicating high expectations for all students, informing and educating parents about rigorous academic programs, employing non-traditional methods of identification, and removing barriers to the recruitment and selection of students for enrollment in honors and AP courses" have been key elements of this initiative.
SAT Intervention Plan	• Development and dissemination of *PSAT/SAT Guide for Principals 2007-2008*, short SAT crash course focused on test taking, a free College Board on-line SAT preparation course, and a modification of the College Board on-line SAT course that can be offered as a one semester elective course.
Pilot course development	• New courses to improve MCPS' career cluster pathways, International Baccalaureate, Middle School Magnet Consortium, and Advanced Technology course offerings. These include a new interior design course and biosciences, health sciences, and medical cluster courses.

Sources: MCPS Website and Recommended Operating Budgets

c. Secondary school investments in dropout prevention and recovery

Several of MCPS' secondary school investments also target students who perform below grade level and are at-risk of dropping out. These investments typically rely on smaller class sizes, extended learning, and remediation opportunities to enable students to reach grade-level benchmarks.

Table 2-6 on the next page provides a summary of MCPS' secondary school investments targeted to students at-risk of dropping out.[6] Additionally, the dropout recovery program Gateway to College Program at Montgomery College is also summarized.

[5] MCPS identifies each strategy as essential to "ensuring success for every student" and "providing an effective instructional program" (Goals 1 & 2 of Our Call to Action).
[6] Ibid.

Table 2-6: MCPS Secondary Reforms Targeting At Preventing and Recovering Dropouts

Strategy	Key Elements
Extended day and year programs for middle schools	• Both programs support the mathematics and language literacy of middle school students by providing additional instruction for students who have demonstrated difficulty reading on-grade level via curriculum-based materials or the Maryland State Assessments (MSAs).
Secondary literacy	• These interventions are targeted to ensuring that students are successful on the MSA and High School Assessments. • Interventions include literacy coaches in every middle and high school; Reading 7 and 8 for students reading significantly below grade level; developmental reading classes in high school, such as Read 180, and professional development to support the integration of reading strategies across content areas.
Evening high school reorganization	• In addition to Evening High School for students needing credit in Grade 12, High School Plus is available at high school home campuses for Grade 9 students who need to recover credit from a previously failed course. High School Plus is free for students and will replace Evening High School in FY 2010. • 22 of 25 high schools offer a repeater course at the end of the day and 6 offer repeater classes during the school day.
Alternative programs improvements	• Alternative Programs are currently housed within the Department of Student Services; currently, they serve about 400 students per year who have not been successful in comprehensive schools due to delinquency, truancy, substance abuse, or disruptive behavior. • Level 1 programs are located in middle and high schools; Level 2 & 3 programs are located in separate school settings. • The intent of these smaller learning environments is to prepare students to return successfully to regular school settings or graduate ready for work or postsecondary education.
Gateway to College Program	• This program is available to approximately 200 students who have dropped out or are in danger of dropping out of MCPS. • The Gateway to College© program at Montgomery College serves at-risk youth, 16 to 20 years old by providing them an opportunity to earn a high school diploma while transitioning to a college campus. • Students are dual enrolled, simultaneously accumulating high school and college credits. Students earn their diploma while progressing toward an associate degree or certificate.

Sources: MCPS Website and Recommended Operating Budgets

3. An Overview of MCPS' Two Approaches for its Career- and Life-Readiness Programs

A majority of MCPS' career- and life-readiness programs seek to prepare students for college and work; however, in practice, MCPS' career and life readiness programs embody two approaches that differ in their program emphasis.

- **One approach - Education *for* Careers – emphasizes workforce readiness**. It focuses on the goal of preparing students to enter the workforce when they leave MCPS but also includes articulations to Montgomery College. Transition services for students with developmental disabilities, the Foundations programs in the automotive and construction trades, and some career and technical education programs typify this approach.
- **The second approach - Education *through* Careers – emphasizes college readiness**. This approach focuses on preparing students for higher education in four-year colleges. Many career and technical education programs as well as counseling services generally follow this approach by using career themed courses and career awareness resources as tools for motivating students to complete college preparatory courses.

How MCPS' Other Secondary School Initiatives Align with Career Work Readiness Programs. Overall, MCPS' career- and life-readiness efforts to prepare students for college and work through a blend of "education *through* work" and "education *for* work" approaches generally align with the school system's overall implementation of secondary school strategies aimed toward ensuring that more MCPS students graduate ready for college and work.

More specifically, MCPS' secondary school investments that target students across the performance spectrum – those above, at, and below grade level – are consistent with the broad range of career- and life-readiness programs offered by MCPS that aim to improve career and college readiness across the continuum of students. For example, MCPS offers counseling and high school career center services to all students.

The career- and life-readiness programs that utilize the "education *through* careers" approach are also consistent with MCPS' strategies targeting secondary students at- or above- grade level to increase their college readiness. For example, the CTE career pathway programs in biosciences and engineering principally aim to increase the college readiness of students through access to college level courses and curriculum in secondary school.

MCPS' career- and life-readiness programs that emphasize the "education *for* careers" approach are generally consistent with the school system's initiatives to reduce and recover dropouts. However, there is an important caveat: MCPS' "second chance" secondary reforms tend to focus on ensuring that students at-risk of dropping out earn enough credits to graduate with a regular diploma while some MCPS "education *for* career" programs, such as SEPA, focus on ensuring that students who will not earn a regular diploma are work ready before they leave high school.

With the exception of SEPA and transition services, very few if any of MCPS career- and life-readiness programs serve as alternative programs for students who are performing below grade level or who are at-risk of dropping out.

CHAPTER III: Career and Technology Education Programs

Career and Technology Education (CTE) represents Montgomery County Public Schools' (MCPS) largest investment among its career- and life-readiness programs. This chapter provides an overview of MCPS' CTE programs in four parts:

- **Part A, Career and Technology Education Administration**, describes MCPS' vision, mission, and administrative structure for CTE programs;
- **Part B, Inventory of CTE Programs**, describes MCPS' career clusters and pathways, the Thomas Edison High School of Technology, middle school courses, and CTE courses that earn Technology Education and Advanced Technology Education credits;
- **Part C, CTE Participants and Performance,** describes CTE student enrollment data, select student performance data, and the feedback elicited during site visits; and
- **Part D, CTE Program Costs**, describes the current budget and revenue sources that support MCPS' CTE programs.

Further, the alignment between research-based promising practices in career and technical education and MCPS' CTE practices are described on page 19.

A. Career and Technology Education Program Administration

Mission, Vision, and Core Performance Goals: MCPS' Local Perkins Plan for Program Improvement describes the school systems vision for career and technology education is:

> "(T)o provide students with an education that combines rigorous academic and technical study with the excitement of discovery through small learning communities and career-themed programs. With the support of the business and higher education communities, students will apply their acquired skills and knowledge to make informed decisions concerning education, careers, and lifelong learning."

Towards this end, the mission of MCPS CTE is "to build a competitive and inspired future workforce." To enable the school system to actualize this mission, CTE established two core instructional goals in FY 2008. By 2014:

- 30% of all MCPS graduates will complete a career pathway program; and
- 80% of career pathway completers will also complete the University System of Maryland requirements so that they are prepared for college and careers.

In FY 2008, 11 percent of all MCPS graduates complete a career pathway program and 53% of these students also completed the University of Maryland requirements as dual completers.

Administration: MCPS' Offices of Curriculum and Instruction and School Performance share responsibility for administering career and technology education (CTE) programs and assisting the schools in actualizing the CTE vision, mission, and performance goals. The operation of MCPS' CTE programs also depends on partnerships with community organizations, businesses, and higher education.

The administration of MCPS' CTE programs is described in three parts:

- **Part 1,** Office of Curriculum and Instructional Programs, describes the role of this office in administering MCPS' CTE central office functions;
- **Part 2**, Office of School Performance, describes the roles of school-based staff in administering CTE programs; and
- **Part 3**, CTE Partnerships, describes MCPS' partnerships with non-profits, advisory boards, the business community, and institutions of higher education for CTE programs.

1. Office of Curriculum and Instructional Programs

Three administrative units in MCPS' Office of Curriculum and Instructional Programs (OCIP) provide central office oversight and support for the school system's administration of CTE.

- The Instructional Technology and Partnership Unit (ITP) provides oversight of federally funded (Perkins) programs for career and technology education; develops curricula aligned with industry, state, and federal standards; provides professional development opportunities; and establishes relationships with community organizations and businesses.

- The Department of Curriculum and Instruction works with ITP and school-based staff to administer CTE programs. Staffing under DCI includes 3.0 instructional specialists and 3.0 coordinators previously assigned to the former Division of Career and Technology Education that was replaced by ITP. The role of these positions, in part, is to ensure that CTE programs relate directly to the High School Assessments and the core curriculum. MCPS also reallocated these former Division of CTE positions to DCI to enable a more coordinated delivery of professional development to schools in Science and Engineering, Education, Entrepreneurship and Finance, and Information Technology.

- The Foundations Office, in the Department of Instructional Programs, administers all of the programs in the Construction and Transportation clusters, and the Network Operation Program in the Information Technology cluster. Foundation Office staff collaborate with the non-profit Student Trades Foundations that were established to support the programs. Each Foundations Board provides curriculum guidance, links to the local business community, and financial or material assistance to the Foundations Programs. Page 21 describes these non-profits in greater detail.

2. Office of School Performance

The Office of School Performance is responsible for the daily administration of career and technology education programs in MCPS through the allocation of CTE teachers. Board Policy IGK requires that each secondary school designate a counselor as a contact person for the CTE central office (i.e. ITP). However, various organizational structures are used to administer CTE programs within each school, depending on a school's particular CTE needs and programs.

Promising Practices for Career and Technical Education

Career and technical education (CTE) has undergone significant transformation over recent years, moving from the traditional "vocational" education or "education for work" to the academically richer "education through work" approach. There is emerging research on career and technical education that indicates that:

- Well-designed career-focused programs can improve employment, earnings, non-academic skills, and career choices, particularly for at-risk and low-income youth;
- Results are mixed on the affect on academic goals for career and technical education and participation in work-based learning programs; and
- CTE appears to help less-motivated and more at-risk students graduate.

Initial research regarding CTE programs that incorporate both an academic and career focus has identified several promising practices for implementing effective CTE programs. The following table outlines these promising practices along with examples of MCPS alignment with those practices.*

Promising Practice	Example of MCPS Alignment
Programs should integrate career and technical education with academic rigor and relevance.	Project Lead the Way students combine skills and higher level math to engineering projects.
Students achieve more success in CTE smaller learning communities.	MCPS has established CTE smaller learning communities that include the Academies of Finance and Information Technology.
The curricula of the programs should be aligned with industry, government, and postsecondary standards.	The curriculum of the Construction and Development Pathway Program is aligned with The National Center for Construction Education and Research (NCCER).
Programs should be aligned with industry growth and decline as well as reflect emerging job opportunities.	The implementation of gaming technology pathway programs across several MCPS middle schools reflects anticipated industry growth in this area.
Programs should include links to the local business community and provide for student work experiences.	The National Academy of Hospitality and Tourism Advisory Boards provides students with guidance and internship opportunities.
Career and technical education teachers should have increased standards to meet career, technical, and academic needs of students.	Teachers at Edison High School are required to be certified in their teaching field and work with staff in academic departments to increase the academic rigor of CTE courses.
There should be consistent assessment and greater accountability for CTE programs.	MCPS measure CTE outcomes in compliance with the Perkins core indicators of performance.
Programs should connect and engage students.	Construction cluster students work together to design, build, decorate & sell a house annually.

*For a more detailed description of CTE promising practices, please see Appendix B.

Since the organizational structure of CTE programs differs by school, the combination of CTE resource teachers and teachers depends on the number, type, and enrollment of CTE programs offered at each school. All school-based CTE positions are under the supervision of the school's principal, who, in turn, is accountable to the Community Superintendent.

Many CTE programs in MCPS are supervised by a CTE Resource Teacher, who not only serves as liaison between CTE teachers and school administration, but also assists CTE teachers with classroom organization and management. The CTE resource teacher also assists CTE teachers in the facilitation of community partnerships with local organizations and businesses to provide students with work-related opportunities such as internships or job shadows.

The structure of CTE programs can vary: in some schools, there is one resource teacher for all Career Pathway Programs while in other schools there are several CTE resource teachers. For example, Wootton High School has one CTE resource teacher who administers the Academy of Information Technology, while other CTE programs in the school (i.e., Early Childhood Development and Teacher Academy) are administered by non-CTE school staff. Edison, on the other hand, has a resource teacher for each pathway program within the school.

Outreach and Recruitment. MCPS central office and school-based staff work collaboratively to promote CTE courses and programs. Staff in the Instructional Technology and Partnership Unit and the Foundations Office complete a variety of outreach efforts to recruit students including conducting classroom presentations, holding open houses, maintaining a website, and distributing literature to students on CTE resources.

MCPS central office staff also provides information about CTE to all school-based staff, particularly school counselors, who assist in recruiting students. Specific examples of the joint recruitment effort include:

- "Plan for the Future" seminars held at Montgomery College (MC) that provide information on CTE programs to MCPS and MC counselors;
- CTE teachers and central office staff meetings with new school principals to discuss CTE programs and school themes;
- Sponsorship of the annual conference, "Rigor through Relevancy" conference for MCPS educators;
- The College Tech Prep Career Pathways Toolkit that is distributed to administrators, counselors, and teachers;
- Career Pathway Program Brochures that are distributed to all students;
- Class and lunchtime presentations at MCPS middle and high schools and career fairs;
- Presentations with community groups such as PTAs, Chambers of Commerce, and Rotary Clubs;
- Advertisements in school newspapers and news shows; and
- Attendance at Montgomery County Council of Parent Teacher Associations meetings.

3. Career and Technology Education Partnerships

MCPS partners with local community organizations to help students achieve greater career awareness and academic and technical skills. As a result of MCPS' relationships with local businesses, non-profit organizations, and postsecondary institutions, MCPS students are provided with multiple opportunities to explore career options and gain work, life, and academic skills. This section describes the advisory boards, non-profits, and postsecondary institutions that MCPS partners with to prepare students for college and career.

a. The Student Trades Foundations

The business community, in partnership with MCPS, supports three non-profit educational foundations to train students in the Automotive, Construction, and Information Technology industries as follows:

- **The Construction Foundation** was established in 1976 when a group of local business leaders decided to create a non-profit organization to train students who had an interest in the construction field. The Construction Trades Foundation supervises two career pathways: architecture and construction (which includes many pathway programs, see explanation later in the chapter). Each year, students in the Construction Trades cluster design, build, market, and sell one house. Since the inception of the programs, students have built and sold 36 houses in the County.

- **The Automotive Trades Foundation** began in 1978 with a vision of providing hands-on instruction for students interested in this field. This Foundation supports the Transportation cluster and its career pathway programs in auto technology, auto body technology, and auto dealership skills. In particular, the Automotive Trades Foundations enables MCPS students in the Transportation cluster to hold three car sales per school year, selling over 2,000 renovated vehicles to date. Students also annually donate one renovated vehicle to a deserving non-profit organization.

- **Information Technology Foundation** was established five years ago. Students in the IT Foundation Program learn computer network, hardware, operating systems, electronics, and software skills. With the assistance of the IT Foundation, students in this program renovate, market, and sell donated computers to the community. Last year, the IT Foundation helped recondition and sell of 347 computers.

Each Student Trade Foundation is a non-profit 501 (c) (3) education foundation run by a Board of Directors. Board members provide curriculum guidance, share their skills and expertise, and facilitate links to the local business community for students. Foundations Boards support articulation agreements and provide scholarships program for local community colleges and universities. Some of the companies represented on the Foundation Boards include:

- The Fitzgerald Auto Group and Washington Area New Automobile Dealers Association for the Automotive Trades Foundation;
- Crane Homes and Shulman, Rogers, Gandal, Pordy, and Ecker for the Construction Trades Foundation; and
- Lockheed Martin and Cisco Systems for the Information Technologies Foundation.

b. Collaboration Board for Career and Technology Education, Cluster Advisory Boards, and Academy Boards

The Montgomery County Collaboration Board for Career and Technology Education and its 11 associated Cluster Advisory Boards (CAB) advise and assist in the planning, development, and evaluation of efforts to create a well-prepared workforce to meet the current and future needs of employers in Montgomery County. Local advisory boards for MCPS' Academies of Finance, Instructional Technology, and Hospitality and Tourism also support students enrolled in these programs. A description of these entities follows.

Collaboration Board for Career and Technology Education. The Montgomery County Collaboration Board for Career and Technology Education (MCCB), governed by MCPS Board Resolution 25-04, is a 13-member committee that advises the Board of Education and the Board of Trustees of Montgomery College. The Committee offers advice about:

- The distribution of career and technical education funds;
- County career and technology education program accountability reports;
- County job needs; and
- The adequacy of career and technology education programs.

The 13 members of the MCCB include one representative from each of the 11 Career Cluster Advisory Boards and two student members, nominated by the MCPS Superintendent of Schools and Montgomery College president, respectively. Some of the companies currently represented on the MCCB include: Bechtel, Cisco, Lockheed Martin, Marriott International, and Venter Institute.

The MCCB meets quarterly to discuss MCPS career and technology education and holds an annual strategic planning retreat; the MCPS Tech Prep coordinator facilitates this group. Some specific roles and responsibilities of the MCCB include:

- Informing MCPS of the skills that employees need to have;
- Assisting MCPS in the establishment of CTE programs;
- Reviewing and recommending changes to career pathway programs curriculum and industry certifications; and
- Identifying work-based learning activities for students and educators.

Cluster Advisory Boards (CAB). Each of the 11 CTE career clusters has an advisory board to advise MCPS staff and students about career and technical programs, curriculum development, and articulation agreements with local colleges. In addition, the CABs identify business partners to support the CTE efforts of MCPS and Montgomery College (MC). CAB members represent local employers, postsecondary institutions, MCPS, and MC.

The CABs collaborate to provide internships, site visits, speakers, and scholarships to students in their cluster. Some specific examples of CAB activities include:

- The Environmental, Agricultural, and Natural Resource CAB sponsorship of the Green Summit at Brookside Gardens;
- The Human and Consumer Services, Hospitality and Tourism CAB sponsorship of an annual luncheon for counselors to describe available programs at Marriott International and other businesses; and
- CAB members meeting with over 100 ESOL students to discuss available programs.

Academy Boards. The National Academies of Finance, Instructional Technology, and Hospitality and Tourism are required to maintain their own advisory boards in order to be a part of the national academy programs. These boards assist students in fulfilling program requirements related to completing a paid internship and a college course.

c. CTE Partnerships with Higher Education

MCPS works with postsecondary institutions to help prepare students for the transition to college and careers. MCPS has coordinated student recruitment events, student skill workshops, and articulation agreements with local colleges that include Johns Hopkins University and the University System of Maryland. MCPS' primary postsecondary partner for career and technical education is Montgomery College.

Overall, Montgomery College and MCPS work jointly to administer over 30 programs for students that include college preparation classes, summer programs, and school-based intervention programs. One program, the College Tech Prep Program, enables CTE students to earn college and high school credit concurrently.

The College Tech Prep Program is a federally funded program that allows MCPS students in career pathway programs to earn college credit in 23 programs that include accounting, computer programming, and early child development. Students who earn at least a grade "B" or better in selected courses may earn up to 24 credits at Montgomery College.[1]

d. The Montgomery County Business Roundtable for Education

The Montgomery County Business Roundtable for Education (MCBRE) is a nonprofit organization founded in 2002 by Montgomery County employers to connect classroom learning to the workplace. MCBRE provides specific support to CTE students and educators as it:

- Sponsors the Young Professionals Conference annually;
- Provides scholarships to one student in each career pathway program annually;
- Assists students and teachers to attend various conferences;
- Organizes seminars and workshops that are presented by the business community; and
- Sponsors the Mock Job Interview Program.

For a description of these programs, see the MCBRE website at http://www.mcbre.org.

[1] See http://www.montgomeryschoolsmd.org/departments/cte/toolkit/Articulationt.pdf for description.

B. Inventory of CTE Programs

MCPS' CTE programs consist of elective, career-focused courses offered as part of the middle and high school curricula. Individually, each CTE course aims to improve the academic and technical skills of its students. Collectively, completion of eight CTE courses (4 credits) in a career pathway enhances a student's readiness for the world of work and higher education. This section provides an inventory of CTE programs and courses in four parts:

- Part 1, Career Clusters and Pathways, describes the organization of MCPS' CTE courses by career cluster and pathway programs across County high schools;
- Part 2, Thomas Edison High School of Technology, describes the specific career clusters and pathways available in the County's only technical high school;
- Part 3, Technology Education and Advanced Technology Education Courses, describes the CTE courses that meet these requirements for graduation; and
- Part 4, Middle School Programs, describes the CTE courses and pathway clusters available to middle school students.

1. Career Clusters and Pathways

Career Clusters: A "career cluster" is a group of elective pathway programs and elective courses that address a range of specific occupations under a broad professional field such as health or business. For example, the Business Management and Finance cluster consists of courses that prepare students for careers in accounting, finance, and marketing. MCPS offers CTE courses in the 12 career clusters listed in Table 3-1.[2]

Table 3-1: MCPS Career Clusters by College and Work Readiness Emphasis

Career Cluster	College Readiness	Work Readiness	College & Work Readiness
Arts, Humanities, Media and Communication			✓
Biosciences, Health Science, and Medicine	✓		
Business Management and Finance	✓		
Construction and Development		✓	
Education, Training, and Child Studies			✓
Engineering, Scientific Research, and Manufacturing Technologies	✓		
Environmental, Agricultural, and Natural Resources			✓
Human and Consumer Services, Hospitality, and Tourism		✓	
Information Technology			✓
Law, Government, and Public Safety			✓
Transportation, Distribution, and Logistics		✓	
Work-Based Learning (Cooperative Work Experience)		✓	

Source: OLO classification of college and work readiness

[2] MCPS' 11 clusters largely align with MSDE' 10 clusters with two exceptions. Specifically, eight MCPS clusters align with a comparable MSDE cluster; one MCPS cluster, Human and Consumer Sciences, combines two MSDE clusters, and one MSDE cluster, Human Services includes two separate MCPS clusters: Law, Government and Public Safety; and Education, Training and Child Studies.

MCPS' clusters share a common goal of preparing students for college and work, but they differ in the emphasis placed on college readiness, work readiness, or both.[3]

- Three of the clusters – Biosciences, Business Management, and Engineering - emphasize college readiness, exemplifying the "educations through careers" approach. To achieve this emphasis, admittance to CTE programs within these clusters often requires completion of pre-requisite courses such as completion of Algebra I in middle school. Also, several courses within each cluster are classified as advanced-level courses, particularly Project Lead the Way Programs.[4]
- Four of the clusters – Construction, Human and Consumer Sciences, Transportation, and Work-Based Learning – emphasize workforce readiness, exemplifying the "education for careers" approach. A student who completes CTE programs within these clusters are often able to apply for an entry-level position in the labor market. For example, a student in the Cosmetology Program (in the Human and Consumer Services Cluster) acquires the skills needed to be eligible to take the cosmetology licensing exam required by the Maryland State Board of Licensing.
- The remaining five clusters – Arts, Education, Environment Resources, Information Technology, and Law and Government - aim to improve students' work and college readiness. The CTE programs within the Information Technology cluster exemplify this approach as they often combine pre-requisites in math, advanced-level coursework, and technical training opportunities to enable students to become proficient in computer networking, operations, and/or programming.

Career Pathway Programs: MCPS further organizes the CTE courses in each career cluster into Career Pathway Programs (CPP), a sequence of courses that prepare students for a specific career field. Most career pathway programs allow students to choose from courses on a variety of ability levels. There are 38 career pathways among the 12 career clusters (including CWE) that are described in Table 3-2 beginning on the next page.

In order to complete a career pathway program, students must complete four credits for all but two of the pathway programs: Cosmetology requires nine credits and Advanced Engineering requires five credits for pathway completion. Each CPP offers a range of courses a student may take in order to complete the pathway program. For example, there are 14.5 available credits in the Cisco Networking Academy while there are 7.5 credits available for students to complete the Environmental Horticulture program.

Some career pathway program credit requirements can be fulfilled by participation in internships, college courses, AP/Honors academic courses, and courses available in related pathway programs. Appendix F provides a summary table of the number of credits required and available for each Career Pathway Program.

[3] See Appendix E for a description of OLO methodology used to classifying MCPS' CTE clusters by work and college readiness emphasis.

[4] Project Lead the Way (PLTW) is a nationally recognized hands-on, project, and problem-based curriculum approach that is designed to add rigor to traditional technical programs and relevance to traditional academic programs. MCPS administers two PLTW programs: Engineering and Biomedical Sciences.

Each MCPS high school offers at least one pathway program. Students may also enroll in CTE programs at Thomas Edison High School of Technology (described in the next section) or seek a transfer to a high school with a pathway program not offered at their home campus. Appendix G lists the pathway programs at each high school; the Career Pathway Program toolkit available on-line describes the requirements for each CPP.

Currently, 24 of the 38 career pathways prepare students to earn industry recognized licenses or certifications. Some certifications may lead to immediate employment opportunities such as the Maryland Licensing Exam for Nail Technician. MCPS is currently working to determine the best way to ensure that every student in a CPP completes any certification test that may be available to and appropriate for students in that pathway field.

Cooperative Work Experience: The final career pathway described in Table 3-3 below is the Cooperative Work Experience (CWE) pathway. CWE allows for students to prepare for college and career in areas of interest either not available at their home school or not available in MCPS, such as retail. MCPS students who want to earn credit for internships or on-the-job training (OJT) must also complete a CWE course that focuses on career development and life-readiness skills such as financial planning.

Of note, MCPS intends to establish the College/Career Research and Development pathway to replace the CWE pathway next year. The change from the CWE to the CCRD program is required by MSDE. In FY 2010, students will complete two high school courses, rather than one, that focus on workforce readiness and future careers. These courses include career research related to students' strengths, interests, and abilities and workforce skills such as interviewing, resume writing, application completion, technology, and communication.

Table 3-2: MCPS Career Pathway Programs

Career Pathway Program	Description/Learned Skills	Possible Certifications
Arts, Humanities, Media and Communications		
Broadcast Media	Fundamentals of on-air performance, advertising, news, production, and promotion in telecommunications. Includes a radio and television track.	NA
Printing, Graphics, and Electronic Media	Design, media, and graphic communications skills including electronic design, layout, composition activities, and production technique.	PrintEd Certification is Planned
Biosciences, Health Science and Medicine		
Academy of Health Professionals	Various professions in health care, including classroom-based learning and clinical experiences.	NA
Biomedical Sciences (Project Lead the Way)	National program that prepares students for careers in biomedical sciences and health, including engineering principles.	
Biotechnology	Biochemistry, genetics, and molecular biology.	
Medical Careers	Health care skills and knowledge such as anatomy, physiology, disease, medical terminology, patient care skills, and current health care issues.	Certified Nursing Assistant Geriatric Nursing Assistant CPR

Table 3-2: MCPS Career Pathway Programs (Continued)

Career Pathway Program	Description/Learned Skills	Possible Certifications
Business Management and Finance		
Academy of Finance	Finance and business management.	Microsoft Office Specialist Certification
Accounting	Accounting principles including assets; liabilities and equity; and understanding business information.	
Business Management	Business administration and technology.	
Marketing	Sales, market research, advertising, retail buying, distribution management, product development, and wholesaling.	
Construction and Development (Foundations)		
Carpentry	Carpentry fundamentals for framing and finishing.	OSHA Safety Certification NCCER Core/Level Sediment Control
Construction Electricity	Electrical fundamentals for residential and commercial construction.	Montgomery County Electrician Apprentice Registration NCCER Core/Level Sediment Control
Heating and Air Conditioning	Heating, ventilation, and air conditioning principles and skills.	CFC Refrigeration Certification NCCER Core/Level Sediment Control
Masonry	Masonry fundamentals for brick and block construction	Sediment Control
Plumbing	Plumbing fundamentals for installation, maintenance, and repair of pipe systems.	Montgomery County Plumbing Apprentice Registration TracPipe Certification NCCER Core/Level Sediment Control
Principles of Architecture and CAD Technology	Design and engineering of physical structures using AutoCAD software.	Sediment Control
Education, Training and Child Studies		
Early Child Development	Development of children from the prenatal stages to Grade 3.	90 Hours Certification plus 9 Hours Communication Skills Training
Teacher Academy of Maryland	Teaching, human growth and development, learning theory, and curriculum and instruction.	NA
Engineering, Scientific Research, and Manufacturing Technologies		
Advanced Engineering (Project Lead the Way)	National program that prepares students for engineering careers including design, civil, digital electronics, and aerospace engineering.	NA
Pre-engineering	Engineering basics.	

Table 3-2: MCPS Career Pathway Programs (Continued)

Career Pathway Program	Description/Learned Skills	Possible Certifications
Environmental, Agricultural and Natural Resources		
Environmental Horticulture	Crop and plant production; landscaping and landscape maintenance; plant use and function; ecological systems; invasive species, and recreation.	NA
Green Industry Management	Greenhouse growers, landscape related firms, golf course management, and garden/home centers.	
Landscaping Design	Utilization and care of ornamental plants, including design, installation/contracting, and/or maintenance.	
Human and Consumer Services, Hospitality and Tourism[5]		
Academy of Hospitality and Tourism	Hospitality and tourism including business, geography, and economics.	NA
Hospitality Management	Food industry knowledge including nutrition, food safety, sanitation, and management.	ServSafe Certification ProStart Certification
Professional Restaurant Management	Food service industry including food preparation and service.	ServeSafe Certification ProStart Certification Certified Junior Culinarian
Cosmetology	Cosmetology field including hair, nails, make-up.	Maryland State Board of Licensing Exam
Manicuring/Nail Technology	Manicuring, pedicure, and salon business management as wells as anatomy, physiology, diseases, and sanitation.	Maryland Licensing Exam for Nail Technician
Information Technologies		
Academy of Information Technology	Computer science and programming, web development and database administration.	MCDA C++ or Other CS Language
Cisco Academy	Microcomputer and network technologies, basic technical skills to diagnose and repair computers and local area network.	A+ Certification CCNA Certification
Network Operations (Foundations)	Installation, configuration, diagnosis, and repair of computer hardware, operating systems, and networks.	CompTIA A+/Network +
Oracle Academy	Structured programming, with the context of object-oriented language.	1st Level of Oracle PL/SQL Developer Certified Associate
Law, Government, Public Safety, and Administration		
Fire and Rescue Services/EMT	Emergency diagnosis, treatment, and care for injuries and/or emergency fire and rescue procedures.	CPR, HAZMAT, EMT/Basic, Firefighter I/II
Justice, Law and Society	Law, law enforcement, government, and public administration.	NA

[5] MCPS is working to add a new Interior Design career pathway program which focuses on basic design principles such as furniture design and room arrangement. There are currently two courses available in the Pathway Program.

Table 3-2: MCPS Career Pathway Programs (Continued)

Career Pathway Program	Description/Learned Skills	Possible Certifications
Transportation, Distribution, and Logistics (Foundations)		
Foundations of Automotive Technology	Automotive maintenance and basic servicing.	Automotive Services Excellence Certification Safety and Pollution Prevention and Control
Automotive Body Technology	Collision damage repair, panel replacement, paint and finish.	
Auto Technology/ Dealership Training	Diagnosis, repair, service, reconditioning, and sales and marketing.	
Work-based Learning		
Cooperative Work Experience	On-the-job training along with career awareness, financial literacy, and communication skills.	NA

Source: MCPS Division of Career and Technology website and FY09 MCPS Perkins Narrative

Career pathway programs provide CTE students with career development opportunities offered in partnership with local businesses and institutions of higher education. Some examples of the professional development opportunities CTE students receive via these partnerships include conferences, internships, college visits, site tours, and job shadowing opportunities.

2. Thomas Edison High School of Technology

Thomas Edison High School of Technology, which serves as MCPS' technical high school, supplements the CTE courses available at each comprehensive high school. Edison's mission is:

> To provide students with the academic, technological, and interpersonal skills needed to achieve excellence in their chosen careers and to serve as the foundation for their continuing education pathways.

Edison provides students with hands-on instruction and serves as the primary location for several career pathway programs focused on workforce readiness. Students at Edison typically spend half of the school day taking a three-period pathway course at Edison, and the other half at their home campus earning core graduation credits. Most students enroll in their junior or senior year. High school students must apply to Edison through their home high school counseling office for a specific career pathway program. Students apply in the spring for fall enrollment.

Admission to programs at Edison is on a first come/first-served basis, except for programs such as Medical Careers where demand exceeds capacity. Admission for these programs is based on student attendance, grade point average, and letters of recommendation. Edison students are expected to cover CTE course fees; they can range from $15 (Architecture and CAD Technology Program) to $385 (Cosmetology). (See Appendix H for additional details.)

Table 3-3 on the next page presents the CPPs (by career cluster) available at Edison including the program focus and length. Completion of most Edison pathway programs satisfies the MCPS program completer requirement for graduation.

Table 3-3: Edison Career Pathway Programs

Career Cluster	Program	Program Length	Program Focus
Arts, Humanities, Media, and Communications	Printing, Graphics, and Electronic Media	2 Years	Graphic design and imaging.
Biosciences	Biotechnology	1 Year	Laboratory and research skills.
	Medical Careers	1 Year	Certified health care skills.
Construction	Carpentry*	2 Years	Home building and carpentry.
	Construction Electricity*	2 Years	Residential electrical and cable installation.
	Principles of Architecture and CAD Technology*	2 Years	Designing, illustrating, and drafting.
	Heating, Ventilation, and Air Conditioning *	2 Years	Heat pump, furnace, and air conditioner installation and maintenance.
	Masonry*	2 Years	Masonry unites and installation techniques.
	Plumbing*	2 Years	Installation, maintenance, and repair of pipe.
Hospitality and Tourism	Cosmetology	3 Years	Personal services skills.
	National Academy of Hospitality and Tourism	1 Year	All aspects of the hospitality industry.
	Interior Design**	1 Year	Elements and principles of interior design.
	Nail Technology	1 Year	Nail care and salon management.
	Professional Restaurant Management	2 Years	Culinary arts and food service.
Information Technology	Network Operations*	1 Year	Installation, configuration, diagnosis, and repair of computer hardware, operating systems, and networks.
Transportation	Foundations of Automotive Technology*	1 Year	Automotive maintenance and basic servicing.
	Automotive Body Technology*	2 Years	Collision damage repair, panel replacement, paint and finish.
	Auto Technology and Dealership Training*	2 Years	Diagnosis, repair, service, reconditioning, and sales.
Work-Based Learning	Cooperative Work Experience	1 Year	Provides on-the-job training in industries not reflected in MCPS' career clusters, such as retail.

* Foundations Career Pathway Programs
** In development
Source: Thomas Edison High School website

Students enrolled at Edison must also participate in the SkillsUSA program. SkillsUSA (www.skillsusa.org) is a national nonprofit organization that provides hands-on learning opportunities for students in the classroom, and organizes local, state and national competitions for students to demonstrate their occupational and leadership skills. MCPS requires Edison and all relevant CTE programs to use the SkillsUSA national standards as part of their curriculum.

Certain career clusters and pathway programs offer additional applied learning opportunities to supplement classroom learning. For example:

- Construction and Development cluster students build and sell a home which the Interior Design program decorates;
- Professional Restaurant Management and Hospitality students operate the Edison Café;
- Medical Careers students complete clinical rotations at local hospitals;
- Transportation cluster students repair and sell vehicles;
- Network Operations pathway students refurbish and sell computers; and
- Cosmetology students operate a beauty salon.

3. Technology Education and Advanced Technology Education Courses

The State of Maryland requires every high school student to earn one credit in Technology Education courses in order to graduate; students who elect to meet the Advanced Technology Requirement for graduation must earn two additional credits in advanced CTE courses. In MCPS, students satisfy these requirements by completing select CTE courses.

Thus, in addition to improving students' career and college readiness, select CTE courses enable MCPS students to meet the State's Technology Education (Tech Ed) credit requirements, and they allow graduates to complete the Advanced Technology Education option for additional credits. The State's Tech Ed requirements, Advanced Tech Ed graduation option, and their credit bearing courses are described below.

The State Technology Education Credit Requirement: Since 1992, the State has required that all high school graduates complete one credit (two courses) in Technology Education. This requirement emerged in response to business community and higher education concerns that high school graduates lacked a basic understanding of the manufactured/designed world that was essential to being competitive in Science, Technology, Engineering, and Math (STEM). The Tech Ed requirement replaced the former Practical Arts graduation requirement.

Maryland is the only state in the nation with a specific Technology Education graduation requirement.[6] Recently, MSDE revised the Code of Maryland (COMAR) and tightened the standards on courses that meet the Tech Ed requirement. These more stringent standards ensure that CTE courses that meet the Tech Ed requirements for Class of 2012 and beyond align with the State's Voluntary State Curriculum for Technology Education.

The effect of the new MSDE regulations is MCPS must develop additional courses to meet the State's updated curriculum requirements for Tech Ed credit. Appendix C lists those FY09 CTE courses (by cluster) that currently qualify for Tech Ed credit, and the subset of these courses that will meet this requirement for the Class of 2012.

[6] Based on OLO analysis of data compiled by the Education Commission of the States High School Policy Center in 2007 (see http://mb2.ecs.org/reports/Report.aspx?id=907).

Overall, there are 16 CTE courses that meet the current Tech Ed requirement; and half of these are offered in the Information Technology career cluster. With the revised regulations, only three current CTE courses (in the Engineering cluster) qualify to earn Tech Ed credits beyond the Class of 2012. MCPS is currently developing a fourth option with a computer science emphasis, Designing Technology Solutions, to be piloted in FY 2010.

Advanced Technology Education Graduation Option: Students who elect to pursue the Advanced Technology Education option for graduation credits must earn an additional two credits (four courses) in advanced CTE coursework. The impetus for this graduation option also emerged in the early 1990's as a way to increase the number of Maryland graduates in the STEM college majors and professional workforce. Appendix D lists the FY09 CTE courses by cluster that meet the current standards and qualify a student to receive Advanced Technology Education Credit. In sum, CTE offers 24 sequences of courses - mainly in the Engineering cluster - that earn Advanced Technology Education credits.

4. Middle School CTE Courses

Currently, MCPS offers middle school CTE courses in three areas: computer science, technology education, and family and consumer sciences.

- Computer Science CTE courses provide students with an overview of computer-based applications and programs. Course curriculums are based on national and state technology standards. The four Computer Science courses are: (1) Information and Communication Technologies; (2) Computer Applications; (3) Multimedia and Visual Communications; and (4) Software Applications by Design.
- Family and Consumer Sciences (FACS) CTE courses focus on teaching students personal resource management, decision making skills, and skills to maintain a balance between work and family life. Some of the topics covered include: family and human development, nutrition/health, living environments, personal finance, and career planning. The following classes are available through Family and Consumer Sciences: (1) FACS Grade 7 (Financial Literacy); (2) FACS Grade 8; (3) Creative FACS; and (4) Foods and Nutrition.
- Technology Education CTE courses focus on using and maintaining technological products and systems. There are three middle school Technology Education courses: (1) *Imagineering* that enables students to develop an understanding of the core concepts of technology; (2) *Living with Technology* that teaches students the effects of technology on social systems and science; and (3) *Earth and Space Technologies* that introduces students to technologies in medicine, agriculture, energy, manufacturing, and other fields.

Except for the Software Applications by Design course, these middle school CTE courses are not linked to specific career clusters or pathways at the high school level; however, MCPS, as part of the MCPS' Middle School Reform Initiative, is developing four elective middle school pathways. Fourteen MCPS' middle schools began to implement the Initiative in the 2008-2009 school year. Two pathway programs - one in Engineering/Technology Education and the other in Information Technology – are CTE programs. Two additional Middle School Pathway Programs –Art and Exploration of Dance – are non-CTE programs.

Table 3-4 outlines the intended full-year classes for the two CTE pathway programs. The Grade 7 classes will be available beginning in school year 2009-2010 and the Grade 8 classes will be available beginning in school year 2010-2011.

Table 3-4: Proposed Courses in Middle School Career Pathways Engineering/Technology and Information Technology Pathways

Grade	Class	Description
Engineering/Technology Education		
Grade 6	Information and Communication Technology	Students develop games, educational simulations, and robotic products.
Grade 7	Applied Robotic Engineering with Computer Aided Drafting and Design	Students design, build, and program robots to solve engineering challenges.
Grade 8	Introduction to Engineering Design A/B*	Students use computer software to produce, analyze, and evaluate models of projects and solutions.
Information Technology Education		
Grade 6	Information and Communication Technology	Students develop games, educational simulations, and robotic products.
Grade 7	Web Site Development Fundamentals	Students create their own Web sites.
Grade 8	Foundations in Arts, Humanities, Media and Communication A/B**	Students develop knowledge and skills using programming, multimedia, and game/web development tools.

*Can be used for one Technology Education high school credit.
**Can be used for one elective high school credit and is the first course for new Multimedia and Interactive Media CPP.
Source: MCPS ITP Unit

C. CTE Participation and Performance

This section describes participation and indicators of performance for MCPS' career and technology education programs in three parts.

- Part 1, CTE Participation, describes CTE enrollment in middle and high schools;
- Part 2, CTE Performance, describes graduation, performance, and certification data among CTE program completers; and
- Part 3, Feedback from Site Visits and Discussion, summarizes the perspectives of CTE strengths and areas of improvement gleaned from this study's site visits and interviews.

1. CTE Participation

Student enrollment in career and technology education programs varies by school and participation level. Overall, about half of all middle school students enroll in a CTE course annually compared to about a third of all high school students.

High School Career and Technology Education. Table 3-5 presents MCPS data on high school enrollment in CTE courses by cluster from FY 2006 to FY 2008. During this period, overall participation in CTE high school courses diminished 5% from 14,917 to 14,245 students. The two most popular clusters – Business Management and Education – remained unchanged, but the third most popular cluster changed from Human and Consumer Sciences to Engineering.

MCPS reports that enrollment in CTE classes has increased to 21,241 students in FY 2009, an increase of 6,985 students from FY 2008.[7]

Table 3-5: MCPS CTE High School Enrollment, FY 2006-FY 2008

CTE Clusters	Enrollment			Change	
	FY 2006	FY 2007	FY 2008	#	%
Arts, Humanities, Media, and Communication	42	131	144	102	243%
Biosciences, Health Science, and Medicine	222	202	278	56	25%
Business Management and Finance	6,438	6,750	6,396	-42	-1%
Construction and Development	168	178	182	14	8%
Education, Training, and Child Studies	2,714	2,901	2,368	-346	-13%
Engineering, Scientific Research, and Manufacturing Technologies	1,603	2,045	2,068	465	29%
Environmental, Agricultural, and Natural Resources	231	96	72	-159	-69%
Human and Consumer Services, Hospitality, and Tourism	1,727	2,080	902	-825	-48%
Information Technology	515	690	756	241	47%
Law, Government, and Public Safety	30	26	23	-7	-23%
Transportation, Distribution, and Logistics	391	409	352	-39	-10%
Work-based learning (CWE)	757	748	715	-42	-6%
Total	14,838	16,256	14,256	-582	-4%

Sources: Perkins Quality Index Data for 2005 compiled by Maryland State Department of Education for FY 2006; MCPS data from ITP - CTE for FY 2007 and 2008

Of note, the Business Management Cluster enrolled about 45% of all CTE participants in FY 2008. In part, this may result from the popularity of students enrolling in the Software Applications by Design course to meet their Tech Ed graduation requirement.

High school students who decide to pursue a career pathway program are referred to as CTE concentrators. These students have earned at least two of the four credits (i.e., four of eight courses) needed to become a CTE completer.

Table 3-6 on the next page describes MCPS data on the number of CTE concentrators by cluster for FY 2007 and 2008. The three most popular clusters – Engineering, Business Management, and Information Technology – represent about two-thirds of all MCPS CTE concentrators in both years.

MCPS reports that the number of CTE concentrators has increased to 5,762 in FY 2009, an increase of 2,413 students.[8]

[7] Based on Maryland's OASIS database.

[8] Ibid

Table 3-6: MCPS CTE Concentrators, FY 2007–FY 2008

CTE Clusters	Enrollment		Change	
	FY 2007	FY 2008	#	%
Arts, Humanities, Media and Communication	13	30	17	131%
Biosciences, Health Science, and Medicine	111	126	15	14%
Business Management and Finance	794	639	-155	-20%
Construction and Development	70	66	-4	-6%
Education, Training, and Child Studies	452	422	-30	-7%
Engineering, Scientific Research, and Manufacturing Technologies	788	1,025	237	30%
Environmental, Agricultural, and Natural Resources	23	18	-5	-22%
Human and Consumer Services, Hospitality, and Tourism	73	156	83	114%
Information Technologies	114	608	494	433%
Law, Government, and Public Safety*	0	0	0	0
Transportation, Distribution, and Logistics	85	133	48	56%
Work-based learning (CWE)	70	126	56	80%
Total Concentrators	**2,593**	**3,349**	**756**	**29%**

*New Career Cluster
Source: MCPS

Middle School Career and Technology Education. Table 3-7 describes MCPS data on middle school enrollment by grade in CTE courses for the current fiscal year (FY 2009). The most popular middle school CTE course, Multimedia Technologies, is offered to students in Grades 6 to 8; it represents 22% of CTE middle school enrollment.

Table 3-7: MCPS CTE Middle School Enrollment, FY 2009

Middle school courses by area:		Enrollment			
		Grade 6	Grade 7	Grade 8	Total
Computer Science	Information and Communication Technologies	1,034	146	0	1,180
	Computer Applications	763	1,071	143	1,977
	Multimedia Technologies	585	1,226	1,763	3,574
	Software Applications by Design	0	296	340	636
Family and Consumer Sciences (FACS)	FACS 7 (Financial literacy)	0	1,812	0	1,812
	FACS 8	0	0	1,179	1,179
	Creative FACS	1,274	197	195	1,666
	Foods and Nutrition	328	0	345	673
Technology Education	Imagineering Technology	1,422	176	7	1,605
	Living with Technology	0	1,429	3	1,432
	Earth and Space Technology	1	66	602	669
Total		**5,407**	**6,419**	**4,577**	**16,403**

Source: MCPS ITP - CTE

2. CTE Performance

Performance measures for MCPS career and technology education focus on student graduation, CTE program completion, and certifications earned among CTE students.

Graduation Rate. One measure of CTE performance is the rate of graduation among CTE concentrators. Table 3-8 describes MCPS data on graduation rates by CTE cluster among concentrators who were expected to graduate in 2006 and 2007. For FY 2007, graduation rates ranged from a low of 74% for CTE concentrators in the CWE pathway to a high of 99% for CTE concentrators in the Biosciences cluster with an overall average of 90% for all concentrators.

Table 3-8: MCPS CTE Concentrator Graduation Rates, FY 2006–FY 2007

CTE Cluster	Fiscal Year		Change
	2006	2007	%
Arts, Humanities, Media and Communication	100%	92%	-8%
Biosciences, Health Science, and Medicine	100%	99%	-1%
Business Management and Finance	91%	92%	1%
Construction and Development	80%	82%	2%
Education, Training, and Child Studies	89%	91%	2%
Engineering, Scientific Research, and Manufacturing Technologies	84%	88%	3%
Environmental, Agricultural and Natural Resources	81%	84%	3%
Human and Consumer Services, Hospitality, and Tourism	85%	91%	5%
Information Technologies	87%	92%	5%
Law, Government, and Public Safety	-	-	-
Transportation, Distribution, and Logistics	92%	83%	-9%
Work-based learning (CWE)	68%	74%	6%
Total	**87%**	**90%**	**3%**

Sources: Perkins Quality Index Data for 2005 compiled by Maryland State Department of Education for FY 2006; MCPS data from CTE for FY 2007 and 2008

Career Pathway Program Completion. Another measure of CTE performance is the number of graduates who complete a career pathway program. Table 3-9 on the next page describes MCPS data on the number of CTE program completers by cluster from FY 2006 to FY 2008. During this time, the number of CTE completers increased by 249 students from 809 to 1,058. In FY 2008, Work-Based Learning/CWE pathway completers represent about a third of all CTE completers, followed by Biosciences and Transportation pathway completers.

Table 3-9: MCPS CTE Program Completers, FY 2006–FY 2008

CTE Cluster	Enrollment			Change
	FY 2006	FY 2007	FY 2008	#
Arts, Humanities, Media and Communication	2	12	13	11
Biosciences, Health Science, and Medicine	111	139	173	62
Business Management and Finance	1	102	86	85
Construction and Development	61	52	66	5
Education, Training and Child Studies	74	102	72	-2
Engineering, Scientific Research and Manufacturing Technologies	0	67	39	39
Environmental, Agricultural and Natural Resources	6	10	13	7
Human and Consumer Services, Hospitality and Tourism	58	68	62	4
Information Technologies	2	32	42	40
Law, Government, and Public Safety	12	21	18	6
Transportation, Distribution, and Logistics	113	92	108	-5
Work-Based Learning (CWE)	369	341	317	-52
Other	0	0	49	49
Total	**809**	**1,038**	**1,058**	**249**

Sources: Perkins Quality Index Data for 2005 compiled by Maryland State Department of Education for FY 2006; MCPS data from CTE for FY 2007 and 2008

As noted in Table 3-10 below, MCPS data indicates that less than 11% of MCPS' Class of 2008 completed a career pathway program.

Table 3-10: 2008 High School Program Completion for All Graduates

High School Program Completion	
Percent of High School Completers with a:	
High School Diploma	98.6%
High School Certificate	1.4%
Percent of Students with High School Diploma who met requirements for:	
a. University of Maryland Courses	67.1%
b. Career and Technology Education Program	*4.9%*
c. Both University and CTE Program	*5.6%*
d. Rigorous High School Program Indicators*	32.0%
e. One or more of Categories a, b, c, or d	78.7%
Total Number of Grade 12 Students	**10,316**

* Students in Category d are also included in Category a.
Source: 2008 Maryland Report Card

Table 3-11 further breaks down the high school program completion by student subgroup. The data indicates that there is a higher rate of CTE program completion among graduates with disabilities compared to all graduates. Nearly a quarter of students with disabilities earning a regular diploma (23%, shown in italics) met the requirements for CTE program completion compared to 11% of all students.

Table 3-11: 2008 High School Program Completion by Subgroup

Percent of Students	All Students	Free/Reduced Priced Meals	Special Education	Limited English Proficient
Percent of High School Completers with a:				
High School Diploma	98.6%	96.8%	85.0%	98.0%
High School Certificate	1.4%	3.2%	15.0%	2.0%
Percent of Students with High School Diploma who met requirements for:				
a. University of Maryland Courses	67.1%	41.9%	23.0%	25.7%
b. Career and Technology Education Program	*4.9%*	*9.1%*	*21.1%*	*5.7%*
c. Both University and CTE Program	*5.6%*	*6.6%*	*2.1%*	*2.3%*
d. Rigorous High School Program Indicators*	32.0%	8.7%	3.8%	3.0%
e. One or more of Categories a, b, c, or d	78.7%	58.2%	46.4%	34.0%
Total Number of Grade 12 Students	**10,316**	**1,521**	**938**	**304**

* Students in Category d are also included in Category a.
Source: 2008 Maryland Report Card

Dual Completion. MSDE tracks the number of dual completers meeting the University System of Maryland (UM) requirements and CTE requirements for graduation as a measure of CTE performance. Table 3-12 describes MCPS data on the number of dual UM and CTE program completers by cluster from FY 2006 to FY 2008. Overall, the number of dual completers has more than doubled from 276 students in FY 2006 to 566 in FY 2008.

Table 3-12: MCPS Dual UM and CTE Program Completers by Cluster, FY 2006–FY 2008

Dual UM and CTE Completers by Cluster	Fiscal Year			Change
	2006	2007	2008	#
Arts, Humanities, Media and Communication	0	7	7	7
Biosciences, Health Science, and Medicine	104	124	155	51
Business Management and Finance	1	85	78	77
Construction and Development	3	18	13	10
Education, Training and Child Studies	23	56	38	15
Engineering, Scientific Research and Manufacturing Technologies	0	50	23	23
Environmental, Agricultural and Natural Resources	1	0	4	3
Human and Consumer Services, Hospitality and Tourism	12	13	17	5
Information Technologies	0	29	39	39
Law, Government, and Public Safety	9	18	14	5
Transportation, Distribution and Logistics	24	37	38	14
Work-based learning (CWE)	99	74	97	-2
Other	0	0	43	43
Total	**276**	**511**	**566**	**290**

Sources: Perkins Quality Index Data for 2005 compiled by Maryland State Department of Education for FY 2006; MCPS data from CTE for FY 2007 and 2008

Additionally, MCPS tracks the performance of dual completers on several measures and the as additional measures of CTE performance. Table 3-13 describes performance trends among UM and CTE dual completers from FY 2006 to FY 2008. Over time, the number of dual UM and CTE completers taking the SAT and at least one AP exam has increased, as has their scores. .

Table 3-13: MCPS Dual UM and CTE Program Completers, FY 2006–FY 2008

Performance Measures	FY 2006	FY 2007	FY 2008	Change
Dual Completers	276	511	566	290
Dual Completers taking the SAT	216	434	422	206
Mean Math SAT Score	491	529	522	31
Mean Critical Reading SAT Score	469	505	497	28
Dual Completers taking the AP	113	312	348	235
Dual Completers with qualifying AP score(s)	74	205	223	149

Source: MCPS ITP

Industry Certifications. MCPS also tracks the number of certifications earned among CTE program completers. Tables 3-14 and 3-15 describe the number of certifications earned by students across career clusters. Table 3-14 shows FY 2007 data from the MCPS Perkins application on the number of certifications for non-Foundations career clusters. Table 3-15 shows data provided by the Foundations Office on certifications earned by students in the three Foundations programs for FY 2007 and FY 2008.

Table 3-14: Student Attainment of Industry-Standard Certifications, Non-Foundation Programs, FY 2007

Career Cluster	Program Certification	FY 2007
Business Management and Finance	Microsoft Office Suite	20
Biosciences, Health Science, and Medicine	Certified Nursing Assistant	156
	Geriatric Nursing Assistant	1
Consumer Services, Hospitality and Tourism	ProStart	11
	MD State Board of Cosmetologist License Theory	13
	MD State Board of Cosmetologist License Practical	16
Law, Government and Public Safety	EMT-B	16
	Firefighter I/II	9
	Aerial Apparatus Operators	8
	Haz-Mat	21
	CPR	31
Information Technology	Cisco	34
	Total	**336**

Source: MCPS Local Perkins Narrative, FY09

Table 3-15: Student Attainment of Industry-Standard Certifications, Foundation Programs, FY 2007-FY 2008

Career Cluster	Program Certification	FY 2007	FY 2008	Change
Construction and Development	NCCER Core Curriculum, Level 1, or 2	106	99	-7
	MDE Sediment Control License	52	88	36
Information Technology – Network Operations	Certifications in CompTia A+, Network+, Server +, or MCSA	32	11	-21
Transportation, Distribution, and Logistics	Safety and Pollution Prevention	n/a	280	280
	One year credit toward ASE Certification	113	92	-21
	Total	**303**	**570**	**267**

Source: MCPS Foundations Office

3. Feedback from Site Visits and Discussion

OLO gathered information about the perceptions of career and technology education through on-site visits and interviews with staff at Edison, Wheaton, and Wootton High Schools. OLO asked interviewees for comments about the program's strengths and the challenges and any obstacles career and technology education faces.

Strengths. All students and school-based staff interviewed during the course of this study indicated positive support and high regard for MCPS' career and technology education. Students expressed their participation in CTE programs was valuable and interesting. In particular, the students and MCPS staff praised the following aspects of the program:

- The CTE programs provide extensive hands-on experience that allows students to understand the relevance of what they are learning;
- Career and technology education teachers are very dedicated and provide high-quality and engaging instruction;
- Some CTE programs gives students the opportunity to develop a set of skills that could lead to future employment, either as a career or as a way to work through college; and
- Internship opportunities give students beneficial real world experience and teach students technology and professional skills in the workplace.

Challenges. Overall, students and school-based staff believe that MCPS' CTE programs provide valuable skills and knowledge. However, they also identified some challenges and areas for improvement for career and technology education programs:

- There is a lack of awareness of CTE programs among students. Specifically, students enrolled at Edison remarked that their home school counselors did not inform them of the program; and some Wootton and Wheaton students in career pathway programs also remarked that they received little counseling about CTE programs in middle school and had to rely on friends and relatives to understand the benefits of these programs.

- School-based staff feel that many students who might benefit from CTE programs, particularly the hands-on experiences, might not ever access CTE programs because of the difficultly in meeting core academic requirements for graduation. For example, transition teachers for students with disabilities and ESOL teachers interviewed indicated their students often cannot participate in CTE programs because they are repeating academic coursework.

- There is a perception that all MCPS graduates are going directly to college and the schools do not focus on career readiness. For example, students at Wootton stated that there is a lot of pressure from all sides (parents, school, and students) to get good grades and attend a good college, often at the expense of other experiences that prepare students for careers and life as adults.

D. CTE Budget and Revenue

This section presents information about how much it costs to deliver MCPS' CTE programs. As described in Part B, MCPS provides CTE pathway programs, with different configurations and courses, at each of the County's 25 comprehensive high schools, at 38 middle schools, and at Thomas Edison High School of Technology, which serves as MCPS' technical high school.

To compile a comprehensive estimate of CTE costs, OLO requested MCPS to provide data for the following cost components:

- On-site instructional and operating cost data for school-based services at each high school and middle school;
- Instructional and operating cost data for Edison; and
- Salary and operating cost data for central office administration.

OLO worked closely with MCPS staff to assemble this information. MCPS was able to provide budget and cost information for Edison and for central office administration; however, compiling cost data for the on-site costs at the 25 high schools and 38 middle schools was difficult for two reasons.

First, MCPS budgets do not differentiate or separately account for the CTE staff located at the high schools and middle schools. With the exception of the Vocational Support and Career Preparation teachers, MCPS budget documents include CTE teachers with data for all teachers in the Middle and High School Instructional categories.

Second, MCPS staff does not maintain data about the number of full time equivalents (FTE's) assigned to CTE courses. MCPS staff in the ITP office estimate there are 388.5 full-time equivalents (FTE's) teaching CTE courses in comprehensive middle and high schools.[9] This calculation is based on estimate of 110 FTE's needed in teach CTE middle school courses, 10.5 FTE's for Foundations program courses, and 268.5 FTE's for other high school CTE courses.

[9] Data provided by Shelley Johnson, Director for Instructional Technology and Partnerships/Career and Technical Education based on estimates of staffing needed to teach current CTE courses in middle and high schools.

As a result, this section presents the details of the limited CTE cost data MCPS was able to provide in two parts:

- **Part 1, CTE Administrative Costs,** describes the staffing and annual budget for the Instructional Technology Partnerships Unit and its precursor (the Division of CTE), Perkins Programs, and the Foundations Office, and Perkins funding allocated to these functions; and
- **Part 2, Thomas Edison High of Technology School Costs**, presents the staffing and annual budget for the County's sole technical high school as well as estimates of per student costs.

In sum, the data show that the budgets for CTE central administrative budget and Edison totaled $3.9 million each for FY09. At about $9 million, OLO estimates the combined budget for these two components makes up about 20% of MCPS' overall CTE costs, with the school-based costs making up the remaining 80%. OLO estimates the school-based CTE costs could total $38.9 million, based on 388.5 FTEs and an annual cost of $100,000 per FTE for salaries and benefits.

1. CTE Administrative Costs

The central office costs for CTE administration include the budget for the Instructional Technology and Partnership (ITP) Unit, federal revenue from the Perkins Programs, and the Foundations Office. Table 3-16 on the next page displays the approved CTE administrative budgets for FY 2008 and FY 2009 and the requested budget for FY 2010. OLO estimated benefits for each component at 26% of salaries and wages, since benefit costs are budgeted in a separate category.

The last section of Table 3-16, which totals the FTE and cost data, shows a $1.5 million decline in the administrative budget for CTE from $5.3 million in FY 2008 to $3.8 million in the FY 2010 budget request. This decline primarily reflects a decrease in CTE administrative staff from 31.75 FTEs in FY 2008 to 21.55 FTEs for FY 2010, including the reallocation of three CTE instructional specialists and three CTE coordinators to the Department of Curriculum and Instruction. In addition, two positions were reallocated to the Entrepreneurial Activities Fund in FY 2010 to support eLearning.

In FY 2009, the largest drivers in the CTE administrative budget are salaries and wages ($2.5 million) and benefits (estimated at $646,000). The combined budget for materials and equipment totals $528,000. Finally, MCPS budgeted $265,000 for other program costs; this includes travel and professional development for CTE school-based staff.

Table 3-16: Administrative Budget for Career and Technology Education, FY 2008–FY 2010

Budget Line Items	FY 2008 Budget	FY 2009 Budget	FY 2009 Current	FY 2010 Request
Division of CTE/Instructional Technology and Partnerships Unit				
FTE's	15.8	14.8	8.8	6.8*
Salaries and Wages	1,766,712	1,692,639	962,134	792,201
Estimated Benefits (26%)	459,345	440,086	250,155	205,972
Contract Services	17,000	17,000	17,000	2,000
Supplies and Materials	68,940	68,940	49,337	49,337
Other	10,264	10,264	7,966	6,323
Equipment	38,080	38,080	25,387	25,387
Subtotal	$2,360,341	$2,267,009	$1,311,979	1,081,220
Perkins Programs				
FTE's	7.2	6.2	6.2	6.0**
Salaries and Wages	602,615	765,871	765,871	775,613
Estimated Benefits (26%)	156,680	199,126	199,126	201,659
Contract Services	22,925	22,925	22,925	22,925
Supplies and Materials	393,893	216,441	216,441	216,441
Other	254,251	254,251	254,251	261,168
Equipment	465,768	219,564	219,564	219,564
Subtotal	$1,896,132	$1,678,178	$1,678,178	$1,697,370
Foundations Office				
FTE's***	8.75	8.75	8.75	8.75
Salaries and Wages	749,649	773,798	757,048	758,981
Estimated Benefits (26%)	193,285	199,862	196,833	199,102
Contractual Services	2,380	3,230	2,000	2,000
Materials	76,054	53,274	12,161	17,161
Other program costs	18,140	22,050	3,000	3,000
Equipment	26,500	40,188	5,000	0
Subtotal	$1,066,008	$1,092,402	$976,042	$980,244
Total CTE Central Office Budget				
FTE's	31.75	29.75	23.75	21.55
Salaries and Wages	3,118,976	3,232,308	2,485,053	2,326,795
Estimated Benefits (26%)	809,310	839,075	646,114	606,734
Contractual Services	42,305	43,155	41,925	26,925
Materials	538,887	338,655	277,939	282,939
Other program costs	282,655	286,565	265,217	270,491
Equipment	530,348	297,832	249,951	244,951
Total	**$5,322,481**	**$5,037,590**	**$3,966,199**	**$3,758,835**

*3.8 FTEs administer CTE programs. The other FTEs are involved in other programs.

**4.8 positions are school-based, including 2.8 Vocational Support Services Teachers and 2.0 paraeducators.

***Includes three 10-month teachers and one bus driver.

Source: MCPS Department of Management, Budget, and Planning

Each year, MCPS receives federal Perkins funding based on total enrollment, which is allocated to CTE administration. MCPS received $1.7 million in FY 2008 and it expects to receive about $1.1 million in FY 2009 and FY 2010. This revenue represents about 22% to 32% of MCPS' CTE administrative costs.

Table 3-17: Perkins Revenue for Career and Technology Education, FY 2008–FY 2010

Perkins Revenue for MCPS	FY 2008 Budget	FY 2008 Actual	FY 2009 Budget	FY 2010 Request
Anticipated Revenue	1,259,600		1,115,917	1,115,917
Actual Revenue		1,721,637		
Total CTE Central Office Budget	5,322,481		5,037,590	3,758,835
Percent CTE Central Office	23.7%	32.3%*	22.2%	29.7%

*Figure based on FY08 Actual Perkins Revenue/FY08 CTE Central Office Budget
Source: MCPS Operating Budgets and OLO Estimates of Total CTE Administrative Costs

2. Edison High School Costs

The FY 2009 approved budget for Edison is $3.9 million. Table 3-18 displays FTE and budget data from the approved FY2008 and FY 2009 budgets for Edison High School the requested FY2010 budget.[10] The table shows the staffing complement for Edison has stayed constant at 39.25 FTEs. This complement includes 7 administrative positions, 27 teacher positions, 2 counselors, and 2.25 additional support staff.

Table 3-18: Edison High School Budget, FY 2008–FY 2010

Budget Line Items	FY 2008 Budget	FY 2009 Budget	FY 2010 Request
FTEs	39.25	39.25	39.25
Salaries and Wages	2,867,450	3,015,498	2,989,862
Estimated Benefits (26%)	745,537	784,029	777,364
Contract Services	38,430	38,430	38,430
Supplies and Materials	98,474	98,474	98,474
Total	**$3,749,891**	**$3,936,431**	**$3,904,130**

Source: MCPS Department of Management, Budget, and Planning

Table 3-19 on the next page displays enrollment data for Edison. The table shows Edison currently has 524 students enrolled for the 2008-2009 school year. Enrollment declined by more than 200 students (30%) over the past two years. Although Edison is designed to serve 1,000 students, today, it operates at about half of its capacity. MCPS projects an enrollment of 687 students for FY 2010.

[10] The positions included in Table 3-18 differ slightly from those included in MCPS' Schools at a Glance's description of school costs because it excludes special educators, ESOL staff, security positions, and building service workers.

Table 3-19: Edison Enrollment Data, FY 2003–FY 2010

School Year	Enrollment	Annual Change
2002-2003	659	
2003-2004	598	-61
2004-2005	624	26
2005-2006	646	22
2006-2007	746	100
2007-2008	625	-121
2008-2009	524	-101
2009-2010	687 (Projected)	To be determined

Sources: Schools at a Glance and FY10 Recommended Program Budget

OLO estimates MCPS invests $5,500 annually for each Edison student, assuming an enrollment of 700 students and an annual budget of $3.9 million. This per student estimate excludes:

(1) Roundtrip transportation for students to Edison from their home schools;
(2) Edison staff excluded from the budget estimates above, such as the cost of building service workers; and
(3) Facility costs for utilities, building supplies, and maintenance.

If these costs were included, per student costs at Edison could exceed $6,000 annually.

CHAPTER IV: Transition Services

MCPS' transition services are designed to improve the academic and functional achievement of students with disabilities as they transition from high school to adulthood and post-secondary opportunities. They include support services to assist students in post-secondary education, vocational training, employment, continuing and adult education, adult learning, independent living, and community participation. Transition services are one part of a package of special education and related services that MCPS provides to secondary students with disabilities.

MCPS' special education students represent a broad continuum of learning styles, ranging from students with average or above cognitive ability to students with more significant cognitive delays and social limitations. Federal, state, and local law requires that students with disabilities receive special education services in the least restrictive environment. Most students with disabilities who have average or above-level cognitive ability receive a majority of their instruction in general education classrooms with their non-disabled peers. For students with more severe cognitive and social impairments, the least restrictive environment often means instruction in self-contained classrooms or enrollment in the Functional Life Skills Curriculum.

The Fundamental Life Skills (FLS) curriculum provides instruction in functional life skills such as personal management, functional academics, community training, communication, and socialization. At the secondary level, the FLS curriculum also emphasizes vocational training to enable students to transition into work upon graduation. As students approach the last two or three years of public education, the FLS curriculum is centered on four common themes: Life, Home, Travel/Community, and Self. Although this OLO project excludes most components of the Fundamental Life Skills curriculum from its formal conception of "career- and life-readiness" programs, the FLS curriculum plays a critical role in ensuring that students pursuing a certificate rather than a diploma exit MCPS prepared for adulthood at age 21.

This chapter describes MCPS' delivery of transition services in five parts:

- **Part A, Administration of Transition Services**, describes the function of MCPS' Transition Office and the roles of transition teachers;
- **Part B, Transition Goals and Planning,** describes the transition planning process;
- **Part C, Key Transition Services**, describes the most common transition services provided to students with disabilities, program components, and services targeted to enhancing the career and life-readiness of students age 18-21;
- **Part D, Transition Participants and Performance,** describes enrollment and performance data for students receiving transition services, and perceptions of program strengths and opportunities for improvement elicited from site visits; and
- **Part E, Transition Service Budget and Costs**, describes the budget for MCPS' Transition Office and school-based transition teachers from FY 2008 – FY 2010 and expenditures for FY2008.

A. Administration of Transition Services

The Transition Services Office, which administers the delivery of transition services, is part of the Division of School-Based Special Education Services in the Department of Special Education Services. The Transition Services Office provides central office administrative leadership, professional development, and support to on-site, program-based staff (i.e., transition support teachers) who deliver transition services directly to students.

The Transition Services Office is also responsible for informing students and parents about transition services and publishes several documents:

- A brochure defining what transitions services are;
- Frequently Asked Questions about Transition Services which defines the difference between a diploma and a certificate of program completion;
- The Transition Connection which is a telephone directory for graduating students with disabilities listing all of the services they may be eligible for as an adult; and a
- A Partnership with Business brochure which outlines to businesses the services MCPS job coaches provide to them.

The Transition Office has eight full-time equivalent (FTE) positions: a supervisor, an instructional specialist, an administrative secretary, two cluster transition support teachers, a middle School Transition Liaison, a staff person coordinating partnerships, and a coordinator of Off-School Transition Classes.

The Transition Office provides oversight and resources to school-based transition teachers who provide direct services to students. Although all general and special educators in secondary schools share in the work of preparing students with disabilities for employment, postsecondary education, and life after high school, transition teachers bear greater responsibility to support the transition of students with disabilities.

The complement of transition teacher positions that the MCPS' Transition Office supports includes a mix of school-based and program staff. Specifically, there are:

- One or more transition teachers at each of MCPS' 25 comprehensive high schools;
- A transition teacher assigned to each of MCPS' four special campuses (Stephen Knolls, Longview, RICA, and Rock Terrace) that serve secondary students with disabilities;
- Three transition support teachers who staff the Community and Career Connection classes[1]; and
- Three transition support teachers who staff the Transition Training for Independence classes.

[1] These FLS classes are described in detail on page 51.

Unlike other general education personnel who are allocated to schools from the Office of School Performance, all special educators, including transition teachers, are allocated to individual schools and programs from the Office of Special Education and Student Services. A resource teacher who serves as a school's departmental chair for special education typically supervises the school-based transition teachers, and the school principal, who reports to the Community Superintendent, supervises the resource special education teacher.

B. Transition Goals and Planning

Every MCPS student with a disability begins the transition planning process during the school year in which the student turns 14, or younger, if appropriate. The transition planning process relies on several facets to identify the types of transition services that students with disabilities will need. These include:

- Identifying a student's post high school goals;
- Assessing a student's interest, preferences and abilities in relation to identified goals;
- Determining the courses, experiences, and program that will prepare the student to reach their goals;
- Supporting the student in transition-related activities;
- Determining the student's anticipated adult service needs; and
- Linking the student and parent with potential adult services.

MCPS staff complete the transition planning process in partnership with parents and students as part of the Individualized Education Plan[2] (IEP). Transition planning for students at age 14 or younger, if appropriate, focuses on a student's course of study, particularly whether a student will pursue a diploma or certificate of program completion. The scope of transition planning expands at age 16, when federal and state regulations require agency linkages, including, interagency responsibilities. The following describe the core goals of transition planning.

Maryland High School Diploma/Certificate: A key component of the transition planning process is a determination of how a student will exit MCPS, e.g., with a high school diploma, a high school certificate at the age of 21, or a high school certificate before the age of 21.

- To earn *a high school diploma*, a student must: meet credit requirements for English, mathematics, science, social studies, fine arts, physical education, health, and technology education; satisfy requirements in foreign language, American sign language, advanced technology, or a Career and Technology Education (CTE) program; complete the student service learning requirement; and complete the state assessments requirements.

[2] An IEP is a written plan and legal document for students with disabilities that identifies a child's academic, physical, social and emotional needs and sets goals for addressing these needs.

- To earn a *high school certificate*, a student must have a disability, be unable to meet the requirements for a diploma, and meet one of the following standards: (a) the student is enrolled in an education program for at least four years beyond Grade 8 or its age equivalent; and is determined by an IEP team to have developed appropriate skills to enter the world of work, act responsibly as a citizen, and enjoy a fulfilling life, or (b) the student has been enrolled in an education program for four years beyond Grade 8 or its age equivalent and has reached age 21.

Emphasis on Work Readiness: An explicit goal of transition planning is preparing each student to successfully enter the world of work upon exiting MCPS. This transition goal reflects a broad conceptualization of work and community engagement that includes, but is not limited to the following types of employment:

- *Competitive employment* refers to full- or part-time work in the competitive labor market for which an individual is compensated at or above the minimum wage, but not less than the customary wage and level of benefits paid by the employer for the same or similar work performed by individuals who are not disabled.
- *Extended employment* refers to work in a non-integrated or sheltered setting (in a setting without non-disabled peers) for a public or private nonprofit agency or organization that provides compensation in accordance with the Fair Labor Standards Act.
- *Community rehabilitation programs* refer to settings that provide vocational rehabilitation services to individuals with disabilities that enable them to maximize opportunities for employment, including job development, placement, and retention services.
- *Supported employment* describes a system of support for individuals with disabilities employed in integrated settings with non-disabled peers. Supported employment provides assistance such as job coaches, job development, job retention, transportation, assistive technology, specialized job training, and individually-tailored supervision.

C. Key Transition Services

MCPS' transition services are a coordinated set of activities that can include one or more of the following activities:

- Instruction for postsecondary outcomes;
- Career education and guidance;
- Social skills/self-advocacy instruction;
- Career and Technology Education courses;
- In-school and community internships;
- On-the-job training;
- Independent living skills instruction; and
- Linkages to community agencies.

Transition support teachers serve the full continuum of students with disabilities from those being accepted to four-year colleges and universities to those needing medical day placements. A summary of key transition services, program components, and business partnerships designed to enhance the career- and life-readiness skills of students with disabilities follows.

- Career Preparation opportunities: Students with disabilities who are pursuing a high school diploma can participate in CTE courses and programs offered at the Edison High School of Technology or pathway programs located in their home schools, which can improve their work and career readiness. Students, who are pursuing a certificate, typically begin their readiness for work training with classroom instruction to improve their social skills in the workplace, followed by in-school work experiences such as staffing a school store or running a coffee business. Students can also be placed in an array of outside work experiences, ranging from supported employment positions with a job coach to fully independent, paid job placements.

- Partnerships with Business: MCPS works with the business community to provide high school students with disabilities both paid and unpaid career experiences in many different occupations. A MCPS staff team collaborates with an employer to coordinate placement, training, and support services for students in the workplace via job coaches. The intent of these experiences is to develop marketable job skills, increased independence, and community involvement to prepare students to meet the demands of the current workforce after graduation.

- Independent Living Skills: MCPS focuses on developing independent living skills for students with disabilities age 19-21. In addition to its school-based programs, MCPS staffs six community-based classes aimed at enhancing the independent life skills of students with disabilities. These include:

    - The Transition Training for Independence classes at Montgomery College that give students who are pursuing a certificate an opportunity to complete their public education on a college campus. Many students enroll in college courses, including seminars and non-credit courses, with age appropriate peers; and

    - The Community and Career Connection classes that focus on helping students practice independent living skills, functional academics, employment training opportunities, and community participation.

- Transitioning Youth Services: Transitioning Youth Services assists students with developmental disabilities who are going to enter the adult service system at age 21 after graduating from MCPS. Working with a student's family, MCPS provides students with linkages to adult services about 15 months before the student exits. MCPS works with other government agencies such as the Montgomery County Department of Health and Human Services, the Maryland Developmental Disabilities Administration, and the Division of Rehabilitative Services to create and implement seamless transition plans.

D. Transition Participation and Performance Data

This section presents information about how many students receive MCPS' transition services and how well they perform. The first part describes trends in high school special education enrollment and performance indicators. The sources of data are MCPS and the Maryland Special Education Census. The second part offers observations and feedback about MCPS' transition services, based on OLO's interviews with staff and site visits to three MCPS schools.

1. Data on Transition Participation and Performance

All MCPS students with disabilities age 14 to 21 participate in transition planning; and by age 14, specific transition goals and services are included as part of each students IEP. Table 4-1 presents MCPS enrollment data for students with disabilities ages 14–21.

MCPS also reports data to MSDE regarding its compliance with the goal that all youth aged 14 and above with disabilities have an IEP with (1) coordinated, measurable, annual IEP goals and (2) transition services that will reasonably enable each student to meet his/her postsecondary goals. MCPS met the state target of 100% compliance with the goal in FY 2009.[3]

MCPS also reports exit data for students with disabilities age 14 to 21. Table 4-1 describes MCPS exit data among student with disabilities aged 14 to 21 from 2004–2008.

Table 4-1: Exit Data for MCPS Students with Disabilities Ages 14-21, FY 2004 – FY 2008

Data:	2004	2005	2006	2007	2008	Change 2004-2008
Number of Students with Disabilities Age 14-21:						
Total Enrollment	5,541	5,744	5,951	5,805	5,605	64
Who Exited	1,382	1,311	1,498	1,402	1,598	216
Who Graduated with a Diploma	738	726	753	662	793	55
Who Graduated with a Certificate	96	113	117	137	150	54
Who Reached Maximum Age	12	0	5	3	0	-12
Who Died	1	2	5	2	1	0
Who Moved to Another School System	259	329	417	337	553	294
Who Dropped Out	20	22	16	13	28	8
Among Graduates, Percentage of Students with Disabilities Age 14-21:						
Who Exited with a Diploma	88%	87%	87%	83%	84%	-4%
Who Exited with a Certificate	12%	13%	13%	17%	16%	4%

Source: Maryland Special Education Census for all other data that includes students with IEP's and 504 plans

From 2004 to 2008, the number of students with disabilities who exited MCPS with either a diploma or a certificate increased by 13% or 109 students. In particular, MCPS increased both the number of students with IEP's who graduated with a diploma by 7% (55 students), and it increased the number of students exiting with a certificate of completion by 56% (54 students).

[3] See December 15, 2008 correspondence to Jerry Weast from Carol Ann Baglin, Maryland State Department of Education.

During this time frame, 83-88% of graduates with disabilities earned a diploma compared to 12-17% earning a Maryland certificate.
From 2004 to 2008, the number of students exiting MCPS for other reasons also increased by 99% or 290 students. The main driver of this increase was the more than doubling of students with disabilities who moved to other school systems from 259 students in 2004 to 553 students in 2008. Conversely, during the time frame, MCPS eliminated the number of students who reached the maximum age of 21 without earning a certificate/diploma before exiting the school system.

2. Perspectives from Site Visits

As part of this project, OLO staff met with staff from the Division of Special Education Services and conducted interviews with school-based staff and students during site visits. These interviews and visits helped improve OLO's understanding of how transition services operate in practice and gave OLO an opportunity to elicit feedback from staff and students about what things they liked about the school system's delivery of transition services and what things they would they change. This part describes feedback OLO received in three areas:

(a) Staff assessments of program strengths,
(b) Potential areas for improvement, and
(c) Site visit observations of how transition services focus on students with the greatest needs rather than students with disabilities overall.

Program Strengths: The staff and students OLO met with spoke highly of MCPS' transition services and identified several significant benefits.

- According to staff, the most significant benefit of transition services is that it enables students to determine what they want to do, and then makes one or more community connections for students to achieve that goal. Importantly, these connections include gaining meaningful employment in long-term positions.
- Another benefit observed by staff is that MCPS provides a continuum of scaled, practical opportunities for students to develop their work readiness skills that begins with school-site instruction and work experiences and culminates for many students in gainful employment with private employers in the local workforce.
- Staff at Rock Terrace noted that their school provides both school- and community-based vocational experiences for its students. Staff at Rock Terrace believe that their career preparation programs are a model.
- Transition services that focus on developing independent living skills offer one of the few examples in MCPS of systemic instruction designed to help students enhance their financial management skills.[4]

[4] Other examples of MCPS instruction in financial management include the middle school family and consumer sciences curriculum and Personal Finance and Academy of Finance electives at the high school level.

Potential Areas for Improvement: Staff also identified a number of potential areas for improvement in MCPS' delivery of transition services. Some of these include the following:

- Some staff expressed concern that students with disabilities do not receive transition services that address both career and college readiness. Instead, some MCPS staff members observed that most students with disabilities are either on a "pass the HSA" or "work" track. Of particular concern was the lack or limited number of work readiness opportunities for students with disabilities who are diploma-bound.

- Staff stated that students with disabilities need additional supports to participate and successfully complete a CTE program. For example, one transition teacher noted that few of her students could enroll in Edison because that campus did not have enough para-professionals to provide accommodations for students to complete the coursework. Similarly, an Edison administrator noted that transition teachers must become more knowledgeable about the program requirements at Edison to ensure students with disabilities benefit from the services provided.
- Staff also said that the change from the Cooperative Work Experience (CWE) pathway to the College/ Career Research and Development (CCRD) required by MSDE could decrease the likelihood that some students with disabilities could earn a regular diploma. Under the old pathway, students with disabilities could earn up to three credits toward graduation in a CTE program for their work experiences their senior year. With the new CCRD pathway, only two credits of work experience could count for CTE program completion during the student's senior year.

FLS Curriculum Focus of Transition Services: The transition planning process includes all students with disabilities in an effort to ensure that MCPS identifies and provides a customized set of transition services to each student that enables them to reach their postsecondary goals. Yet, OLO's site visits suggest that transition services focus most on students participating in the Functional Life Skills Curriculum.

As part of this project's site visits, transition support teachers at Wheaton and Wootton indicated that their day-to-day work focuses almost exclusively on the needs of students in their Learning for Independence and School/Community-Based classes. Each spent little time providing transition services to students enrolled on their campus' Learning and Academic Disabilities program which typically serve students of average cognitive ability who struggle with processing deficits in one or more academic areas. However, Wootton has another transition support teacher that works with the diploma-bound students with disabilities who was not interviewed by OLO.

E. Transition Services Budget and Costs

Table 4-2 describes the FY 2008 and FY 2009 approved budgets for Transition Services, the FY 2010 budget request, and program expenditures for FY 2008. Currently, MCPS' program budget allocates 72.8 full time equivalents for transition services.

- The majority of these positions (65.8 FTE's) are transition teachers who deliver transition services in comprehensive and special education high schools as well as community based independent living classes.

- 8.0 central office positions are allocated in MCPS' program budget for transition services. The transition services budget is primarily through local dollars, with $6,000 in materials funded through the Individuals with Disabilities Education Act (IDEA).

Table 4-2: Transition Services Program Budget from FY 2008-FY2010

Budget Line Items	FY 2008 Budget	FY 2008 Expenditures	FY 2009 Budget	FY 2010 Request
FTE's	72.0		72.8	72.8
FTE Salaries	$4,426,842	$4,635,968	$4,946,273	$5,000,414
Non-FTE Salaries	$96,617	$49,540	$80,448	$50,448
Estimated Benefits	$1,150,979	$1,205,352	$1,286,031	$1,300,108
Contractual Services	$60,000	$30,000	$60,000	$60,000
Materials	$16,982	$14,200	$12,273	$12,273
Local Travel	$12,478	$24,819	$16,228	$30,476
Total:	**$5,757,898**	**$5,953,879**	**$6,395,253**	**$6,447,719**

Source: MCPS Department of Special Education Operations

Table 4-2 shows the program budget for transitions services increased $690,000 since FY 2008, from approximately $5.8 million in FY 2008 to $6.4 million in the FY 2010 budget request. Personnel, including salaries, wages, and benefits estimated at 26% of salary and wages, is the largest cost driver. Total personnel costs account for 99% of the program budget for FY 2008 – FY 2010 and 99% of actual program costs in FY 2008. Assuming a high school special education enrollment of 5,605 students, MCPS spent approximately $1,062 per student on transition services in FY 2008.

CHAPTER V: Students Engaged in Pathways to Achievement (SEPA) Program

In 2007, in response to Board of Education and community concern, the Division of ESOL/Bilingual Programs created the Students Engaged in Pathways to Achievement (SEPA) Program. SEPA targets 18-21 year old high school Spanish-speaking students with little or no formal education who are not likely to meet MCPS graduation requirements by age 21. The program focuses on developing entry-level job skills as well as English language, mathematics, and literacy skills through classroom and hands-on instruction.

MCPS offers the SEPA program to students in the Downcounty Consortium. A collaborative among Edison, Wheaton, and Einstein High Schools, this program currently serves 20 ESOL students. MCPS launched the first SEPA class at Wheaton High School in the summer of 2007, and the second cohort at Einstein High School in the summer of 2008.

This overview of the SEPA program is organized as follows:

- **Part A, SEPA Administration**, summarizes the implementation and management of the program;
- **Part B, SEPA Components**, describes SEPA's core program elements and requirements;
- **Part C, SEPA Participants and Performance,** presents SEPA student participation and performance data and feedback from MCPS staff and students about SEPA; and
- **Part D, SEPA Costs**, reviews three years of budgeted program expenditures from FY 2008 – FY 2010.

A. SEPA Administration

The Division of ESOL/Bilingual Programs, in the Department of Instructional Programs in the Office of Curriculum and Instructional Programs, administers the SEPA program. The Division of ESOL/Bilingual Programs partners with the Foundations Office and the Instructional Technology and Partnership Unit to implement the career and technical education components of the SEPA program.

A SEPA instructional specialist in the Division of ESOL/Bilingual Programs supports the program by working with school-based staff to implement the program and serves as a member of the MCPS Latino Education Coalition work group, which helps monitor the implementation of SEPA. An ESOL parent community coordinator in the Division of ESOL/Bilingual Programs, as well as teachers, counselors and paraeducators at Einstein, Wheaton, and Edison high schools are assigned to support students in SEPA.

MCPS selects candidates for the SEPA program from its Multidisciplinary Educational Training and Support (METS) program. METS is a program for ESOL students in Grades 3-12 who have no previous formal education, schooling gaps, or schooling interruptions. METS offers daily ESOL instruction plus sheltered instruction in reading, mathematics, and social studies.

All international students who enroll in MCPS must register with the International Student Admissions Office (ISAO). During registration, ISOA refers students with schooling gaps to the Division of ESOL/Bilingual Programs to determine eligibility for the METS program. A student who meets the following criteria is enrolled in METS:

- Student is eligible for beginning level ESOL services as determined by performance on the state-mandated Language Assessment System (LAS) Links assessment;
- Student has an educational gap of one or more years; and
- Student performs below Grade 5 in mathematics and at or below Grade 4 in reading comprehension.

The SEPA program is only open to students who are enrolled in METS and are not likely to meet graduation requirements by the time they reach age 21 due to low literacy skills in English and Spanish and low levels of English language proficiency. METS/ESOL teachers are responsible for initiating the process to refer a student from the METS program to the SEPA program. To be eligible for a referral, a student must:

- Be a native Spanish speaker;
- Be at least 18 years of age by June 30th o f the year enrolled;
- Demonstrate limited academic progress;
- Demonstrate an overall beginning level of English language proficiency; and
- Demonstrate reading skills below Grade 3 in English and Grade 5 in mathematics and limited reading comprehension skills in Spanish.

As part of the screening process, the teacher and the SEPA/METS teams review academic data to assess whether the student is unlikely to meet MCPS graduation requirements by the age of 21.

To complete the process, a teacher submits the referral for review by the school-based counselor and the student's English Language Learners team. Next, the school submits the referral to the SEPA Instructional Specialist for review. The SEPA/METS team conducts an intake interview with the student and his or her parents, and after this interview, a student has the option to accept or decline participation. (See Appendix I for a map of the SEPA enrollment process, a program referral sheet, and a notification sheet.)

B. Components of the SEPA Program

The SEPA program combines specialized academic classes at a student's home school, career and technical classes at Edison, a family support program, community partnerships, and a summer program. This section outlines these elements. A copy of the Instructional Program for SEPA is available in Appendix J.

Summer Career Exploration Program. During the summer before the school year begins, beginning SEPA students participate in a four-week Summer Career Exploration Program at Edison. The program introduces students to the career and technology education courses that will be available to them at Edison within the following pathways:

- Foundations of Automotive Technology;
- Construction trades pathways in Carpentry, Plumbing and Masonry;
- Nail technology; and
- Professional restaurant management.

Unlike most other MCPS summer courses, this program is free to participating students and includes breakfast and lunch.

Course Schedule. When school begins, SEPA students enroll in specialized classes at their home school (i.e., Einstein or Wheaton High School). The classes are designed to help students develop their career skills, learn English and mathematics, and improve their reading, writing and academic skills. Some of these classes are available to all students enrolled in the METS program. Table 5-1 outlines the SEPA program course requirements.

Table 5-1: Courses for SEPA Students

SEPA Course	Course Description
First-Year Courses	
SEPA ESOL	Learn English through a career exploration curriculum.
Spanish Literacy for Native Speakers	Develop reading, writing, and vocabulary in native language.
Mathematics*	Develop basic mathematical skills.
Second-Year Courses	
Cooperative Work Experience (CWE)	Skills for researching careers, locating employment opportunities, and being successful in a job with an emphasis on interviewing and communication skills.
SEPA ESOL	Learn English for career development and practice language skills related to CWE class.
Mathematics*	Develop basic mathematical skills.
Software Applications Management**	Basic use of computers, online resources, and computer software such as Microsoft Office.

*A new mathematics course is being developed for FY 2010.
**This course is being eliminated in FY 2010 and replaced by a course to provide additional instruction in career and language skills.
Source: Instructional Program for SEPA, MCPS

Edison Pathway Programs. Students in the SEPA program attend their home school for half of the school day and Edison High School for the remainder of the day. At Edison, students participate in one of four career pathway programs in restaurant management, nail technology, construction, or automotive technology.

Since one of the main goals of the SEPA program is to improve the work-readiness of its participants, the pathway programs available to SEPA students emphasize work readiness rather than college readiness. In particular, the SEPA career pathways are included within the Construction, Transportation, and Human and Consumer Sciences clusters that each, as noted in Table 3-1 in Chapter III, emphasize work readiness.

Parent Community Coordinator. SEPA also provides students and their families with access to additional support services.

- A Parent Community Coordinator (PCC) is responsible for assisting students and their families with social and academic services that address barriers to learning including bilingual counseling services, acculturation, family reunification, and assistance with student fees; and
- The PCC also refers families to community organizations that provide social services. The SEPA Safety Net Program is a partnership with local social service community providers to prioritize SEPA family requests a priority.

Although the PCC is dedicated to the SEPA program, the position provides support services to all Latino families at SEPA sites.

C. SEPA Participation, Performance, and Feedback Data and Observations

As part of this study, OLO compiled information about SEPA program participation and performance. This section presents enrollment and performance measurement data along with feedback from interviews with MCPS staff and students.

SEPA Participation. At the beginning of FY 2008, there were 15 seats available in the SEPA program and 17 students were enrolled (all at Wheaton). During the school year, six students withdrew from the program, leaving an enrollment of 11. In FY 2009, there were 30 seats available in the program and 28 students were enrolled: ten students at Wheaton and 18 at Einstein. Currently, the program serves a total of 20 students, with a total of eight students who have withdrawn from the program. The table below shows the enrollment of the SEPA program.

Table 5-2: SEPA Enrollment at Wheaton and Einstein High Schools, FY 2008-FY 2009

SEPA Students	**FY 2008**		**FY 2009**		
	Wheaton	**TOTAL**	Wheaton	Einstein	**TOTAL**
Entrants	17	17	10	18	28
Withdrawals	6	6	2	6	8
Current total	11	11	8	12	20

Source: MCPS Division of ESOL/Bilingual Programs

SEPA Performance. During year one of SEPA program implementation, MCPS used formative assessments to gauge student progress and determine the level of differentiation needed in the career courses. Starting in year two of program implementation, after program components were fully in place, the Office of Shared Accountability began to collect performance data for a comprehensive program evaluation. At OLO's request, MCPS provided the performance data it is using to track English language proficiency.

MCPS uses MSDE-mandated LAS Links assessment to measure the English language proficiency levels of SEPA students. This is the same assessment MCPS uses to assess English language proficiency levels for all of its ESOL students. LAS Links determines a student's English language proficiency level (on a scale from 1-5) across four skill areas: speaking, listening, reading, and writing.

The preliminary performance outcome data MCPS provided OLO accounts for 17 students enrolled in SEPA at the end of FY 2008. Eleven of these students were enrolled for the entire school year. The data in Table 5-3 show that about half (53%) of the SEPA respondents demonstrated no change in their overall English proficiency, about a third (35%) increased the overall proficiency, and the remainder (12%) decreased their proficiency.

Table 5-3: Performance on LAS Links Assessment by SEPA Students in 2007-2008

LAS Links Assessment*	Number of SEPA Students who:		
	Increased Proficiency by 1 Point or more	Demonstrated No Change in Proficiency	Decreased Proficiency by 1 Point or more
Overall	6	9	2
Listening	5	8	4
Writing	5	11	1
Speaking	6	10	1
Reading	9	3	5

*Proficiency levels represent a range of scaled score points.

Source: MCPS Division of ESOL/Bilingual Programs

Feedback from Interviews and Site Visits. To gather information about the perceptions of the SEPA program, OLO interviewed MCPS staff at Edison and Wheaton High Schools. OLO asked interviewees for comments about the program's strengths and the challenges and any obstacles the program faces.

Strengths. MCPS staff at Wheaton and Edison indicate that the program offers concrete benefits for the small number of students that participate. They perceive that SEPA students benefit from the hands-on approach of the Edison pathway programs and the incorporation of mathematics and reading skills into the work experiences of the program. Staff further praised the strong work ethic and determination of SEPA students. However, staff also report that students continue to struggle to understand some of the theoretical content of some courses because of their limited English proficiency.

Challenges and Obstacles. While several MCPS staff members praised certain aspects of the SEPA program such as the career experience component, staff members identified the following obstacles and challenges.

- Attendance in the program can be sporadic, particularly for a student who work to help support his/her family.

- Lack of documentation can jeopardize potential credentialing and work experience opportunities. For example, students who lack social security numbers cannot take the State Board of Cosmetology certification exam to complete the Nail Technology pathway or participate in paid internships.

An additional perspective shared with OLO is that given the needs of secondary ESOL students, particularly in the METS program, perhaps a better utilization of SEPA funds would be to fund additional ESOL para-educator positions at Edison to expand access to CTE programs and career pathways to more English language learners within MCPS. A fear expressed among some staff is that METS students typically have few opportunities to participate in CTE courses because they face challenges meeting their core academic requirements for graduation.

D. SEPA Costs

At its inception, the SEPA program was administered by two full time equivalents (FTEs) positions. The positions included a part-time teacher (.6 FTE), a part-time parent community coordinator (.4 FTE), and a full-time instructional specialist. In FY 2009, the program received a full-time para-educator and a .8 FTE teacher. Currently there are 4.4 FTEs who administer the program. MCPS has requested an additional .2 FTE toward a teacher position for FY 2010.

Table 5-4 on the next page presents the FY 2008 and FY 2009 approved budgets for the SEPA program and the FY 2010 budget request. Local funds provide the primary source of funds for program staffing, supplemented by Title III funding for the Parent Community Coordinator and part of "Other Program Costs." Personnel costs, which make up the largest budgeted category, have ranged from 82% of the FY 2008 budget to 94% of the FY 2010 request.

Table 5-4: SEPA Budget from FY 2008-FY 2010

Budget Line Items	FY 2008 Budget	FY 2009 Budget	FY 2010 Request
FTEs	2.0	4.4	4.6
FTE Salaries	148,683	276,547	321,313
Non-FTE Salaries	39,433	63,662	77,722
Estimated Benefits	40,326	78,503	91,023
Contractual Services	37,500	25,940	13,500
Materials	8,500	12,000	12,000
Other Program Costs	2,500	5,500	7,720
Total	**$276,942**	**$462,152**	**$523,278**

Source: MCPS Division of ESOL/Bilingual Programs

In FY 2009, the program served 20 students at a total cost of approximately $462,000 or a cost of approximately $23,000 per student[1]. This cost excludes the $5,500 per student cost of the delivering the career pathway instruction at Edison High School estimated in Chapter III and the per student cost of several of SEPA courses provided at Wheaton and Einstein (e.g., ESOL and mathematics courses). Together, the combined cost of the SEPA program exceeds $28,000 per student.

[1] OLO calculated the cost per student based on current enrollment in the program. If per student costs were calculated based on the 28 students ever enrolled in the SEPA program, this would amount to $16,500 per student.

CHAPTER VI: School Counseling Services

To improve the career- and life-readiness of secondary school students, MCPS' School Counseling Services Unit (SCSU) provides academic counseling and access to career guidance resources to all MCPS students. The activities of SCSU staff and school counselors in every MCPS middle and high school include informing students and parents about career options, and enrolling students in courses that prepare them for college and career.

This chapter summarizes MCPS' secondary school counseling programs as follows:

- **Part A, School Counseling Administration**, describes the administrative structure of central office and school-based staff responsible for secondary school counseling;
- **Part B, Inventory of Secondary School Counseling Services**, provides an overview of the services and materials that school counselors make available to students to enhance their options for careers and college opportunities;
- **Part C, Secondary Enrollment and School Counseling Performance,** describes the number of secondary students eligible for school counseling services and data from a student survey and site visits on the effectiveness of school counseling; and
- **Part D, Secondary School Counseling Services Costs**, offers a synopsis of the middle and high school counseling services budget for FY 2008 through FY 2010.

It should be noted that the elementary school counseling program can impact and support later career- and life- readiness through early career awareness and middle school program selection (i.e., middle school magnet and signature programs). However, the majority of career- and life-readiness counseling services are delivered at the secondary level. Therefore, this chapter focuses on school counseling services in middle and high school.

A. School Counseling Administration

The mission of MCPS' School Counseling Services Unit is to work in partnership with school-based staff to teach students the skills that are necessary for academic success and to promote positive academic, personal, interpersonal, health, and career development for all students. School counselors also work with students to help them develop competence in decision making, interpersonal relationships, personal responsibility, and other skills essential for being a productive citizen.

The School Counseling Services Unit (SCSU) is in the Department of Student Services, which reports to the Associate Superintendent for Special Education and Student Services. The SCSU is responsible for:

- Supervising the implementation of school counseling programs,
- Providing training and resources to school counselors, and
- Creating partnerships with offices and organizations within MCPS and the community to provide students and their families with other social services that they may need.

SCSU staff work with school-based counselors, who report to the principal of the school. The MCPS Office of School Performance allocates counseling staff to all MCPS schools. MCPS guidelines require one counselor at each elementary school, and it bases the number of counselors at each middle or high schools on enrollment. Specifically, for middle schools, the guidelines require one counselor for every 216 students; and for high schools, one counselor for every 250 students.

At most MCPS secondary school counseling offices, the staff complement assigned by the Office of School Performance consists of the following positions:

- A resource counselor who serves as head of the counseling department;
- A secretary who provides administrative and clerical support to the resource counselor and counseling staff; and
- A team of school counselors. In 2007-2008, OLO estimates the number of school counselors ranged from one to six in the middle schools, and four to 11 in the high schools, based on enrollment data and the staffing guidelines.

Currently, each of MCPS' 26 high schools (including Edison) and 31 of 38 middle schools have a resource counselor. In general, middle school counseling departments without a resource counselor have a department chair among the school counselor positions.

Additionally, high school counseling offices usually include the following positions:

- A registrar who maintains student records including report cards and transcripts. The registrar also completes the processing of college applications, enrollments/withdraws, and change of addresses/phone number requests.

- A college/career coordinator who manages the resources available to students in the school Career Center. These resources provide information about the college application and admission process; scholarships and financial aid resources; apprenticeship opportunities; college testing; career assessment and planning; and technical school and military opportunities.

Finally, a school principal may assign additional staff to the counseling office. For example, Northwest High School has an Assistant Registrar and Wootton High School has a College Institute Counselor.

School counselors' primary responsibilities are to provide comprehensive developmental guidance and counseling services to students in the areas of academic achievement, career and educational decision making, and personal/social development. High schools typically use a list of students alphabetized by last name to assign counselors to students; although some high schools assign one or more counselors to work only with ninth grade students. Middle schools typically assign one or more counselors to specific grade levels.

Outreach and Recruitment. To publicize the counseling services offered, school counseling services staff make presentations, distribute literature, run staff information booths, and advertise in school newscasts and newspapers. Additionally, counseling offices at each middle school and Career Centers at each high school provide students with flyers, brochures, and other information about the services available in the schools and other career resources. Many of these resources are available on the Internet through links on the MCPS website.

B. Inventory of School Counseling Services

According to MCPS Board of Education policies, the intent of school counseling services is to provide students with academic, personal/social and career development support.[1] This section presents an inventory of MCPS counseling services organized into four groups of services:

1. Middle school counseling services,
2. High school counseling services,
3. High school career centers, and
4. The MCPS College and Career Information website.

1. Middle School Counseling

Middle school counselors work with students to facilitate their transition from elementary school to middle school and from middle school to high school and to develop their academic and personal skills. Additionally, the work of counselors include:

- Developing an academic plan to support a student's high-school, career, and post-secondary plans; and
- Working with other school staff, e.g., pupil personnel workers or school nurse, to identify and access school and community social services for students and families.

Although the purpose of middle school counseling services is to address the development of academic, personal, and interpersonal skills, in practice, a primary focus is academic advising. School counselors spend a significant portion of their time advising students about their course selection and schedules. Middle school counselors use classroom presentation, small group sessions, and individual counseling to help students develop academic, career, and social skills.

Middle school students do not receive the same level or array of counseling services. Instead,

- Some counseling services are provided to all students;
- Some counseling services are provided to certain students on an as-needed basis; and
- Some counseling services are offered to all students but used only by those students who seek them out.

[1] For a more detailed description of the required counseling services, please see MCPS Board of Education Regulation IJA-RA and MCPS Board of Education Policy IJA.

The rest of this section provides more detail about the services in each of these categories with a brief description of whether the services emphasize college or career readiness.

Academic Counseling Services for All Students. All middle school students receive academic counseling services because these activities are necessary for the effective implementation of the MCPS school program. Academic counseling services include activities such as course enrollment and scheduling, guidance in developing the student four-year plan (discussed in more detailed below), and introduction of MCPS' academic opportunities such as IB programs, Edison programs, and high school consortium choices (if available).

Academic counseling services can emphasize both college and career readiness, depending on the interest and needs of the student and the recommendations of the counselor. For example, counselors may provide information on an IB program for a student who plans to attend college or for the cosmetology program at Edison for a student who plans to work as a hair stylist after high school.

Intervention Counseling Services for Select Groups of Students. Some counseling services, such as academic intervention or crisis counseling, are provided to students when a need arises. Counselors provide these services on an ad hoc basis, usually in response to a student request or a staff intervention. These services include:

- Academic support for students with poor grades and attendance issues;
- Peer group counseling for students with specific concerns (i.e., family and peer issues);
- Crisis intervention;
- Referrals to community based resources and social services; and
- Referrals to alternative education choices.

The focus of these services can be to address a specific concern and generally improve a student's ability to meet life challenges in the future. Although these services do not necessarily emphasize either college or career readiness, students who receive these services can be better prepared for both college and career.

Counseling Services for Self-Selected Students. MCPS' middle school counseling offices offer a variety of other programs and services that are available to students who express an interest. Students or their families must initiate a request for or seek out information to receive these services. The types of services vary from one school to the next. Some examples of these services include:

- Consultations with parents and teachers about academic and social development issues;
- Career exploration programs and information;
- Information on Student Service Learning activities; and
- Special school programs such as peer leadership and mentoring programs.

These services can enhance a student's preparedness for both college and career if a student takes advantage of the programs offered at their particular school.

2. High School Counseling

High school counseling staff primarily assist students first with the transition from middle school to high school, and again with the transition from high school to college, a career and/or other post-secondary plans. While both college and work-readiness information is available through high school counseling services, the priorities of counseling services are course scheduling and college admission. Whether a student's high school counseling emphasizes preparing for college or a career or both depends on each individual student's interests and needs. Students can utilize both college and career planning counseling services that best fit their postsecondary plan.

Like their middle school counterparts, high school counselors meet with students individually and in groups, and like middle school, the service delivery framework consists of services for all students, services offered on an as-needed basis, and services available on request.

Counseling Services for All Students. Each student meets annually with high school career counseling services to schedule courses and create or update an academic four-year plan. The four-year plan outlines the courses and programs a student would like to take during their four years of high school. Although it is not an official course planner and it does not register students for classes, it provides an informal road map for a student's high school career. At the annual meeting, counselors and students discuss a student's postsecondary plans and determine what courses best meet the student's postsecondary plans. Generally, an individual student's postsecondary plans determine whether these counseling services emphasize preparation for college, a career, or both.

Intervention Counseling Services for Select Groups of Students. Some counseling intervention services are available to high school students who are academically or behaviorally at-risk. The impetus for these services can come from various sources, including parents, teachers, administrators, or the students themselves. These services do not directly emphasis college or career readiness, but rather provide services that enable the student to participate in college and career services. Examples of high school counseling intervention services include:

- Academic support interventions for students demonstrating performance or attendance concerns;
- Crisis intervention;
- Information about Evening High School, High School Plus, summer school, or other alternative education options;
- Group and individual counseling sessions to address specific topics; and
- Referrals to outside resources for additional social services.

Counseling Services for Self-Selected Students. A third group of counseling services are available to MCPS students who seek information or initiate a request for service. These services can emphasize both career and college readiness, depending on the need of the student. MCPS' high school counseling offices make the following types of career and college resources to students:

- Providing career planning tools which may include interest inventories and job information;
- Providing career and personality testing for students;
- Assisting in the college application process and financial aid/scholarship search;
- Participating in parent/student conferences about academic, career, and social issues; and
- Issuing student work permits.

3. High School Career Centers

Each MCPS high school has an on-site career center as well as a web-based career center that provides students with access to information on postsecondary education, training, and careers. The emphasis of the high school Career Centers is on college and work preparedness, with information on both college and career options available.

High school Career Centers provide students with resources on postsecondary education, training, and careers available, both online and in print. The Career Centers typically provide the following information.

- College catalogs and handbooks, financial aid applications; and college testing registration materials;
- Information on career and professional skills such as resume writing, interview skills, career planning and occupational data;
- Student access to career and college planning web-based programs. For example, MCPS provides students access to Choices Explorer©, Choices Planner©, and WorkSpaceK12© which allow students to explore careers, take a career interest assessment, and access college information;
- Information on career/trade and military schools including background information, funding sources, and requirements for career opportunities; and
- Career/college planning guides in 8th, 9th, and 11th grades.[2] The guides include information on: organizational and time management strategies; career assessments; academic sequence planning; career and training options; and college planning and admissions process.

4. MCPS College and Career Information Website

MCPS' SCSU maintains the MCPS College and Career Center website[3] to provide interested students with college and career information. The website resources are similar to the resources offered at the high school career centers. There are five main sections of the College and Career Center online outlined in Table 6-1 on the next page. Similar to High School Career Centers, the emphasis of the high school career centers can be on both college and work preparedness, with information on college and career options available.

[2] Career/College Planning Guides are available in five languages. Copies of these guides are available at http://www.montgomeryschoolsmd.org/info/planningguides/.
[3] http://www.montgomeryschoolsmd.org/curriculum/careercenter/index.shtm

Table 6-1: Sections of MCPS College and Career Information Website

College and Career Information Website Section	Provides Information On:
Special Programs and Events	Scholarships, college tours, career fairs, and career/college seminars.
College/Career Planning	College readiness, career awareness, and college and trade schools.
Financial Aid	Scholarships, FAFSA, and financial aid workshops.
Counseling Services	Counseling and testing calendar and career clusters.
Testing	Standardized testing and test prep including the SAT, ACT, TOEFL

Source: MCPS College and Career Information Website

C. Secondary Enrollment and School Counseling Services Performance

This section describes participation data and performance indicators for MCPS' School Counseling Services. It is organized as follows:

- Part 1, Secondary Enrollment, describes the number of middle and high school students eligible for school counseling services;
- Part 2, School Counseling Performance, describes student survey results on secondary school counseling services; and
- Part 3, Feedback from Site Visits and Discussion, summarizes the strengths and concerns of MCPS staff and students about school counseling services to enhance students' career- and life-readiness.

1. School Counseling Participation

MCPS does not maintain comprehensive data on student participants in counseling services; however, all students receive counseling services. Table 6-2 shows middle and high school enrollment data between 2004 through 2008. The data show middle school enrollment declined approximately 5% while high school enrollment grew by 4%. These data suggest the demand for high school counseling services also grew.

Table 6-2: MCPS Student Enrollment by Middle and High School

Student Enrollment	2004	2005	2006	2007	2008	Change	
						#	%
Middle school	32,626	32,034	31,668	31,187	31,087	-1,539	-4.7%
High school	43,047	44,337	44,907	44,864	44,648	1,601	3.7%
Total	75,673	76,371	76,575	76,051	75,735	62	0.1%

Source: MCPS Website

2. School Counseling Performance

The measures MCPS uses to track the performance of the School Counseling Services Unit and school based counseling offices includes college admittance rates and how many scholarships MCPS students receive. The SCSU also administers an annual student survey that solicits student opinions about items such as counselor access, scheduling, college/career counseling, and personal issue support. Table 6-3 presents highlights and findings from the 2006-2007 annual survey that address the delivery of MCPS' career- and life-readiness counseling services. See Appendix K for the full survey results.

Table 6-3: Summary of School Counseling Student Survey, 2006-2007

Counseling Activity	% of Survey Participants who Agreed or Strongly Agreed	
	Middle School	High School
Academic Counseling		
Students have met with their counseling for academic scheduling	100%	100%
Counselor addressed their academic concerns	77%	88%
Career/College Planning		
Students introduced to career/college counseling	100%	NA
Students have met with their counselor for college or career planning	NA	100%
Counselor addressed their college/career planning concerns	NA	87%

Source: School Counseling Services Unit Student Survey Results, 2006-2007

The data show that all students surveyed completed academic scheduling and career/college planning with their counselor. The data also show that 100% of middle school students were provided with information on college/career planning services. The survey data further show how middle school students were introduced to career/college counseling. Specifically, 19% of students were informed through a Career Day/Fair; 38% through Classroom Presentations; and 18% through Career Speakers.

3. Feedback from Interviews and Site Visits

As part of this project, OLO interviewed students, school counselors, teachers, and administrative staff at Edison, Wootton, and Wheaton high schools about their perceptions of MCPS' school based counseling services. MCPS students reported that school counselors provided them with the services they needed; however, they voiced concerns about issues such as the amount of time counselors spend advising students about scheduling and college admissions, and the overall lack of emphasis on career planning services. The bullets below capture some of the highlights from the feedback OLO heard about MCPS' counseling services.

- Students stated that when an academic or career/college planning issue arose, school counselors provided beneficial guidance and helped them resolve the concern. At Edison, students praised the accessibility, thoroughness and balance of the counseling services they receive. Students stated that the counselor at Edison is very accessible and provides thorough and comprehensive career and college counseling.

- A widespread perception among MCPS' students, school counselors, and teachers is that MCPS' counseling services at many high schools are skewed towards promoting college-readiness, instead of more balanced emphasis on college readiness and career planning. Students at Wootton observed that counselors and teachers advocate participation in AP and Honors courses and do not promote career and technology education courses. Several students currently enrolled at Edison said that they were discouraged from participating in an Edison program at their home schools.

- Counseling staff stated that they would like to spend more time supporting career planning, but, in practice, they spend most of their time advising students on scheduling and college admissions activities. One counselor estimated that she spent 80% of her time completing registration and college admission paperwork, and only 20% of her time with students. Counselors stated they wish they had more time to provide in-depth career and college counseling services to students.

- Students wished there were more options available for them to learn career and life skills such as job skills and personal finance. Students at Wootton suggested their school could do more to teach "soft" skills such as job interviewing and communication skills. Similarly, Wheaton and Edison students were concerned that classes like Consumer Math, that provide basic financial skills for life readiness, are no longer offered or they simply are unaware of them.

D. Secondary School Counseling Budget

There are over 400 FTEs dedicated to school counseling services in MCPS schools, including three positions in the central office. Because MCPS does not track the amount of time counselors spend on various tasks, OLO's budget review includes the total cost of all secondary school counseling services; it does not attempt to separately identify specific subset of costs associated with career- and life-readiness counseling services.

Table 6-4 on the next page shows, as of the FY 2010 budget request, there are 409 FTEs in Counseling Services. This reflects a decrease of five FTEs since FY 2008, including the reduction of three middle school counselors and two instructional specialists in the central office. These reductions may reflect the decline in middle school enrollment since 2004.

Table 6-4: MCPS Secondary School Counseling Staffing and Central Office Staff, FY 2008-FY 2010

Counseling Staffing		Total FTE		
		FY 2008 Current	FY 2009 Approved	FY 2010 Request
Middle schools	Guidance Secretary	38.00	38.00	38.00
	Counselor	112.50	112.50	109.50
	Resource Counselor	31.00	31.00	31.00
	Subtotal	181.50	181.50	178.50
High schools	Guidance Secretary	25.00	25.00	25.00
	Counselor	153.50	152.50	152.50
	Resource Counselor	24.00	25.00	25.00
	Subtotal	202.50	202.50	202.50
	Career Information	25.00	25.00	25.00
Central Office	Supervisor	1.00	1.00	1.00
	Instructional Specialist	3.00	2.00	1.00
	Secretary	1.00	1.00	1.00
	Subtotal	5.00	4.00	3.00
Total		**414.00**	**413.00**	**409.00**

Source: Estimated from MCPS Program and Operating Budgets, FY 2008-FY 2010

Table 6-5 on the next page summarizes the approved budget for School Counseling Services from FY 2008 - FY 2009 and the FY 2010 budget request. For all of these budgets, OLO estimated employee benefits at 26% of the budgeted amount for salaries and wages.

Between FY 2008 - FY 2010, the counseling services budget increased approximately $2 million to over $43 million requested in FY 2010. For all years, the majority (98%) of the counseling budget is in personnel costs for salaries and estimated benefits. Central office costs account for less than 1% of the counseling services budget in all three years. In 2008, counseling services had an average cost of $565 per middle school student and $508 per high school student[4].

[4] The average cost per student was calculated using only the middle and high school subtotal costs. Central office staff cost was not used in the calculation.

Table 6-5: MCPS Secondary School Counseling Services Budget, FY 2008- FY 2010

Budget Line Items	FY 2008 Budget	FY 2009 Budget	FY 2010 Request
Middle School Counseling			
FTEs	181.5	181.5	178.5
FTE Salaries	13,935,927	14,902,915	14,724,945
Estimated Benefits (26%)	3,623,341	3,874,758	3,828,486
Subtotal	17,559,268	18,777,673	18,553,431
High School Counseling			
FTEs	227.5	227.5	227.5
FTE Salaries	17,988,026	18,630,434	18,796,874
Estimated Benefits (26%)	4,676,887	4,843,913	4,887,187
Subtotal	22,664,913	23,474,347	23,684,061
School Counseling Services Unit			
FTEs	5.0	4.0	3.0
FTE Salaries	472,096	388,332	301,875
Estimated Benefits (26%)	122,745	100,966	78,488
Non-FTE Salaries	169,412	177,883	122,883
Contractual Services	301,530	327,850	171,869
Supplies and Materials	11,055	47,637	77,637
Other	27,005	41,635	78,635
Subtotal	1,103,843	1,084,303	831,387
Total School Counseling			
FTEs	414.0	413.0	409.0
FTE Salaries	32,396,049	33,921,681	33,823,694
Estimated Benefits (26%)	8,422,973	8,819,637	8,794,160
Non-FTE Salaries	169,412	177,883	122,883
Contractual Services	301,530	327,850	171,869
Supplies and Materials	11,055	47,637	77,637
Other	27,005	41,635	78,635
Total	**$41,328,024**	**$43,336,431**	**$43,068,985**

Source: MCPS Department of Management, Budget, and Planning – Account Summary Tracking Worksheets and OLO estimates of employee benefits.

Chapter VII: Summary of Project Findings

Secondary schools today offer students an array of programs that are intended to help students earn livable wages, manage their assets, and live independently as adults. Historically, these goals were assigned primarily to vocational and special education programs that were isolated from the general education curriculum. Recent changes aimed at enhancing the rigor and relevance of these courses have transformed how schools deliver programs aimed at preparing students for their adult lives.

For Montgomery County Public Schools, these "career- and life-readiness programs" represent one aspect of the school system's overall efforts to ensure that all MCPS students graduate ready for post secondary education and employment. For this project, four MCPS career- and life-readiness programs were reviewed: (1) career and technology education, (2) transition services for students with disabilities, (3) the Students Engaged in Pathways to Achievement (SEPA) Program and (4) secondary school counseling services.

The Council requested this Office of Legislative Oversight (OLO) report to improve its understanding of the career- and life-readiness programs that Montgomery County Public Schools (MCPS) offers. This report describes the programs MCPS offers; how they are administered; how many students are enrolled in the different types of programs; and what students and MCPS staff think about these programs.

This chapter summarizes the Office of Legislative Oversight's findings in four parts:

- The framework for MCPS' career- and life-readiness programs;
- MCPS' career and technology education (CTE) programs;
- MCPS' other career- and life-readiness programs; and
- MCPS' career- and life-readiness program costs.

The Framework for MCPS' Career- and Life-Readiness Programs

MCPS' career- and life-readiness programs must meet several objectives simultaneously. These findings highlight some of these standards and explain MCPS' program design and service delivery structures.

Finding 1: Laws and policies at the federal, state, and local government levels establish requirements that shape MCPS' delivery of career- and life-readiness programs. These laws establish mandates for specific types of services that MCPS must provide.

Several specific federal, state, and local laws and policies shape the career- and life-readiness programs that MCPS offers. These mandates require MCPS to provide services such as school counseling for all students, transition goals and services for students with disabilities, and programs to narrow the achievement gap by English language proficiency.

- At the federal level, MCPS' programs must comply with requirements of the Carl A. Perkins Career and Technical Education Act, the Individuals with Disabilities Education Act, and Title III of the No Child Left Behind Act.

- At the state level, MCPS' programs must comply with the State's Career Development Framework, state regulations for students with disabilities, and the requirements for English language learners in the State's Bridge to Excellence Act.

- At the local level, four Board of Education Policies articulate guidance for MCPS' delivery of career- and life-readiness services. For example, BOE Policy IGK – *Career and Technology Education*, provides an assurance that all students choosing either college or careers will be fully served.

Finding 2: MCPS' portfolio of career- and life-readiness services encompasses four distinct program areas. Three of these areas achieve MCPS' compliance with legal mandates. The fourth program, which was established in response to community concerns, also helps MCPS align with federal and state mandates to improve the English proficiency of English language learners.

Today, MCPS offers four groups of programs with services that address the transition from secondary school to higher education or a career.

- **Career and technology education (CTE)** seeks to increase students' academic and technical knowledge in order to improve their college and career readiness. CTE was formerly referred to as vocational education. CTE classes include family and consumer sciences, technology education courses, and career pathway courses.

- **Transition services for students with disabilities** focus on improving the academic and functional achievement of students with disabilities as they transition from school to postsecondary opportunities.

- **Students Engaged in Pathways to Achievement (SEPA)** is designed to meet the English language acquisition, literacy, and career education needs of an older cohort of English language learners who, due to interruptions in their education, are unlikely to complete state graduation requirements by the age of 21.

- **Secondary school counseling services** refer to the school system's delivery of information to students (and parents, as appropriate) regarding career awareness and planning, career options, and postsecondary options, including college.

Three of MCPS' program groups – career and technology education (CTE), transition services for students with disabilities, and secondary school counseling respond to specific sets of mandates. The fourth program area – Students Engaging in Pathways to Achievement (SEPA) – was established in response to recommendations of the Montgomery County Latino Education Coalition; it also aligns with federal and state standards that mandate services to improve the achievement and English language proficiency of English language learners.

Finding 3: Three MCPS offices administer its career- and life-readiness programs: the Office of Curriculum and Instructional Programs, the Office of Special Education and Student Services, and the Office of School Performance.

The Office of Curriculum and Instruction (OCI) provides central office administration of MCPS' career and technology education programs across the following three units:

- The Instructional Technology and Partnerships (ITP) Unit is responsible for the oversight of federally funded (Perkins) programs and the central administration of CTE programs not administered by the Foundations Office. The ITP Unit also works with the 11 Cluster Advisory Boards who provide guidance and support for each career clusters.

- The Foundations Office housed within the Department of Instructional Programs administers the Foundations Programs: career pathways within the Construction and Transportation clusters, and the Networking Operations pathway in the Information Technology cluster. The Foundations Office works in partnership with the local business community through Student Trades Foundations to support these programs.

- The Department of Curriculum and Instruction works with ITP and school-based staff to administer CTE programs and to ensure alignment of the CTE programs with the High School Assessments and core academic curriculum.

OCI's Department of Curriculum and Instruction also provides central office administration of the Students Engaged in Alternative Pathways (SEPA) program managed by the Division of ESOL/Bilingual Education.

The Office of Special Education and Student Services provides central office administration for transition services and secondary school counseling as follows:

- The Transition Services Unit within the Department of Special Education Services' Division of School-Based Special Education Services tracks transition data for students with disabilities and assist schools in delivering transition services.

- The School Counseling Services Unit within the Department of Student Services provides central office oversight and support to school counselors, administrators, and staff.

The Office of School Performance provides on-site administration and oversight for each of MCPS' career- and life-readiness programs. With the exception of special educators that include transition teachers, the Office of School Performance allocates to schools the staff that provides career- and life-readiness programming. Typically, these positions are supervised by resource teachers that serve as departmental chairs and report to the principal. For example, on most campuses, CTE teachers are supervised by a resource teacher that serves as the CTE departmental chair. The resource teacher positions report to the principal, who in turn reports to their Community Superintendent.

Finding 4: MCPS' career- and life-readiness programs share a common goal of preparing students for college and work, but they differ in the emphasis they place on preparing students for work, college, or both.

Most of MCPS' career- and life-readiness programs focus on enhancing students' college and job readiness by providing students the opportunity to enhance their career awareness and develop competencies and skills that prepare them for higher education and the workforce. Yet, some of MCPS' career- and life-readiness programs emphasize one approach – college readiness or work readiness – more than the other. For example:

- CTE pathways within the Engineering Cluster tend to emphasize college readiness since there are few engineering opportunities available for high school graduates.
- Conversely, the focus of the SEPA program is to ensure that its students are prepared for entry-level positions once they leave MCPS.

Table 7-1 summarizes MCPS' career- and life-readiness programs by their college and/or work readiness emphasis.

Table 7-1: Career- and Life-Readiness Program by College and Work Readiness Emphasis

MCPS Career- and Life-Readiness Programs	College Readiness	Work Readiness	College & Work Readiness
Career and Technology Education Clusters			✓
Arts, Humanities, and Communication			✓
Biosciences, Health Sciences, & Medicine	✓		
Business Management and Finance	✓		
Construction and Development		✓	
Education, Training and Child Studies			✓
Engineering Technology	✓		
Environmental Resources			✓
Human and Consumer Sciences		✓	
Information Technology			✓
Law, Government, & Public Safety			✓
Transportation		✓	
Work-Based Learning (CWE)		✓	
Transition Services for Students with Disabilities		✓	
Transition planning			✓
Vocational education		✓	
Independent living skills		✓	
Students Engaged in Pathways to Achievement		✓	
SEPA Courses		✓	
Pathways at Edison		✓	
Counseling and Career Services			✓
Academic four year plan			✓
Career centers and website			✓

MCPS' Career and Technology Education (CTE) Programs

MCPS' CTE programs consist of elective, career-focused courses in middle and high schools. Individually, each CTE course aims to improve the academic and technical skills of its students. Collectively, completion of four credits in a CTE career pathway enhances a student's readiness for the world of work and higher education.[1]

Finding 5: MCPS' career and technology education programs offer high school students opportunities to train for 38 career pathways across 12 career clusters.

Most CTE Career Pathway Programs (CPP) include a sequence of four year long courses that prepare students for a specific career or occupation. MCPS offers 38 pathways across 12 career clusters: 24 of these pathways prepare students to earn industry recognized certificates; and every CTE pathway except Cosmetology and Nail Technology offers articulated credit with Montgomery College or another college. Each MCPS high school offers at least one pathway program, and a student may request a transfer to enroll in a pathway program offered at another campus. Table 7-2 lists MCPS' 38 CTE pathways.

Table 7-2: MCPS' Career Clusters and Career Pathway Program Offerings

Arts, Humanities, and Communication
- Broadcast Media
- Printing, Graphics, and Electronic Media

Biosciences, Health Sciences, and Medicine
- Academy of Health Professions and Biosciences
- Biomedical Sciences (Project Lead the Way)
- Biotechnology
- Medical Careers*

Business Management and Finance
- Academy of Finance (AOF)*
- Accounting*
- Business Administrative and Management*
- Marketing*

Construction and Development
- Carpentry*
- Construction Electricity*
- Heating, Ventilation, and Air Conditioning*
- Masonry
- Plumbing*
- Principles of Architecture and CAD Technology

Education, Training and Child Studies
- Early Child Development*
- Academy for Teacher Education

Engineering Technology
- Advanced Engineering (Project Lead the Way)
- Pre-Engineering*

Environmental Resources
- Environmental Horticulture
- Green Industry Management
- Landscape Design

Human and Consumer Sciences
- Academy of Hospitality & Tourism
- Cosmetology*
- Hospitality Management*
- Manicuring/Nail Technology*
- Professional Restaurant Management*

Information Technology
- Academy of Information Technology (AOIT)
- Cisco Networking Academy*
- Network Operations (Foundations)*
- Oracle Academy*

Law, Government, and Public Safety
- Fire and Rescue Services/EMT*
- Justice, Law, & Society

Transportation
- Automotive Body Technology/Dealership Training*
- Automotive Technology/Dealership Training*
- Foundations of Automotive Technology

Work-Based Learning
- Cooperative Work Experience

*Prepares students to earn industry certification or license.

[1] The two exceptions to this pattern are the Advanced Engineering pathway that requires 5 credits for program completion and the Cosmetology pathway that requires 9 credits.

Finding 6: The Thomas Edison High School of Technology offers 19 career pathway programs, 18 of which emphasize career readiness. Admission to Edison is on a first come/first-served basis, except for programs where demand exceeds capacity.

The Thomas Edison High School of Technology, the County's technical high school, offers 19 career pathways, each of these pathways except Biotechnology focus on job readiness. Edison serves as the main campus for the Foundations programs and also serves as the sole site for five of the six Construction pathways, the Foundations of Automotive Technology pathway, and the Printing, Graphics, and Electronic Media pathway.

Students spend half of the day taking a three-period pathway course at Edison, and the other half at their home campus earning core graduation credits. High school students must apply to Edison through their home high school counseling office for a specific career pathway program. Admission to programs at Edison is on a first come/first-served basis, except for programs such as Medical Careers where demand exceeds capacity. Admission to these programs is based on student attendance, grade point average, and letters of recommendation.

Table 7-3: Edison Career Pathway Programs

Career Cluster	Pathway Program	Program Length	Program Focus
Arts, Humanities, Media, and Communications	**Printing, Graphics, and Electronic Media**	2 Years	Graphic design and imaging.
Biosciences	Biotechnology	1 Year	Laboratory and research skills.
	Medical Careers	1 Year	Certified health care skills.
Construction	**Carpentry***	2 Years	Home building and carpentry.
	Construction Electricity*	2 Years	Residential electrical and cable installation.
	Principles of Architecture and CAD Technology*	2 Years	Designing, illustrating, and drafting.
	Heating, Ventilation, and Air Conditioning *	2 Years	Heat pump, furnace, and air conditioner installation and maintenance.
	Masonry*	2 Years	Masonry unites and installation techniques.
	Plumbing*	2 Years	Installation, maintenance, and repair of pipe.
Hospitality and Tourism	Cosmetology	3 Years	Personal services skills.
	National Academy of Hospitality and Tourism	1 Year	All aspects of the hospitality industry.
	*Interior Design***	*1 Year*	*Elements and principles of interior design.*
	Nail Technology	1 Year	Nail care and salon management.
	Restaurant Management	2 Years	Culinary arts and food service.
Information Technology	Network Operations*	1 Year	Installation, configuration, diagnosis, and repair of hardware, operating systems, and networks.
Transportation	**Foundations of Automotive Technology***	1 Year	Automotive maintenance and basic servicing.
	Automotive Body Technology*	2 Years	Collision damage repair, panel replacement, paint and finish.
	Auto Technology and Dealership Training*	2 Years	Diagnosis, repair, service, reconditioning, and sales and marketing.
Work-Based Learning	Cooperative Work Experience	1 Year	Provides on-the-job training in industries not reflected in MCPS' career clusters, such as retail.

* Foundations Programs; ** *Program in development*; and Programs in **bold** available only at Edison.

Finding 7: Most Edison pathways programs have excess capacity since enrollment has declined by 30% over the past two years.

As noted in Table 7-4 below, Edison currently enrolls 524 students. Enrollment has declined by more than 200 students (30%) over the past two years. Edison is designed to serve 1,000 students, but it operates at about half of its capacity. MCPS projects an enrollment of 687 students for FY 2010.

Table 7-4: Edison Enrollment Data, FY 2003–FY 2010

School Year	Enrollment	Annual Change
2002-2003	659	
2003-2004	598	-61
2004-2005	624	26
2005-2006	646	22
2006-2007	746	100
2007-2008	625	-121
2008-2009	524	-101
2009-2010	687 (Projected)	To be determined

Sources: Schools at a Glance and FY10 Recommended Program Budget

Finding 8: MCPS has implemented several recognized programs to increase the academic rigor of its CTE programs. Several of these initiatives align with promising practices for effective CTE programs.

MCPS' current CTE offerings represent a transition to a new model of career and technical education. Whereas previously MCPS offered a separate vocational education curriculum to students who were unlikely to attend college, MCPS' current portfolio of CTE programs aims to increase academic rigor and to improve college and work readiness for all students.

Many of MCPS' initiatives to improve academic rigor align with promising practices of effective CTE programs. MCPS offers these initiatives at one or more of its comprehensive high schools. Some examples of these strategies are:

- The implementation of the recognized Project Lead the Way Biosciences Program at Wheaton High School and Pre-Engineering Programs on seven high school campuses;
- Academies of Finance on six high school campuses; and
- Academies of Information Technology on another six campuses.

The coursework that each of these programs requires consists of MCPS honors level classes. Table 7-5 on the next page describes the alignment between CTE promising practices and MCPS' CTE initiatives.

Table 7-5: Career and Technical Education Best Practices and MCPS Initiatives

CTE Promising Practices	Example of MCPS CTE Practices
Programs should integrate career and technical education with academic rigor and relevance.	Project Lead the Way students apply advanced mathematics skills to engineering projects.
Students achieve more success in CTE smaller learning communities.	MCPS has established several CTE smaller learning communities including the Academies of Finance and Information Technology.
The curricula of the programs should be aligned with industry, government, and postsecondary standards.	The curriculum of the Construction and Development Pathway Program is aligned with The National Center for Construction Education and Research (NCCER).
Programs should include links to the local business community and provide for student work experiences.	The National Academy of Hospitality and Tourism Advisory Board provides students with guidance and internship opportunities.
CTE teachers should have increased standards to meet career, technical, and academic needs of students.	Teachers at Edison High School are certified in their field and work with staff in academic departments to increase the academic rigor of CTE courses.
There should be consistent assessment and greater accountability for CTE programs.	MCPS measure CTE outcomes in compliance with the Perkins indicators of performance.
Programs should connect and engage students.	Construction cluster students work together to design, build, decorate, and a sell a house annually.

Sources: Brand, B. (2008); Kazis, R. (2005)

Finding 9: Few MCPS students enrolled in CTE courses concentrate or complete a career pathway program. Most students likely enroll in CTE courses to satisfy technology education credit requirements for graduation.

In FY 2008, approximately 14,000 students representing one third of MCPS' high school population were enrolled in a CTE course. Of these,

- 3,349 students (24%) were CTE concentrators who had completed at least half of their pathway requirements; and
- 1,058 students (7%) graduated as CTE pathway program completers.

The low ratio of CTE concentrators and completers to CTE participants suggests that few MCPS students enroll in CTE courses with the intent of completing a career pathway program. Some possible explanations for this follow:

- Students who complete a CTE program option to graduate must satisfy a higher number of specific program credits than students who complete any of the three college preparatory options. (These are: the foreign language, American Sign Language, and advanced technology education options.) CTE pathway programs can be difficult to complete for students given their other graduation requirements.

- The Maryland State Department of Education requires that students complete one credit (i.e., two courses) in Technology Education in order to graduate with a diploma. MCPS currently offers all courses that earn Technology Education credits as CTE courses. Among MCPS' CTE courses, there are 16 courses that earn Technology Education credits under current requirements for the Classes of 2009 – 2011 and three that earn Tech Ed credits for the Class of 2012 and beyond.

Finding 10: MCPS' restructuring of CTE programs to enhance students' college readiness may have inadvertently diminished access to CTE programs among students traditionally served by vocational education programs.

The following two performance goals shape MCPS' current delivery of CTE programs:

- MCPS will increase from 11% to 30% the proportion of MCPS graduates who complete a career pathway program by 2014; and
- MCPS will increase from 53% to 80% the proportion of career pathway completers who also meet the University System of Maryland requirements by 2014.

In pursuit of these goals, MCPS is increasingly focused on improving the rigor of its CTE programs and encouraging more academically talented students to complete a career pathway program. However, CTE's increased emphasis on college readiness may be at the expense of access for students historically served by CTE programs: students performing below grade level.

Interviews with school staff suggest that students performing below grade level and most likely to enter the workforce rather than college upon exit from MCPS often have the least access to CTE's career pathway programs. Two reasons for this diminished access were cited.

- First, students performing below grade level often struggle with completing their core academic classes required for graduation; if they need to repeat more than one course, they will not have the time to concentrate in a CTE pathway.

- Second, the CTE opportunity gap is exacerbated in the "high-flyer" CTE programs in Biomedicine, Engineering, and Information Technology because these programs often require that students complete pre-requisite courses and/or high school courses in middle school (e.g., Algebra I) for program admission.

Overall, the thrust of MCPS' CTE programs is to enhance the college and career readiness of students performing at- or above-grade level rather than to serve as a second chance program for students performing below grade level and/or at-risk of dropping out. Moreover, with the exception of SEPA and transition services for students with disabilities, MCPS does not offer any specific career-readiness programs for students at-risk of exiting MCPS without a diploma.

MCPS' Other Career- and Life-Readiness Programs

Beyond its CTE programs, MCPS provides school counseling for all secondary students, plus other programs for students with disabilities and with limited English proficiency.

Finding 11: By law, MCPS must deliver transition services to all students with disabilities. In practice, the type and intensity of transition services a student receives depends on whether a student is on track to exit MCPS with a diploma or a certificate.

As required by state law, MCPS begins a transition planning process for every student with a disability by age 14. This process must identify each student's post high school goals, establish a course of study that aligns with these goals, and provide other needed transition-related services and activities, such as linkages to adult services offered through other government agencies. In FY 2008, MCPS enrolled 5,605 students with disabilities aged 14 to 21.

MCPS' transition planning process varies according to the course of study that a student pursues.

- For a student who is on track to complete a high school diploma, MCPS offers transition services that focus on enhancing both work and college readiness. Examples of these include career counseling and guidance, self-advocacy training, and assistive technology.

- For a student who is on track to complete a certificate and is enrolled in a Functional Life Skills (FLS) curriculum program, MCPS' offers more intensive transition services that focus more explicitly on enhancing work readiness. Examples of specific transition services include social skills instruction, in-school and community internships, on-the-job training, and independent living skills instruction.

To respond to the greater needs of students with cognitive impairments, the transition teachers interviewed as part of this project indicated that they focus almost exclusively on students enrolled in the FLS curriculum. Transition services for students in the FLS curriculum take priority not only because these students are more likely to require adult services, but also because they face dire consequences (e.g., unemployment) if their transition services are inadequate. A potential drawback to this approach, however, is that the transition needs of students with disabilities on track to complete a diploma could be unmet or underserved.

Finding 12: MCPS' Students Engaged in Pathways to Achievement (SEPA) program provides an intensive program of academic classes, vocational instruction, and social services to a small cohort of English language learners.

Currently, MCPS' Students Engaged in Pathways to Achievement (SEPA) program develops the work-readiness and English literacy skills of 20 Spanish speaking ESOL students who are not likely to meet the requirements for graduation by age 21. The SEPA program has four components:

- Academic classes at the student's home school that include Spanish for Native Speakers, Software Applications, Cooperative Work Experience, ESOL ,and math;
- Career pathway classes at Edison in construction, automotive trades, manicuring, and restaurant management;
- A summer program that introduces students to available Edison programs; and
- A dedicated Parent Community Coordinator who assists students with needed services and staffs the SEPA Safety Net Program that connects families with community organizations and social service assistance.

MCPS staff report that SEPA students often benefit from the program's hands-on approach and work experiences that incorporate math and reading skills. However, students often struggle to understand the theoretical components of the program due to their limited English proficiency.

Finding 13: MCPS provides academic and career-planning guidance to secondary students via school counselors and High School Career Centers.

The goal of secondary school counseling services is to provide each student with career- and life-readiness support through academic, social, and career development. At minimum, school counselors meet with each student annually to provide academic guidance. In FY 2008, middle schools were responsible for counseling 31,087 students and high schools were responsible for counseling 44,648 students.

In middle schools, counselors focus on enhancing the career and college readiness of students by facilitating their transition to high school. Specifically, middle school counselors:

- Notify students of academic and career programs available at MCPS;
- Assist students in developing their four year plan for high school that serves as a road map for a student's high school career; and
- Enroll students in middle school courses that prepare them for the high school course of study that aligns with their college and career goals.

In high schools, counselors assist in enhancing the career and college readiness of students by providing more extensive academic and career guidance and facilitating their transitions to higher education and the working world. In particular, high school counseling offices:

- Enroll students in courses that prepare them for college and career;
- Inform students about career options; and
- Assist students in planning and applying for college and financial aid.

Each MCPS high school also has both an on-site and web-based career center that provides students with access to information on postsecondary education, training, and careers. Information available to students includes:

- College catalogs and handbooks, financial aid applications, and college testing and registration materials;
- Information on professional skills such as resume writing and interview skills;
- Career planning and occupational data; and
- Information on career/trade and military schools.

Students interviewed for this project and MCPS survey data reviewed suggests that school counselors have provided beneficial guidance to students and helped them to resolve their concerns. However, a perception among students, school counselors, and teachers conveyed as part of this project is that MCPS' counseling services are often skewed towards promoting college-readiness, instead of more balanced emphasis on college readiness and career planning.

Finding 14: MCPS offers a limited number of life-readiness courses in personal finance.

Life-readiness courses often teach student's financial literacy or other life skills, such as time management. With the exception of independent living programs for students with disabilities, no requirements exist that MCPS provide life-readiness programs or financial management courses in particular. As such, MCPS offers only a limited number of personal finance courses. Examples of these include:

- Grade 7 Family and Consumer Sciences;
- An online personal finance course for high school students (currently being implemented); and
- A personal finance course included in the Business Management cluster.

Two current high schools courses whose curriculum includes financial management - Consumer Math and Community Work Experience Course B - are being phased out. The later course will be reconstituted as part of the College/ Career Research and Development program next year.

MCPS Career- and Life-Readiness Program Costs

Finding 15: OLO estimates the combined budget for MCPS' career- and life- readiness programs for FY 2009 totals $98 million. This budget includes 947.7 FTE's.

The overall budget for MCPS' career- and life-readiness programs totals approximately $98 million for FY 2009 and includes funding for 947.7 full time equivalents (FTE's). Table 7-6 on the next page describes FTE's and budgets for the four baskets included in MCPS' career- and life-readiness programs. The biggest drivers of the budget are career and technology education at $47 million, followed by secondary school counseling services at $43 million. Transition services at $6.4 million and SEPA at $0.5 million represent 7% of MCPS' overall career- and life-readiness costs.

To estimate MCPS' budget for career- and life-readiness programs, OLO relied on budget data provided by MCPS with estimates for benefits costs for (1) secondary school counselors and central office personnel, (2) transition office personnel and program based staff, (3) the Students Engaged in Pathways to Achievement (SEPA) program, (4) career and technology education administration, and (5) the Edison High School for Technology. In FY 2009, MCPS budgeted $59.2 million for these five functions that includes 558.8 FTE's.

Another driver of MCPS' career- and life-readiness programs is the cost of teachers for the CTE courses staffed at MCPS' comprehensive middle and high schools. MCPS estimates that 110 FTEs teach the approximately 550 CTE courses taught in middle schools; 10.5 FTEs teach CTE courses in the Foundations programs, and another 268.5 FTE's teach other CTE courses in MCPS high schools. OLO estimates that, at approximately $100,000 per position including benefits, there is an additional $38.9 million that should be included in the MCPS budget for career and technology education as reflected in Table 7-5 below.

Table 7-6: FY 2009 FTEs and Budget of MCPS Career and Life Readiness Programs

Career- and Life-Readiness Programs	**# FTEs**	**Budget**
Career and Technology Education		
Career and Technology Education Teachers	388.50	$38,850,000
Career and Technology Education Administration	29.75	$5,037,590
Edison High School of Technology	39.25	$3,936,431
Subtotal	**457.50**	**$47,824,021**
Other Career- and Life-Readiness Programs		
Transition Services for Students with Disabilities	72.80	$6,395,253
Students Engaging in Pathways to Achievement	4.40	$462,152
Secondary School Counseling Services	413.00	$43,336,431
Subtotal	**490.20**	**$50,193,836**
Total	**947.70**	**$98,017,857**

Chapter VIII: Recommended Discussion Issues

MCPS' invests significant resources in programs that prepare students to earn livable wages, manage their assets and become self sufficient adults. In FY 2009, the MCPS' budget for its career- and life-readiness programs totals $98 million. Together, these resources provided counseling services for approximately 71,000 secondary students, career and technology education for 21,000 students, transition services for 5,600 students with disabilities, and vocational education, literacy instruction, and wrap around supports for another 20 high school students with limited English proficiency.

The Council requested this report to improve its understanding of the portfolio of career- and life-readiness programs MCPS provides. Briefly, OLO found that MCPS' programs are designed to comply with multiple federal, state and local mandates, to align with state and local graduation requirements, and to operate within the context of other MCPS goals and policies.

At the heart of MCPS' career-based education curriculum are 38 different career pathway programs; 24 of these programs prepare students to earn industry recognized licenses or certifications. MCPS' delivery of these career and technology education (CTE) programs aligns with several recognized promising practices for effective CTE programs; however, most students probably enroll in CTE courses to earn the technology education credits they need to satisfy a state graduation requirement rather than to complete a career pathway program.

This chapter presents OLO's recommended list of discussion issues that the Council may wish to address with the Montgomery County Board of Education and MCPS representatives.

Recommended Discussion Issues

Issue #1: Understanding MCPS' Vision and Administration of CTE

Historically, MCPS' vision for career and technology education (CTE) focused on improving the career-readiness of students who planned to enter the job market when they left high school. Recently, MCPS expanded its vision for career and technology education (CTE) beyond the original "education for work" concentration of CTE to embrace other important goals. As a result, MCPS' current vision and mission for CTE responds to at least three goals:

- To align MCPS' CTE courses with MCPS' Seven Keys of Success to increase the percent of MCPS graduates who complete a career pathway to 30% and the proportion who also meet University System of Maryland requirements to 80% by 2014;
- To increase student enrollment in and completion of CTE career pathway programs in order to increase student attainment of Perkins academic and technical skill goals; and
- To offer coursework for all students to meet the State's Technology Education requirements.

MCPS' changes to decentralize CTE administration likely reflect the pursuit of these three program goals. To enhance the Council's understanding of how the current administrative structure for CTE better enables MCPS to reach its multiple goals for CTE, OLO recommends the Council discuss with MCPS representatives the following questions:

- What is the vision of CTE? Does this vision apply to all CTE programs, or do the program visions differ by career clusters or pathways?
- Are the performance goals for CTE relative to MCPS' Seven Keys to Success, Perkins, and the State's Technology Education requirements aligned with MCPS' vision for CTE? If so, how?
- What trade-offs, if any, exist between pursuing these multiple program goals for CTE?
- How does MCPS' current administration of CTE enable the school system to achieve its vision? In particular, how does the separate administration of Foundations and non-Foundations programs enable MCPS to achieve its overarching vision for CTE?

Issue #2: Assessing the New College Readiness Focus of CTE

MCPS has transitioned its career and technology (CTE) programs from a more traditional approach, focused on skill attainment, to a more academically rigorous program that strives to improve students' college and work readiness. This movement aligns with best practices in the field of CTE and with performance goals for academic and technical attainment under the federal Carl A. Perkins Career and Technical Education Act.

The practical effect of adding an increased focus on college readiness to CTE programs is that it may diminish access for those students who are performing below grade level or who struggle to meet higher standards. A student's access to a program may be limited for different reasons. For example, the "high flyer" CTE programs that MCPS offers in Biomedicine, Engineering, and Information Technology may exclude a student who does not meet the rigorous requirements for admission such as completion of Algebra I in middle school. Alternatively, a student who must repeat core academic coursework may no longer have time in his or her schedule to complete the eight courses (4 credits) needed to complete a CTE pathway.

To better understand the effect of the new focus of MCPS' CTE programs, OLO recommends the Council discuss the following questions with MCPS representatives:

- What are the benefits of the college readiness, "education through work" focus of CTE programs compared to the job readiness (i.e., "education for work") approach? What are the drawbacks of specific CTE programs that focus jointly on college and career readiness compared to their previous focus solely on job readiness?
- Is there a tradeoff between higher standards for CTE programs versus keeping standards at their current level in order to maintain broader access to CTE programs among all students, particularly among students performing below grade level?

- What practices has MCPS instituted to ensure that CTE programs remain inclusive? In particular, what assurances exist to ensure access to CTE programs for students at high risk of dropping out, English language learners, and students with disabilities?

Issue #3: Increasing Utilization of CTE

Notwithstanding MCPS' expanded vision for its CTE courses, the need for high school students who leave MCPS to earn decent wages remains. This need is especially urgent for those students who want to pursue a college career and need to help finance their education, or for those students who decide to work full-time. Without the training afforded by CTE programs, students have few opportunities to earn wages above the minimum wage once they leave MCPS.

Several indicators suggest MCPS' Career Pathway Programs may be under-enrolled for those students who are focused on finding full-time work immediately after high school. For example,

- Only one out of four students annually enrolled in a CTE course are CTE concentrators on track to complete a Career Pathway Program;
- Only 7% of all high school students enrolled in a CTE course last year completed a CTE pathway program;
- Student enrollment at Edison diminished 30% (by more than 200 students) over the past two years; and
- Today, Edison is operating at one-half of its design capacity.

An explicit goal of MCPS is to increase the number of graduates who complete a career pathway from 11% to 30% by 2014. To understand how MCPS intends to increase the number of students who concentrate and complete CTE pathways, OLO recommends the Council discuss the following questions with MCPS representatives:

- Is there adequate promotion of career and technology education opportunities beyond the technology education requirement? In particular, the promotion of Edison High School?
- What methods of outreach would be most effective for students?
- What methods are being considered for the future?

Issue #4: Expanding CTE Enrollment among Students At-Risk

Research suggests that career and technical education may help less-motivated, or more at-risk students stay in high school and graduate. Research also suggests that that there is a link between students who take a concentration of CTE courses and their ability to earn higher wages after high school. These results suggest career and technical education may not only help narrow the achievement gap by ethnicity, language, and service group status in high school, but also help narrow similar gaps in employment and wages earned among young adults.

MCPS recognizes the value of vocational programs to support the transition of students with disabilities and for students with limited English proficiency who participate in the SEPA program. In particular, both programs recognize that not all students will exit MCPS with a diploma so alternative programs are necessary to ensure that young people become productive citizens. Yet, MCPS appears not to offer any parallel programs for other students at-risk or CTE incentives for dropouts to re-enroll in MCPS and complete their diplomas other than the Gateway to College Program that serves about 200 students annually.

To improve the Council's understanding of whether and how MCPS uses CTE to engage students at-risk and improve their job readiness skills, OLO recommends the Council discuss the following questions with MCPS representatives:

- What student subgroups are defined as "special populations" under Perkins?
- How does MCPS meet Perkins requirements for (a) increasing access or success for special populations; (b) providing activities to prepare special populations for high skill, high wage, or high demand occupations that will lead to self-sufficiency?
- Does MCPS view CTE programs as tool for improving the job readiness of students at high-risk of dropping out? If so, in what ways?
- Does MCPS view CTE programs as a lever for preventing drop-outs and/or re-enrolling drop-outs? If so, in what ways?

Issue #5: Using Data to Understand the Value of MCPS' CTE Programs

MCPS currently measures the performance of career and technology education based on the requirements of programs funded by the Perkins grant. These measures include: participation, completion, academic achievement, graduation, and employment. In addition, MCPS plans to adopt a technical skills assessment for all of its career pathway programs. However, it is not clear how MCPS' career clusters and pathways align with the demand of the current labor market particularly among occupations that earn high wages.

MCPS currently tracks only a portion of CTE program costs. MCPS tracks costs for central administration of career and technology education, Edison, and the subgroup of CTE teachers who teach the Community Work Experience courses and facilitate on-the-job training opportunities and internships for students. MCPS currently does not track the staffing costs for most school-based personnel who provide CTE instruction in middle and high schools. These costs, which are, excluded from MCPS' career and technology education program budget, reflect more than half of all CTE costs.

Since local revenue will fund 78% of CTE costs for FY 2009, OLO encourages the Council to assess the adequacy of MCPS' accountability systems for CTE. OLO further recommends that the Council discuss with the Montgomery County Board of Education the following questions:

- Are there adequate accountability measures in place to assess MCPS' career and technology education programs? What local measures does MCPS monitor and how do they compare to the federal/state measures? How accurate is the current data collection process?

- Which MCPS central offices are responsible for implementing CTE accountability measures?
- How does MCPS determine in what areas they will provide pathway programs? What roles do the Cluster Advisory Boards and Trades Foundations Boards play in this process?
- What are the start-up costs of instituting a new pathway program? What savings accrue to MCPS when certain pathway programs are discontinued?
- What changes in data collection for CTE performance and costs has MCPS planned for the future?

Issue # 6 Using Secondary School Counseling Offices to Increase Awareness of CTE Programs

The stated goal of MCPS' secondary school counseling services is to provide each student with career- and life-readiness support through academic, social, and career development. Developing four year plans for high schools and enrolling students in secondary courses, however, are the only systemic practices MCPS' secondary school counselors use to ensure that students become career ready.

Beyond these practices, the approach school counselors typically use to deliver career guidance places the initiative with the student: if a student asks for support, a counselor will provide links to information and resources available on-line at the High School Career Centers.

Despite the *College Tech Prep Career Pathways Toolkit* developed by the Instructional Technology and Partnership Unit, many counselors do not actively counsel students about the options and potential benefits of career and technology education. This reactive approach, combined with MCPS' focus on ensuring that students are ready for higher education when they graduate, fosters a gap between students' awareness and information about MCPS' CTE programs and the impressive array of programs and opportunities that are available.

OLO encourages the Council to discuss with MCPS representatives the following questions:

- Are there additional and more systematic opportunities beyond the four-year academic plan for providing career guidance and counseling? What the strengths and drawbacks of potential approaches?

- Are there ways that both middle and high school counselors can become better informed about CTE programs so that more students can be encouraged to consider these programs?

Issue # 7 Expanding Work Readiness Opportunities for Students with Disabilities who are Diploma Bound

The intent of MCPS' transition services is to ensure that students with disabilities have the resources, skills, and competencies they need to meet their post secondary goals. Transition services can focus on either a student's career readiness, college readiness, or both. Usually, the focus and intensity of transitions services depends on whether a student is on track to earn a diploma or a certificate.

Transition services for certificate-bound students, which emphasize work readiness, typically offer in-school and off-site vocational educational opportunities. During the site visits, OLO heard that many diploma-bound students would also benefit from career and technology education opportunities, but that students would need the support of para-educators in both the CTE courses and Edison pathway programs to successfully complete more CTE programs.

Nearly a quarter of students with disabilities in the Class of 2008 completed a CTE pathway toward graduation. Many of these students completed the Cooperative Work Experience (CWE) pathway program that allows students to complete one high school course and earn up to three credits for on-the-job training during their senior year. Next year, MCPS will substitute the College/Career Research and Development pathway for the CWE pathway. This new pathway will require students to complete two high school courses, rather than one. Some teachers fear that this change will reduce graduation opportunities for many students with disabilities.

OLO encourages the Council to discuss with MCPS representatives the following questions:

- Is MCPS confident that students with disabilities who are on the diploma track are receiving the transition services they need to be fully supported with respect to enhancing their career readiness?

- To what extent does MCPS' delivery of career and technology education programs for students with disabilities align with the Perkins goal that CTE practices enable special populations to access and succeed in career and technology education?

- How do the Offices of Special Education and Student Services, Curriculum and Instruction, and School Performance work together to ensure that the career-readiness transition needs of all students with disabilities are being met? What are some of the recognized needs? How do the Transition Office and Instructional Technology and Partnership Units work together to meet these needs?

Chapter IX: Agency Comments

The written comments received from the Chief Operating Officer of Montgomery County Public Schools on the final draft of this Office of Legislative Oversight report are attached (pages 94-98). As always, OLO greatly appreciates the time taken by staff to review our draft report and to provide feedback. This final OLO report incorporates technical corrections and comments provided by MCPS staff.

MONTGOMERY COUNTY PUBLIC SCHOOLS
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MARYLAND

April 20, 2009

Dr. Elaine Bonner-Tompkins, Senior Legislative Analyst
Ms. Kristen Latham, Legislative Analyst
Office of Legislative Oversight
Stella B. Werner Council Office Building
100 Maryland Avenue
Rockville, Maryland 20850

Dear Dr. Bonner-Tompkins and Ms. Latham:

Thank you for providing Montgomery County Public Schools (MCPS) staff members with the opportunity to review and comment on the draft Office of Legislative Oversight (OLO) Report on Career- and Life-Readiness Programs. Comments and suggestions for technical changes were previously provided. MCPS staff members who participated in this review appreciated the collaborative process used throughout the development and review of this report. The data and findings in this report will help MCPS in our review and oversight of the Career and Technology Education (CTE), Transition Services for Students with Disabilities, Students Engaged in Pathways to Achievement (SEPA), and School Counseling programs.

It is evident that much of the feedback provided by MCPS throughout the development of the report was carefully considered and incorporated. In our final review, the following comments are offered:

- Issue number one references the MCPS CTE vision and its relevance to all Career Pathway Programs (CPPs) and students. In 2004, the CTE vision was developed by the Montgomery County Collaboration Board for CTE, consisting of business, community, and higher education partners as well as students. The CTE vision is, "to provide students with an education that combines rigorous academic and technical study with the excitement of discovery through small learning communities and career-themed programs. With the support of the business and higher education communities, students will apply their acquired skills and knowledge to make informed decisions concerning education, careers, and a path toward lifelong learning." This vision purposefully was written to be inclusive of all students and to align with MCPS goals.

  Furthermore, the CTE mission, "Building a competitive and inspired future workforce," was developed based upon the 2004 mission of the Montgomery County Department of Economic Development, "Building a competitive workforce."

- All CPPs are designed to include connections to the world of work in engaging and relevant ways. For example, all CPPs provide students with the choice of completing a work-based capstone experience at a local business or nonprofit organization. Students also may choose to complete a college course or guided research as their capstone experiences, based on their abilities and interest. CTE coursework is designed to prepare students for their work-based learning experiences.

  In 2007, over 95 percent of the MCPS students participating in CTE-related work-based learning experiences were identified by their employers as being well-prepared for the workplace. More than 900 MCPS CTE students participated in paid internship experiences and more than 700 students participated in unpaid experiences. Employers reported that 98 percent of MCPS students who participated in work-based learning met or exceeded minimum requirements for workplace readiness.

- College readiness is career readiness. Issue number three raises questions about how the quality of life for MCPS students is impacted by their preparation for postsecondary experiences in the workplace, the military, technical schools, or college. Research indicates that wages earned after high school are commensurate with a student's level of education. The more postsecondary education students complete, the more money they make. One ACT study, *Ready for College and Ready for Work: Same or Different?,* concludes that, "All students need to develop the knowledge and skills that will give them real options after high school. No students' choices should be limited by a system that can sometimes appear to have different goals for different groups. Educating some students to a lesser standard than others narrows their options to jobs that, in today's economy, no longer pay well enough to support a family of four."

  Whenever possible, MCPS CTE offers CPPs that culminate with industry certifications appropriate for high school students. These certifications strengthen the rigor and relevance of CTE programs and ensure that students who don't go to college leave MCPS with the skills and credentials they need to enter the workforce.

  School counselors promote a college pathway among students to ensure that no student is denied an opportunity for postsecondary study should he or she wish to pursue higher education. MCPS does recognize that not all students will attend college. For this reason, school counselors work with students on both college and career planning. In addition to the *College Tech Prep Career Pathways Toolkit* which provides staff, parents, and students with information on the benefits of career and technical education, students have access to the *Choices Explorer* and *Choices Planner* web-based career and college planning applications and the MCPS *Getting Set, Getting Started,* and *Getting Ready* series of career and college planning guides.

The *Choices Explorer* and *Choices Planner* web-based career and college planning applications provide students with a wealth of career-related information and personal assessment tools such as career interest inventories. The MCPS *Getting Set, Getting Started,* and *Getting Ready* series of career and college planning guides contain sections outlining a systematic approach to career and college planning that covers the full range of options.

- Many MCPS CPPs are relatively new, so it is too early in the developmental process to see large numbers of concentrators and completers. For example, the Biomedical Sciences CPP began in FY 2008 with approximately 30 students at Wheaton High School. This group of students will not graduate until FY 2011. In FY 2009, one year after initial start-up, the program has grown to over 100 students enrolled but still has 0 concentrators and 0 completers. Planned expansion to another high school in FY 2010 will increase the number of students in this CPP. The concentrator and completer data for 15 of the 28 CTE CPPs are in the initial stages of implementation or expansion, and for this reason, are in an enrollment growth period. Concentrator and completer numbers for these CPPs are expected to increase over the next few years.

- To increase the number of CPPs available to students, CTE staff has collaborated with high school principals and their leadership teams over the past several years to determine what 21st century CPPs would best enhance each school's existing themes and/or academies. This strategy resulted in a 32 percent increase in the number of CPPs offered within all 25 comprehensive high schools. In FY 2004, 23 high schools offered a total of 157 CPPs and in FY 2008, 25 high schools offered a total of 208 CPPs. CTE enrollment, concentrators, and completers are increasing as a result.

  The expansion of CPPs in all schools has reduced the need for some students to attend the Thomas Edison High School of Technology. The proliferation of CPPs at the comprehensive high schools allows students to remain in their home schools, resulting in more time to take courses rather than traveling to and from Edison. Due to expense and facility needs, it helps the system to offer some programs at Edison. For example, the Automotive Trades, Construction Trades, and Biotechnology programs have unique facility needs that are not cost efficient to replicate at every school. MCPS is embarking on a process to review the programs offered at Edison to update them based on workforce demand at the local, state, and national levels so that students are prepared for future jobs in our global economy.

- Issue number five addresses use of data and performance measures that are set by the federal government for the use of Perkins funds. MCPS has taken the additional step of setting targets for CTE and dual completion. By 2014, 30 percent of all MCPS graduates will complete a CPP, and of these graduates completing a CPP, 80 percent will be prepared for college and careers. There have been some issues with the state in terms of

gathering and reporting data. MCPS is working to rectify the reporting issues. For example, all CTE resource teachers have received training on a database used for data-driven decision making related to their CTE students. This ability to verify CTE-specific data at the school level will improve the accuracy and reliability of data reported to the state.

- Issue seven raises a concern regarding a modification in the Cooperative Work Experience (CWE) course pathway. The change requires that students complete two CWE courses and two on-the-job training/internship courses and will not impact the graduation rate of students with disabilities. Currently, students often complete three credits of the CWE program in their senior year. With the new College/Career Research and Development (CCRD) program required by the Maryland State Department of Education, students still can complete three credits in their senior year, one course and two on-the-job training courses, after completing their first CCRD course in Grades 9–11. The Office of Special Education and Student Services is working with school-based administrators and special education staff, as well as with other central office and school staff to ensure that students with disabilities receive transition services necessary for them to graduate with diplomas, given the requirement for two courses. In addition, the support provided by transition services staff will also ensure that students with disabilities receive services required to enhance their career readiness.

MCPS also offers the following comments concerning the budget:

- In Table 3-16, corrections are needed for the administrative FTE's. In FY 2010, the Instructional Technology and Partnerships Unit actually will only have 3.8 of the 6.8 FTE's involved with administering CTE programs—1.0 director, 1.0 instructional specialist, 1.0 administrative assistant, and a 0.8 fiscal assistant. The remaining three FTE's are involved in other programs. Only 1.2 of the 6.0 FTE's for the Perkins Program are administrative in nature at a cost of $60,953, not including benefits. The rest of these FTE's are school-based. The administrative costs in the table need to be adjusted to reflect the actual FTE's.

- As MCPS CPPs stabilize over the next few years, expensive program startup costs including equipment, certification training, and instructional materials, will diminish and overall expenditures are expected to decrease.

Thank you again for the opportunity to review the draft findings and recommendations. I believe the collaborative work between MCPS and OLO will result in an excellent report that will support the work of the school system and County Council.

Sincerely,

Larry A. Bowers
Chief Operating Officer

LAB:llh

Copy to:
Dr. Weast
Mr. Lang
Dr. Wright
Ms. Johnson
Dr. Spatz

LIST OF APPENDICES

The Carl D. Perkins Career and Technical Education Improvement Act of 2006

History

In the spring of 2004, the House of Representatives began to hold hearings on the reauthorization of the Perkins Act, showing bi-partisan support for CTE. In June 2004, the House introduced the first piece of reauthorization legislation, H.R. 4496, the Vocational and Technical Education for the Future Act. When the House bill was introduced, it maintained many elements of current law and made some positive changes. However, there were four significant concerns with the bill as it was originally introduced, including the proposed combining of the Tech Prep and Basic State Grant funding streams, a cut in funding available for state and local administration, changes to the maintenance of effort provision, and language in the law continuing to refer to vocational education.

The Education and the Workforce Committee s Education Reform Subcommittee held its mark-up to amend and approve the bill on July 14, 2004, and at this time the maintenance of effort provision was restored to current law. On July 21, 2004, the Education and the Workforce Committee marked up and passed H.R. 4496, and in the version of the bill passed by the full committee, local administrative funds were restored to the currently allowed 5 percent. State level administrative funds remained cut to 2 percent.

The Senate also began its reauthorization action during the summer of 2004. After holding one hearing, on July 19, 2004, the Senate Health, Education, Labor, and Pensions (HELP) Committee introduced S. 2686, the Carl D. Perkins Career and Technical Education Improvement Act of 2004. The Senate bill made many of the same positive changes as the House bill. Unlike the House bill, however, the Senate bill maintained Tech Prep as a separate program, reserved 15 percent of the Basic Grant for state administration and state leadership, and updated the language throughout the law from vocational and technical to career and technical.

The Senate HELP Committee approved S. 2686 on September 22, 2004, by a unanimous vote. However, as Congress moved toward adjournment, efforts to reauthorize the Perkins Act came to a halt. The House and Senate were unable to schedule floor votes on their legislation before the 108th Congress came to a close.

Activity began again promptly when the 109th Congress convened in 2005. On January 26, 2005, House Education and the Workforce Committee leaders introduced H.R. 366, the Vocational and Technical Education for the Future Act. The Senate followed quickly with the introduction of S. 250, the Carl D. Perkins Career and Technical Education Improvement Act of 2005, on February 1, 2005. These bills were almost identical to the bills (H.R. 4496 and S. 2686) that had been moving through Congress the previous year.

Both bills were approved by their respective committees on March 9, 2005. The Senate bill went quickly to the floor the next day and was approved by the full Senate by a 99-0 vote on March 10, 2005. The House bill was approved by a 416-9 vote on May 4, 2005. After these floor votes, staff spent more than a year working to negotiate differences between the two bills before a formal conference committee was named.

This conference committee was finally appointed in July 2006, and approved a compromise bill on July 20, 2006. The final bill, the Carl D. Perkins Career and Technical Education Improvement Act of 2006, was then approved by the Senate by unanimous consent on July 26, 2006, and the House by a 399-1 vote on July 29, 2006. President Bush signed the bill on August 12, 2006 as Public Law 109 270.

Synopsis

The new Act would authorize the legislation through Fiscal Year 2012, for a total of six years instead of the current five. While the bulk of the law is very similar to the 1998 Perkins Act, there are some significant changes in content and focus. Several themes are evident throughout accountability for results and program improvement at all levels, increased coordination within the CTE system, stronger academic and technical integration, connections between secondary and postsecondary education, and links to business and industry.

The new Act also uses the term career and technical education instead of vocational education throughout, maintains the Tech Prep program as a separate federal funding stream within the legislation, and maintains state administrative funding at 5 percent of a state s allocation. These are huge victories for CTE and were ACTE s top three priorities for the Perkins reauthorization conference. Positive outcomes on these issues show the respect Congress has for CTE programs and advocates.

Accountability

While accountability was already a strong component of the 1998 Perkins Act, the 2006 Act adds a new section on local accountability that will require local programs to set specific performance targets on each performance indicator and be responsible for meeting these targets. Locals may choose to accept the state performance targets or work with the state to negotiate levels more applicable to their specific circumstances.

Sanctions for local programs and states have become more specific. If local programs or states fail to meet at least 90 percent of an agreed upon target, they will have to develop and implement an improvement plan. If no improvement is made, or the program fails to meet at least 90 percent of a performance level for 3 years in a row, then a portion of Perkins funding could be withheld. The new local requirements and sanction

specificity will require each program to think much more strategically about the use of Perkins funds, and to focus activities on efforts that help to meet performance targets.

Several changes were also made to the specific performance indicators that states and local programs will have to report on under the 2006 Perkins Act. At the secondary level, academic attainment will now have to be measured by the academic assessments a state has approved under No Child Left Behind (NCLB). Graduation rates will also have to be reported as defined in NCLB, and technical proficiency should include student achievement on technical assessments that are aligned with industry-recognized standards when possible.

At the postsecondary level, academic attainment will no longer have to be reported as a separate measure, but, like at the secondary level, technical skill proficiency should include student achievement on technical assessments that are aligned with industry-recognized standards when possible. Also at the postsecondary level, student placement in high-wage, high-skill or high-demand occupations or professions must be measured.

Coordination within the CTE Community

While the new law maintains the Tech Prep program as a separate Title within the law with its own federal funding stream, there are several changes made to Tech Prep and throughout the law to increase coordination between the different programs within CTE. States will have the flexibility to combine either all, or a portion, of their Tech Prep grant with funds received under the Basic State Grant. If a state chooses to utilize this option, the combined funds must be distributed to local programs using the same formula as is used for Basic State Grant funds, and must be used for the same activities as those funds.

If a state does not choose to combine Tech Prep funds with funds under the Basic State Grant, there are new accountability requirements that will be applied to Tech Prep consortia. In addition, there is a new requirement for a single state plan that covers Basic State Grant activities and Tech Prep activities, linking the two programs more closely together.

There is also additional coordination evident in increased integration of language related to occupational and employment information throughout the law. While Section 118 of the law maintains the Occupational and Employment Information program authorization with a few minor changes, additional references are included in areas such as state leadership funds. This language would allow states to use leadership funds to support occupational and employment information resources (since Congress has not funded the program since June 30, 2006), and links those resources to other information required in the law.

Academic and Technical Integration

This is another theme that has existed in prior Perkins laws, but continues to be expanded upon. With additional links to NCLB, the 2006 Perkins Act goes much further toward integrating the academic and CTE accountability systems at the secondary level.

One of the biggest concerns expressed in the hearings leading up to Perkins reauthorization was that academic integration was often not occurring with as much frequency as may be possible, and that there was often a divide between academic and CTE teachers when working toward this goal. To address this, the new law puts a specific emphasis on professional development that addresses the integration of academic and technical skills, and that involves academic and CTE teachers working together whenever possible.

Connections between Secondary and Postsecondary Education

Connections between secondary and postsecondary education are again addressed through the Tech Prep program, but they are also emphasized in a new Basic State Grant requirement. The new law requires the development and implementation of programs of study. These programs of study must:

- Incorporate secondary education and postsecondary education elements;
- Include academic and career and technical content in a coordinated, nonduplicative progression of courses; and
- Lead to an industry-recognized credential or certificate at the postsecondary level, or an associate or bachelor s degree.

States must develop the programs of study in consultation with local programs, and each local recipient receiving funds under the Act will be required to offer the relevant courses of at least one. Tech Prep programs should use programs of study to the extent practicable. Programs of study are very similar to, and build on, positive initiatives already underway in CTE programs around the country, including Tech Prep, career pathways, career academies, and career clusters. In many states, the foundational elements of programs of study may already be in place.

Links to Business and Industry

A much stronger theme within the 2006 Perkins Act is increased coordination with business and industry. In fact, two new purposes of the law allude to this theme supporting partnerships among secondary schools, postsecondary institutions, baccalaureate degree granting institutions, area career and technical education schools, local workforce investment boards, business and industry, and intermediaries; and providing individuals with opportunities throughout their lifetimes to develop, in conjunction with other education and training programs, the knowledge and skills needed to keep the United States competitive.

Additional focus is also placed on high-demand occupations, in addition to those that are high skill and high wage. References to entrepreneurship, small business, and the involvement of workforce investment boards are also added. These changes emphasize the role that employment availability and local economies should play in CTE programs.

*The **Association for Career and Technical Education (ACTE)** is the nation's largest education association dedicated to the advancement of education that prepares youth and adults for successful careers. For more information, contact ACTE at 1-800-826-9972 or visit the website at www.acteonline.org. Order Perkins Act of 2006: The Official Guide© at http://iweb.acteonline.org/Purchase/SearchCatalog.aspx?token.*

APPENDIX B
Promising Practices for Career and Technical Education

This appendix provides an overview of promising practices in career and technical education along with a brief description of the Montgomery County Public Schools requirements under the Carl D. Perkins Act for career and technical education programs.

The United States Department of Education's Office of Vocational and Adult Education (OVAE) reports that most high school students take at least one career and technical education (CTE) course, and one in four students take three or more courses in a single program area. CTE is a significant part of the school experience and should be addressed in any school reform effort. This chapter focuses on the promising practices of career and technical education.

Career and technical education has undergone significant transformation over recent years, moving from the traditional "vocational" education, or "education for work" has been replaced with the academically richer "education through work (Kazis 2005)." Because of this reformation, there is emerging research on the subject, but very few conclusions can be drawn generally about career and technical education.

Career and Technical Education Research Background. The general consensus across research today is that the traditional "vocational" education model does not work in today's school and workplace. Both students who go to college and those who go directly into a career need academic and technical skills, along with technological proficiency. In DATE, the Aspen Institute[1] compiled research on career and technical education policies and practices. A few broad conclusions emerged from existing studies on career-focused high school programs and schools (Kazis 2005):

- CTE appears to help less-motivated and more at-risk students stay in high school and graduate;
- CTE programs do not necessarily academically prepared a student for college-level work;
- Employers would prefer to hire students with college credentials over those with only high school; however, for those who do not continue to college, jobs found with the help of career-focused programs in high school have a significant labor market payoff, particularly for low-income students and those who are the most at-risk;
- Results are mixed on career and technical education's affect on academic goals;

[1] The Aspen Institute mission is twofold: to foster values-based leadership, encouraging individuals to reflect on the ideals and ideas that define a good society, and to provide a neutral and balanced venue for discussing and acting on critical issues. The website is at http://www.aspeninstitute.org/.

- The evidence is inconclusive on the affect of participation in work-based learning programs, particularly internships and extended workplace experiences, on academic performance;

- It is possible to upgrade the academic content and rigor of CTE programs without sacrificing the technical and occupation-related component of the curriculum;

- There is a link between taking a concentration of CTE courses and higher wages in the short to medium time frame;

- Well-designed career-focused programs can improve employment, earnings, non-academic skills, and career choices, particularly for at-risk and low-income youth.

Promising Practices in Career and Technical Education. Because career and technical education is undergoing a transformation from traditional "vocational" education to a more integrated academic and technical education, there is not a lot of research on best practices. However, there is some research that suggest promising practices within career and technical education. These practices are supported by evidence, but have not been studied rigorously.

In addition, there are numerous barriers to CTE research. The following are some specific issues that can be problematic to researching career and technical education (Brand):

- Identifying CTE students can be difficult because of the numerous ways participation in CTE classes can be characterized and defined;
- Making the connection between the technical classes and labor market participation is very challenging;
- Some CTE students take classes in several industry areas (such as pre-engineering and business) which makes it hard to identify the career major and subsequent links to college or career outcomes; and
- Another challenge in tracking student outcomes is that the external agents that provide industry certifications often do not report students' performance on industry tests to schools.

Most CTE researchers agree that the literature provides little evidence of performance results that can be generalized across all of CTE (Kazis). For this report, OLO identified numerous themes in career and technical education that researchers identify as promising practices. The remainder of this chapter provides an overview of promising practice themes in career and technical education and the alignment, if any, of the practice with MCPS Career and Technical Education Programs. For individual information on individual programs, please see the Association for Career and Technical Education's website at http://www.acteonline.org/default.aspx, which provides detailed research on promising practices and CTE state profiles.

Theme #1: Programs should integrate career and technical education with academic rigor and relevance.

Career and technology education research has one overarching theme: the knowledge and skills needed for students to succeed in college and careers are comparable. Effective CTE programs must proactively increase academic standards and combine technical and academic instruction into a comprehensive curriculum (Kazis).

An empirical study[2] completed by ACT provides evidence that whether planning to enter college or workforce training programs after graduation, high school students need to be educated to a comparable level of readiness in reading and mathematics. The results are also supported by common types of knowledge and skills students needed to be ready for college and workforce training programs, even though the skills are taught and measured in technical versus academic settings.

CTE programs are beginning to overhaul their curriculum to integrate academic content to the technical and career settings. CTE supplements and expands the teaching of academic content, provides the context for learning academic skills in technical classrooms, and demonstrates how theoretical knowledge can be applied in real-world work settings. For example, automotive-based classrooms not only teach the mechanics of how a car runs but also the physics behind combustible power generation, wind resistance and engine efficiency (Brand).

Theme #2: Students achieve more success in smaller learning communities.

The National Conference of State Legislatures has created a summary of research on smaller learning communities (http://www.ncsl.org/programs/employ/slc.htm). In general, research concludes that student achievement in small schools is at least equal, and possibly higher, in small schools in relation to larger schools. There are two collective research findings in most studies: about half of the studies show that students do no worse in small schools than in larger ones while the other half states that students in small schools do better on measures such as school grades, test scores, honor roll membership, subject-area achievement, and higher-order thinking skills assessments. In addition, research shows that:

- Smaller schools help to close the achievement gap;
- Student attitudes and behavior are more positive in smaller schools, in particular with minority students;
- Smaller schools result in high attendance and lower dropout rates; and
- Students in small high schools do as well or better than students from larger schools on college-related variables such as entrance examination scores, acceptance rates, attendance, grade point average and completion.

[2] Ready for College and Ready for Work: Same or Different? 2006

Researchers have identified some structures of smaller learning communities to have promising results:

- *Career Academies* are "schools-within-schools" organized around career themes. They integrate academic and technical instruction, provide work-based learning opportunities for students and prepare students for postsecondary education and employment. Additionally, local employer partnerships provide program planning guidance, mentors and work internships.
- *House plans* divide students in a large school into groups of several hundred within a "house." Students take some or all courses with their house members and from their house teachers.
- *Magnet Programs* are programs opened to an entire school district that focus on a particular subject or career. Programs can have competitive admission requirements or can be open to any interested student. Students in a magnet program stay together for their core classes and may take other courses with non-magnet students.

Theme #3: The curricula of the programs should be aligned with industry, government, and postsecondary standards.

Program standards serve as the basis for the curriculum structure and statewide assessments of learning. CTE programs should create connections and partnerships with are creating connections with and pathways to the local industry, postsecondary education institutions, and government entities. The Carl Perkins Act states that one of the ways the support the academic and career skills of students is to "support partnerships among secondary schools, postsecondary institutions, baccalaureate degree granting institutions, area career and technical education schools, local workforce investment boards, business and industry, and intermediaries."

Federal and State Standards. CTE standards should align with federal and state guidelines and mandates, not only for career and technical education but for academic content standards in such subjects as English and math. The largest source of funding, the Perkins Act has specific accountability program standards required in order to receive grants.

Industry Standards. Career and technical education should support a seamless transition to college and career and the curriculum should reflect necessary knowledge and skills students are expected to master to be successful in the career. These standards should align with current industry requirements in order to make the coursework relevant. As stated in the Perkins Act, one of the core performance indicators for Career and Technical Education is "the attainment of career and technical skill proficiencies, including student achievement on technical assessments, that are aligned with industry-recognized standards, if available and appropriate."

Postsecondary Standards. Many states use dual enrollment to provide high school students, including CTE students, the opportunity to take college-level classes and potentially ease the transition to college and careers. CTE should emphasize curriculum alignment and articulation with local community and four-year colleges. This can allow students to see the necessary and reciprocal relationship between their academic and career goals, while earning college credit. Dual credit can improved coherence between high school and college curricula, increase access to college, improve the quality of technical training for workers, and reduced college expenses. However, there is limited research verifying the impact of dual enrollment.

Theme #4: Programs should be aligned with industry growth and decline as well as reflect emerging job opportunities.

The labor market constantly changes and career and technical education must focus on those careers that are in demand. CTE programs must maintain traditional programs that are still in demand but also provide programs in emerging and expanding fields such as information technology, communications and marketing, and environmental management (National Center for Education Statistics 2000).

School programs that are up-to-date create a higher demand and interest for CTE students. Schools who want to foster career and technical education must create coursework that is valued by teachers, students and the local business community. The program must provide students with relevant skills and useful work experience. School CTE programs must respond quickly and proactively to where the economy is headed, which requires the elimination of obsolete and dated programs and encouraging programs in growing technical fields that can lead to good careers and that interest high school students (Kazis).

Theme #5: Programs should include links to the local business community and provide for student work experiences.

Career and technical education should allow students to connect to the local business community and the workplace.

Connection to Local Business. Program related employment can create personal ties to employers that pay off in better jobs during and after school. It can also help less academically successful and socially connected students have an advantage on employment and entry to competitive postsecondary technical programs (Kazis).

Work Experience. Career and technical education programs offer students the opportunity to see how theory is used and applied in very practical ways. Work-based learning helps students to acquire occupational knowledge and skills, engage in career planning and explore careers, learn all aspects of the industry, improve work-related personal and social competence, and increase motivation and academic achievement.

There is general support for work-based learning in career and technical education. Students' engagement and interest increase, and surveys state that students believe that work-based experiences were helpful to their college and career planning. However, results are mixed on its impact on academic learning and achievement. There is some support that work-based learning reinforced academic knowledge; yet poor placements have lead to "dismal, mis-educative experiences, while quality work-based learning can provide benefits above and beyond what students get even in excellent classrooms" (Lekes 2007).

Theme #6: Career and technical education teachers should have increased standards to meet career, technical as well as academic needs to improve the quality of CTE teaching.

Teachers are a vital part of the learning process. For potential CTE teachers, many schools of education prepare graduates for general education instruction and do not focus the preparation of CTE technical education programs. Therefore, new teachers have limited knowledge about CTE, career clusters, career pathways, and real-world application of technical skills. As a result of most colleges of education not having a focus on CTE instruction, there is a shortage of qualified CTE teachers. Many schools rely on industry experts to bring the needed technical knowledge and skills into the classroom (Brand).

For an effective career and technology programs, career and technology teachers should have industry credentials, along with the academic training and instructional support to allow them to provide effective instruction. Teachers should be taught to use CTE instruction and technical skills to supplement, enhance, and reinforce academic concepts. In addition, teachers should be provided with professional development on topics such as content knowledge; best practices; academic integration; and general teacher management practices (Brand).

Theme #7: There should be consistent assessment and greater accountability for career and technical programs.

In the effort to reform career and technical education, continuous improvement and greater accountability require rigorous research including targeted evaluations, technical skills assessments, and better tracking of employment and earnings outcomes.. According to the National Assessment of Vocational Education (NAVE) of the USDE, there is currently little consistency of CTE measurement across and within states. In addition, NAVE reports that standardized assessments used in most states ignore the wider range of knowledge and skills that are needed for success in college and careers (Brand).

Researchers believe that there is a need for more meaningful and consistent data for career and technical education. In addition, under the Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV), the federal government set out new performance accountability requirements for states and local programs. Non-academic outcomes, including college matriculation and completion rates, skills attainment, completion of industry-recognized credentials, employment, and earnings, needs to be

collected and analyzed in a more consistent and transparent manner. There are, however, potential issues with increased data collection and accountability of CTE programs:

- There are very few assessments to measure technical skills and employability skills (Brand);

- Many CTE courses are assessed on academic standards, but the classes are not designed to teach reading, mathematics, and science skills (Brand); and

- The methods used to assess CTE are not reliable (Kazis). For example (1) most states measure outcomes using a direct-mail survey, which can skew results and (2) many states use tenth-grade assessments to measure CTE student progress on their academics, even though most courses are taken after tenth grade (Kazis).

With greater accountability and performance measures, school systems should be able to evaluate whether programs meet student and employer needs, provides valuable instruction and shows improvement. As a result, the school system has the option to eliminate the weakest programs, support the best, and encourage innovation and excellence. One example of improved accountability is the state of Maryland, where CTE schools are expected to regularly identify the weakest 20 percent of their programs and to articulate a plan for their improvement or a decision about their future (Kazis).

Theme #8: Programs should connect and engage students.

The National Research Council of the National Academies[3] states that "the fundamental challenge is to create a set of circumstances in which students take pleasure in learning and come to believe that the information and skills they are being asked to learn are important or meaningful for them and worth their efforts, and that they can reasonably expect to be able to learn the material." Researchers generally agree that career and technical education programs can engage students in the following ways:

Learning Style. Career and technical education provides a range of learning opportunities that serve different learning styles. CTE programs supplement traditional classroom experiences with more hands-on learning such as work experiences, speakers/seminars, and internships and allow for students to have numerous types of learning experiences (NAVE).

Relevance. For many students, CTE classes provide real world activities and technology that CTE classes more interesting and motivating than standard academic classes. The ability to see the practicality and relevance of what they are learning allows many students to focus and "learn by doing." This engagement may result in an increase in academic achievement as the students becomes more interested in school overall (Earning, Learning).

[3] Engaging Schools: Fostering High School Students' Motivation to Learn(2003)

Career Exploration. Career and technical education may assist students in exploring career options, clarifying career goals, and understanding what is needed to achieve those goals. A student may determine what their career goals are or, just as important, what those goals may not be (NAVE). A determined career focus can also give a student a sense of direction and motivation, which may lead to improved performance and a smaller chance of dropping out. In a study completed by NAVE, high school seniors describe CTE classes and related work experience as "very helpful" to them in clarifying their career goals.

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FY09 Courses Receiving
TECHNOLOGY EDUCATION CREDIT

	Cluster & Course Title	Course Code
	ARTS, HUMANITIES, MEDIA, AND COMMUNICATION	
	Communication Systems Technology A/B	5502/5503
	BUSINESS MANAGEMENT AND FINANCE	
	Software Applications by Design A/B	2903/2904
	HUMAN AND CONSUMER SERVICES, HOSPITALITY, AND TOURISM	
	Food Trends and Technology A/B	4843/4844
	INFORMATION TECHNOLOGIES	
	Computer Maintenance LAN Mgt. A/B	5615/5616
	Computer Maintenance LAN Mgt. A/B	5617/5618 DP
	Computer Maintenance Technology A/B	5611/5612
	Computer Maintenance Technology A/B	5613/5614 DP
	Computer Programming 1A/B	2989/2990
	Discovering Programming Concepts A/B	2964/2967
	Network Operations A/B	4117/4118 TP
	Software Applications by Design A/B	2903/2904
	ENGINEERING, SCIENTIFIC RESEARCH, AND MANUFACTURING TECHNOLOGIES	
*	Foundations of Technology A/B (FOT)	5161/5162
	Pre-Engineering A/B	5504/5505
	Technological Innovations A/B	5506/5507
*	Principles of Engineering A/B (POE)	5150/5151
*	Introduction to Engineering Design A/B (IED)	5152/5153

All courses listed above meet the Technology Education credit for students graduating in 2009, 2010, 2011.

* **Indicates courses that meet the Technology Education credit for students graduating in 2012.**

DP - Double Period / TP - Triple Period

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FY08 Courses Receiving ADVANCED TECHNOLOGY EDUCATION CREDIT

Cluster & Course Title	Course Code
ARTS, HUMANITIES, MEDIA, AND COMMUNICATION	
Communication Systems Technology A/B	4208/4209
Printing, Graphics, and Electronic Media 2A/2B	5121/5122 TP
BUSINESS MANAGEMENT AND FINANCE	
Accounting A/B	4111/4112
Advanced Accounting A/B	4113/4114
CONSTRUCTION AND DEVELOPMENT	
Electricity (Construction) 2A/2B	5595/5596 TP
Heating Ventilation/Air Conditioning 2A/2B	5127/5128 TP
INFORMATION TECHNOLOGIES	
Database Programming A/B	4232/4233
Network Operations A/B	4202/4203 TP
Software Applications by Design, Advanced	2905/2906
Computer Programming 1A/B	4200/4201
Computer Programming 2A/B	2901/2902
Computer Programming 3A/B, AP Computer Science	2965/2966
Microcomputer Technologies A/B	4214/4215
Microcomputer Technologies A/B	4216/4217 DP
Network Engineering and Management A/B	4218/4219
Network Engineering and Management A/B	4220/4221 DP
Network Engineering and Management A/B Advanced	4230/4231
Web Site Development A/B	2991/2992
Advanced Web Tools and Digital Media A/B	2936/2937
SCIENTIFIC RESEARCH, ENGINEERING, AND MANUFACTURING TECHNOLOGIES	
Pre-Engineering A/B	4210/4211
Technological Innovations	4212/4213
Principles of Technology A/B	4222/4223
Design, Illustrating, Drafting Technology 2A/2B	5106/5107 TP
TRANSPORTATION, DISTRIBUTION, AND LOGISTICS	
Automotive Technology Dealership 2A/2B	5067/5068 TP
Automotive Technology 2A/2B	5049/5050 DP
Automotive Technology 2A/3B	5064/5065 DP

DP - Double Period / TP - Triple Period

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Appendix E
Methodology for Categorizing Career Clusters by Work and College Readiness Emphasis

The Maryland State Department of Education (MSDE) developed ten career clusters based on the state s employment needs. Career clusters represent segments of the economy where industries and occupations share similar skill sets. MCPS, in turn, offers career pathway programs across 11 career clusters that align with MSDE s career cluster framework.

For this report OLO classified the MCPS Career Clusters[1] as emphasizing either:

- **Work Readiness** - by focusing on providing students technical skills that enable them to gain employment immediately after leaving high school;
- **College Readiness** by focusing on teaching student higher level technical and academic skills that prepare students for higher education in four-year institutions; or
- **Both Work and College Readiness** by providing students with skills and knowledge needed to pursue both postsecondary education and/or immediate employment.

The classification of MCPS career clusters work and college readiness is based on a review and analysis of the following sources:

1. Maryland Career Cluster Frameworks - CTE Pathway Programs (September 2006). This document describes by career cluster and pathway the value-added and certification components of a variety of CTE pathway programs. Programs whose sole value added was college credit were classified as college readiness programs, those that prepared students for certifications were typically classified as work readiness programs, and those offering both college credits and certifications were listed as both.[2]
2. Maryland Career Clusters, Maryland State Department of Education (November 2007). This document lists by cluster and pathway the types of positions available to students with an associate s degree or less, a bachelor s degree, and a graduate degree. Pathways that listed a number of job choices requiring an associates or less were categorized as work readiness pathways; those requiring a bachelors or higher for most positions were categorized as career readiness pathways.[3]
3. Maryland High School Career and Technical Education Programs of Study (September 2008). This document describes CTE programs by cluster and program descriptions. Programs with explicit credentialing options are typically classified as work or work and college readiness programs; those without available credentials are typically categorized as emphasizing college readiness.[4]

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[1] OLO did not include Cooperative Work Experience Career Cluster in this classification.
[2] This document is available on-line at http://www.marylandpublicschools.org/NR/rdonlyres/FBCED237-BC72-4CAF-8905-5809B6E26E55/10824/MSDEPathwayProgramsfinalSeptemberPat1.doc
[3] This document is available on-line at http://www.marylandpublicschools.org/NR/rdonlyres/F8A34712-B21E-4DC2-A186-9144565375F2/16366/CareerClustersLOWRES.pdf
[4] This document is available on-line at http://www.marylandpublicschools.org/NR/rdonlyres/E4BE30EF-C723-4A04-9D6E-DFDBEF67DE7F/18555/CTEBook101509.pdf

4. MCPS Data on Credentials by Clusters and Pathways. MCPS provided data that describes the number of various certifications available for students within each CTE program and career cluster. Clusters whose pathways offered more certification opportunities were generally classified as emphasizing work readiness; those without certification options were generally categorized as college readiness programs.

Table 1: Number of Career Pathways by Cluster with Possible Industry Certifications

Career Clusters	Number of Career Pathways with Certifications
Arts, Humanities, Media and Communication	0
Biosciences, Health Science, and Medicine	1
Business Management and Finance	4
Construction and Development	6
Education, Training and Child Studies	1
Engineering, Scientific Research and Manufacturing	0
Environmental, Agricultural and Natural Resources	0
Human and Consumer Services, Hospitality and Tourism	4
Information Technologies	4
Law, Government, and Public Safety	1
Transportation and Logistics	3

Based on this review, OLO categorized MCPS career clusters by work and college readiness emphasis as follows; Table 2 on the next page describes this classification by career pathway.

- The Construction, Human and Consumer Services, and Transportation clusters emphasize **work readiness**;
- The Biosciences, Business, and Engineering clusters emphasize **college readiness**; and
- The Arts, Education, Information Technology, and Law and Government clusters emphasize both **work and college readiness**.

Of note, the above classification does not mean that a career cluster or pathway solely emphasizes college or work readiness. In fact, with the Tech Prep program, all CTE programs and pathways include courses that articulate into CTE post secondary programs at institutions of higher education; many CTE programs also include courses that earn college credit.

Second, the classification above by cluster and Chapter III masks differences in work and college readiness emphasis evident among pathways within a cluster. For example, as noted in Table 2, the Architecture and Drafting Pathway emphasizes college readiness while the Construction and Development cluster is classified as emphasizing work readiness. Thus, a career cluster categorized as either having an emphasis on job readiness, college readiness, or both, does not imply that all career pathway programs in that cluster have the same emphasis.

Table 2: MCPS Career Clusters by College and Work Readiness Emphasis

Career Clusters and Pathways	College Readiness	Work Readiness	College & Work Readiness
Arts, Humanities, Media and Communication			✓
- Broadcast media	✓		
- Printing graphics and electronic media		✓	
Biosciences, Health Science, and Medicine	✓		
- Biosciences	✓		
- Academy of Health Professions and Biosciences	✓		
- Bio-medical sciences, Project Lead the Way	✓		
- Biotechnology	✓		
- Medical careers			✓
Business Management and Finance	✓		
- Academy of Finance	✓		
- Accounting			✓
- Business Administration and Management	✓		
- Marketing	✓		
Construction and Development		✓	
- Carpentry		✓	
- Construction Electricity		✓	
- Heating, Ventilation, and Air Conditioning		✓	
- Masonry		✓	
- Plumbing		✓	
- Principles of Architecture and CAD Technology	✓		
Education, Training and Child Studies			✓
- Academy for Teacher Education	✓		
- Early Child Development		✓	
Engineering, Scientific Research and Manufacturing Technologies	✓		
- Advanced Engineering (Project Lead the Way)	✓		
- Pre-engineering	✓		
Environmental, Agricultural and Natural Resources			✓
- Environmental Horticulture			✓
- Green Industry Management			✓
- Landscape Design			✓
Human and Consumer Services, Hospitality and Tourism		✓	
- Academy of Hospitality and Tourism		✓	
- Hospitality Management		✓	
- Professional Restaurant Management		✓	
- Cosmetology		✓	
- Manicuring/Nail Technology		✓	

Table 2: MCPS Career Clusters by College and Work Readiness Emphasis (Continued)

Career Clusters and Pathways	College Readiness	Work Readiness	College & Work Readiness
Information Technologies			✓
- Academy of Information Technology			✓
- Cisco Networking Academy			✓
- Network Operations (Foundations program)			✓
- Oracle Academy			✓
Law, Government, and Public Safety			✓
- Fire and Rescue Services/Emergency Medical Technician		✓	
- Justice, Law, and Society	✓		
Transportation, Distribution and Logistics		✓	
- Automotive Body Technology/Dealership Training		✓	
- Automotive Technology/Dealership Training		✓	
- Foundations of Automotive Technology		✓	

APPENDIX F
Number of Required and Available Courses in Career Pathway Programs

Career Pathway Program	Credits Required for Program Completion	Total Number of Credits Available in Pathway
Arts, Humanities, and Communication		
Broadcast Media	4	7
Printing, Graphics, and Electronic Media	4	6.5
Biosciences, Health Sciences, and Medicine		
Academy of Health Professions and Biosciences	4	6
Biomedical Sciences (Project Lead the Way)*	4	3
Biotechnology	4	5
Medical Careers	4	6.5
Business Management and Finance		
Academy of Finance (AOF)	4	5.5
Accounting*	4	3.5
Business Administrative and Management	4	9.5
Marketing*	4	3.5
Construction and Development		
Carpentry	4	10.5
Construction Electricity	4	6.5
Heating, Ventilation, and Air Conditioning	4	6.5
Masonry	4	6.5
Plumbing	4	6.5
Principles of Architecture and CAD Technology	4	6.5
Education, Training and Child Studies		
Early Child Development	4	10
Academy for Teacher Education	4	7
Engineering Technology		
Advanced Engineering (Project Lead the Way)	5	7
Pre-Engineering	4	4.5
Environmental Resources		
Environmental Horticulture	4	7.5
Green Industry Management	4	6.5
Landscape Design*	4	2.5
Human and Consumer Sciences		
Academy of Hospitality & Tourism	4	6
Cosmetology	9	9
Hospitality Management*	4	2.5
Manicuring/Nail Technology*	4	3.5
Professional Restaurant Management	4	6.5
Information Technology		
Academy of Information Technology (AOIT)	4	10.5
Cisco Networking Academy	4	14.5
Network Operations (Foundations)	4	7
Oracle Academy	4	4.5
Law, Government, and Public Safety		
Fire and Rescue Services/EMT	4	5
Justice, Law, & Society	4	7
Transportation		
Foundations of Automotive Technology*	4	3
Automotive Body Technology/Dealership Training	4	12.5
Automotive Technology/Dealership Training	4	13.5

*Students may complete pathway programs through internships, college pathway courses, advanced level coursework, or guided research.

Source: MCPS High School Bulletin, 2009-2010

APPENDIX G
List of Career Pathway Programs at Each MCPS High School, 2008-2009
Source: MCPS Instructional Technology and Partnerships Unit

	Edison HS Technology	Bethesda-Chevy Chase	Montgomery Blair	James Hubert Blake	Winston Churchill	Clarksburg	Damascus	Albert Einstein	Gaithersburg	Walter Johnson	John F. Kennedy	Col. Zadok Magruder	Richard Montgomery	Northwest	Northwood	Paint Branch	Poolesville	Quince Orchard	Rockville	Seneca Valley	Sherwood	Springbrook	Watkins Mill	Wheaton	Walt Whitman	Thomas S. Wootton
Arts, Humanities, Media, and Communications																										
Broadcast Media				x					x			x	x		x				x	x	x					
Printing, Graphics, and Electronic Media	x																									
Biosciences, Health Science, and Medicine																										
Academy of Health Professions and Biosciences			x								x					x				x						
Biomedical Sciences (PLTW)																								x		
Biotechnology	x													x						x				x		x
Medical Careers	x										x					x					x		x			
Business Management and Finance																										
Academy of Finance (AOF)								x	x			x		x		x							x			
Accounting			x	x			x	x	x	x		x	x	x		x			x	x	x	x	x		x	x
Business Administrative and Management			x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x
Marketing			x	x			x	x	x		x		x	x	x				x		x	x	x		x	x
Construction and Development (Foundations)																										
Carpentry	x						x																			
Construction Electricity	x																									
Heating, Ventilation, and Air Conditioning	x																									
Masonry	x																									
Plumbing	x																									
Principles of Architecture and CAD Technology	x																									
Education, Training and Child Studies																										
Academy for Teacher Education			x	x					x			x				x	x	x		x			x		x	x
Early Child Development		x	x	x		x	x		x	x	x	x		x		x		x	x	x	x	x	x	x	x	x
Engineering, Scientific Research, and Manufacturing Technologies																										
Advanced Engineering (PLTW)*												x				x	x		x				x	x	x	
Pre-Engineering		x	x	x	x	x	x			x	x			x	x			x		x	x	x				x
Environmental, Agricultural, and Natural Resources																										
Environmental Horticulture							x										x			x				x		
Green Industry Management							x		x			x							x				x			
Landscape Design						x			x											x			x	x		
Human and Consumer Services, Hospitality, and Tourism																										
Academy of Hospitality & Tourism	x																			x						
Cosmetology	x								x																	
Hospitality Management						x	x	x	x	x	x	x	x	x		x		x	x		x	x	x	x	x	x
Manicuring/Nail Technology	x								x																	
Professional Restaurant Management	x						x									x										
Academy of Hospitality & Tourism	x																			x						
Information Technologies																										
Academy of Information Technology (AOIT)							x		x										x		x		x		x	x
Cisco Networking Academy		x	x				x		x					x				x			x		x		x	x
Network Operations (Foundations)	x					x													x							
Oracle Academy									x															x		
Law, Government, Public Safety, and Administration																										
Justice, Law, & Society			x												x					x		x				
Transportation, Distribution and Logistics (Foundations)																										
Automotive Body Technology/Dealership Training	x								x																	
Automotive Technology/Dealership Training	x						x		x											x						
Foundations of Automotive Technology	x																									

Student Application
Thomas Edison High School of Technology

12501 Dalewood Drive, Silver Spring, MD 20906
For information contact the School Counseling Office: 301-929-2181 Fax: 301-929-2230
Website: http://www.montgomeryschoolsmd.org/schools/edison

Priority Application Deadline: February 13, 2009 for Fall 2009 Class Attendance

Student's Last Name		First Name				MI
Student's MCPS ID #		Date of Birth	Social Security Number			
Co-enrolled School			Current Grade	Counselor's Name		
Student's Home Phone		Student's Cell Phone	Student's E-Mail			
Street Address		Apt	City	MD	ZIP	

Mother/ Guardian's Name		Father/ Guardian's Name	
Mother's Home Phone		Father's Home Phone	
Mother's Cell Phone		Father's Cell Phone	
Mother's Work Phone		Father's Work Phone	
Mother's E-Mail		Father's E-Mail	

The following is a list of the current program offerings. Students selecting programs in ***italics*** may earn college credit through Montgomery College. *Most* programs can lead to Career Development Program completion and students may earn Student Service Learning (SSL) hours in *most* courses.

*** *Architecture & CAD Technology***
Automotive Body Repair Technology
*** *Automotive Technology***
***Biotechnology* - PM session only** *(Advanced level course)*
Carpentry
Cosmetology #
*** *Electricity (Construction)***
Foundations of Automotive Technologies
Foundations of Building & Construction Technologies
*** *Heating/Air Conditioning (HVAC)***
Hospitality and Tourism #
Interior Design (elective)
Masonry
***Medical Careers* - PM session only #**
(Additional MCPS application is required to enroll in Medical Careers.)
Nail Technology
+ *Network Operations*
Plumbing
*** *Printing, Graphics, & Electronic Media***
Professional Restaurant Management

#Note: Students applying for Cosmetology, Medical Careers, and/or Hospitality and Tourism must be willing to provide documentation required by employers, government internship sites, and/or the Maryland Board of Cosmetology that may include a social security number and/or proof of citizenship / green card. For more information, contact the School Counseling Office.

Some programs grant Advanced Technology credits. Those programs marked above with an asterisk("*****") grant Advanced Technology in the second year of two-year programs, and those marked with a plus sign "**+**" grant Advanced Technology in the first year of the program. See program descriptions for more detailed information.

Most Thomas Edison High School of Technology (TEHST) programs have specific criteria for acceptance, special clothing requirements, and/or a lab materials fee. Priority is given to students who have demonstrated regular attendance, satisfactory progress in high school and a strong interest in their chosen program.

Students who currently receive special education services or other accommodations under the Individuals with Disabilities Education Act (IDEA) or Section 504 of the Americans with Disabilities Act **must** include a copy of their plan so accommodations can be in place at the time of enrollment. **Is this applicable? ☐ Yes ☐ No If applicable, a copy of the IEP or 504 Plan for the student must be attached.**

PROGRAM SELECTION:

First Choice		Second Choice	

Application continues on reverse side.

Please send (1) a *COMPLETED*, signed application, (2) a copy of your current report card, and (3) a current transcript directly to Thomas Edison High School of Technology, School Counseling Office, 12501 Dalewood Drive, Silver Spring, MD 20906.

Student Application
Thomas Edison High School of Technology

12501 Dalewood Drive, Silver Spring, MD 20906
For information contact the School Counseling Office: 301-929-2181 Fax: 301-929-2230
Website: http://www.montgomeryschoolsmd.org/schools/edison

Priority Application Deadline: February 13, 2009 for Fall 2009 Class Attendance

Please print a paragraph below, *in your own handwriting*, which explains why you've chosen to apply for this specific program and how it relates to your career plans. You may attach an additional sheet of paper if more space is needed.

_____

_____

_____

_____

_____

_____

Student Signature _____ Parent/Guardian Signature _____ School Counselor Signature: _____

2009-2010 TEHST Course Fees

Course Fees may apply and will be available at a future date.

This document is available in an alternate format, upon request, under the Americans with Disabilities Act, by contacting the Public Information Office, 850 Hungerford Drive, Room 112, Rockville, MD 20850, 301-279-3391 or 1-800-735-2258 (Maryland Relay)

Individuals who need sign language interpretation or cued speech transliteration in communicating with the Montgomery County Public Schools (MCPS) may contact Interpreting Services in Programs for Deaf and Hard of Hearing at 301-517-5539 or 5582 (Voice/TTY).

The Montgomery County Public Schools prohibits illegal discrimination on the basis of race, color, national origin, religion, gender, age, marital status, socioeconomic status, sexual orientation, physical characteristics, or disability.
Inquiries or complaints regarding discrimination or Title IX issues such as gender equity and sexual harassment should be directed to the MCPS Human Relations Compliance Officer, Office of the Deputy Superintendent, 850 Hungerford Drive, Room 129, Rockville, MD 20850, at 301-517-8265.

Please send (1) a *COMPLETED*, signed application, (2) a copy of your current report card, and (3) a current transcript directly to Thomas Edison High School of Technology, School Counseling Office, 12501 Dalewood Drive, Silver Spring, MD 20906.

STUDENT FEES FY 2009

Note: Do not send any money until you receive an acceptance letter. Request for alternative payment arrangements, including possible waiver of fees, may be made by completing an "Application for Alternative Fee Payment." Applications are available in the School Counseling Office at TEHST. Please be advised that student fees are non-refundable except in the case of an approved schedule change that occurs within 25 days of the start of class.

** Fee note: SkillsUSA is a national organization serving high school and college students enrolled in training programs in technical, skilled, and service occupations, including health occupations.

CLASS	*ITEM*	*AMOUNT*
Architecture & CAD Technology	Safety Glasses	$2.50
	Hard Hat	$13
	SkillsUSA (Year 1 & 2)	$15
Foundations of Automotive	Safety Glasses (Year 1)	$2.50
Technologies	Respirators (Year 1 & 2)	$17
	Coveralls (Year 1)	$48
	SkillsUSA (Year 1 & 2)	$15
Automotive Body Repair Technology	Safety Glasses (Year 1)	$2.50
	Respirators (Year 1 & 2)	$17
	Coveralls (Year 1)	$48
	SkillsUSA (Year 1 & 2)	$15
Automotive Technology	Safety Glasses (Year 1)	$2.50
	Coveralls (Year 1)	$48
	SkillsUSA (Year 1 & 2)	$15
BioTechnology	Badge, Uniform & Goggles (Year 1)	$30
	Uniform Fee (Year 2)	$15
	SkillsUSA (Year 1 & 2)	$15
Construction Technology	Safety Glasses (Year 1)	$2.50
	Hard Hats (Year 1)	$13
	NCCER-National Registry (Year 1 & 2)	$25
	NEC Code Book (Electricity) (Year 1)	$70
	SkillsUSA (Year 1 & 2)	$15
Cosmetology I	Kit & Uniform	$250
	Cosmetology Workbooks (2)	$60
	Cosmetology Textbook	$75
	SkillsUSA	$15
Cosmetology II & III	Manikins (3 each) (II & III)	$60
	Textbook (if needed)	$70
	Practice Manicure Hand (II & III)	$7
	SkillsUSA (II & III)	$15
Network Operations	A+ Certification Workbook &Materials Semester I (Year 1)	$124
	Network+ Certification Workbook & Materials Semester II (Year 1)	$54
	SkillsUSA (Year 1 & 2)	$15
Printing, Graphics & Electronic	Workbook (Year 1)	$13
Media	Workbook (Year 2)	$32
	Lab Fee (Year 1 & 2)	$30
	SkillsUSA (Year 1 & 2)	$15
Medical Careers	Uniform Cleaning & Lab Fee	$15
	Text & Workbooks	$90
	SkillsUSA	$15

Professional Restaurant Management	Chef Uniform	$42
	Food Prep Fee (Sem I) (Year 1 & 2)	$30
	Food Prep Fee (Sem II) (Year 1 & 2)	$30
	Food Safety Certification (Year 1)	$5.50
	SkillsUSA (Year 1 & 2)	$15
Academy of Hospitality & Tourism	Uniform (Year 1)	$60
	ServSafe Certification (Year 1)	$5.50
	SkillsUSA (Year 1 & 2)	$15
Nails	Kit, Uniform & Workbook	$285
	SkillsUSA	$15
Web Technology & Digital Media	SkillsUSA (Year 1 & 2)	$15

Identification & Assessment for Students in the Multidisciplinary Education and Training Support (METS) Program and Students in the Engaged in Pathways to Achievement (SEPA) Program

2008-2009

Introduction

This document explains the enrollment process for the **Multidisciplinary Education and Training Support (METS)** and **Students Engaged in Pathways to Achievement (SEPA)** programs.

Multidisciplinary Education and Training Support (METS) is a program designed for ESOL students in Grades 3–12 who have schooling gaps or have experienced interrupted or no previous formal education. Students enrolled in the METS program receive daily instruction in ESOL and basic skills and sheltered instruction in reading, math, and social studies. METS also provides support to help students adjust both academically and socially to the school environment.

Students Engaged in Pathways to Achievement (SEPA) is a career-based instructional program for high school METS students that focuses on helping students develop work-readiness, English language, and native language literacy skills. SEPA students enroll in career education programs (currently offered at Thomas Edison High School for Career and Technology Education) as well as English language development (ESOL) classes that provide a focus on exploring careers and preparing for the world of work, a Spanish literacy for native speakers course, and mathematics classes.

Initial Enrollment Process for METS and SEPA Programs

Identification for placement in the METS program is initiated when a student registers at the International Student Admissions Office (ISAO) for Montgomery County Public Schools. For students entering Grades 3–8, the ISAO will continue to use established procedures to refer students to the METS program. Students who enroll in METS at the high school level become candidates for the SEPA program when they meet the established criteria (see Identification Process for the SEPA Program, below).

For students entering Grades 9–12, the process described on the following page will be followed to refer students to METS upon registration at the International Student Admissions Office. Assessments and intake interviews take place at the ESOL office at Rocking Horse Road Center.

1. **For students 15 years or older**, ISAO will refer students when they meet the following criteria:

   - Student is eligible for ESOL services
   - Student has an educational gap of *one or more years*. An educational gap is defined as the difference between the last grade that the student completed and the student's age-appropriate grade.

   Students who have completed Grade 9 in their country of origin are not eligible for placement in METS. The ISAO will indicate when a student meets METS criteria by checking the METS Referrals box on the Intake and Referral Form for International Students.

2. A student who is new to MCPS, was born outside of the United States, *and* has been in the U.S. for two years or less may register directly in an MCPS high school. However, if the registrar or school-based staff member verifies that the student has missed one or more years of schooling, as indicated on MCPS Form 560-24, then the student will be referred to the International Student Admissions Office (ISAO) to assist with the enrollment process.

3. All high school age international students eligible for ESOL testing are referred to the ESOL Testing Center to take the **Language Assessment System (LAS)-Links.** This state-mandated test of English language proficiency is administered to determine eligibility for English for Speakers of Other Languages (ESOL) services. The assessment consists of four subtests: Listening, Speaking, Reading, and Writing.

4. All students age 15 or older who score low beginning (LB) or high beginning (HB) on LAS-Links will take the **FAST Math** assessment in their native language. This math assessment is available in 29 languages. Students who score *below Grade 5* are eligible for METS.

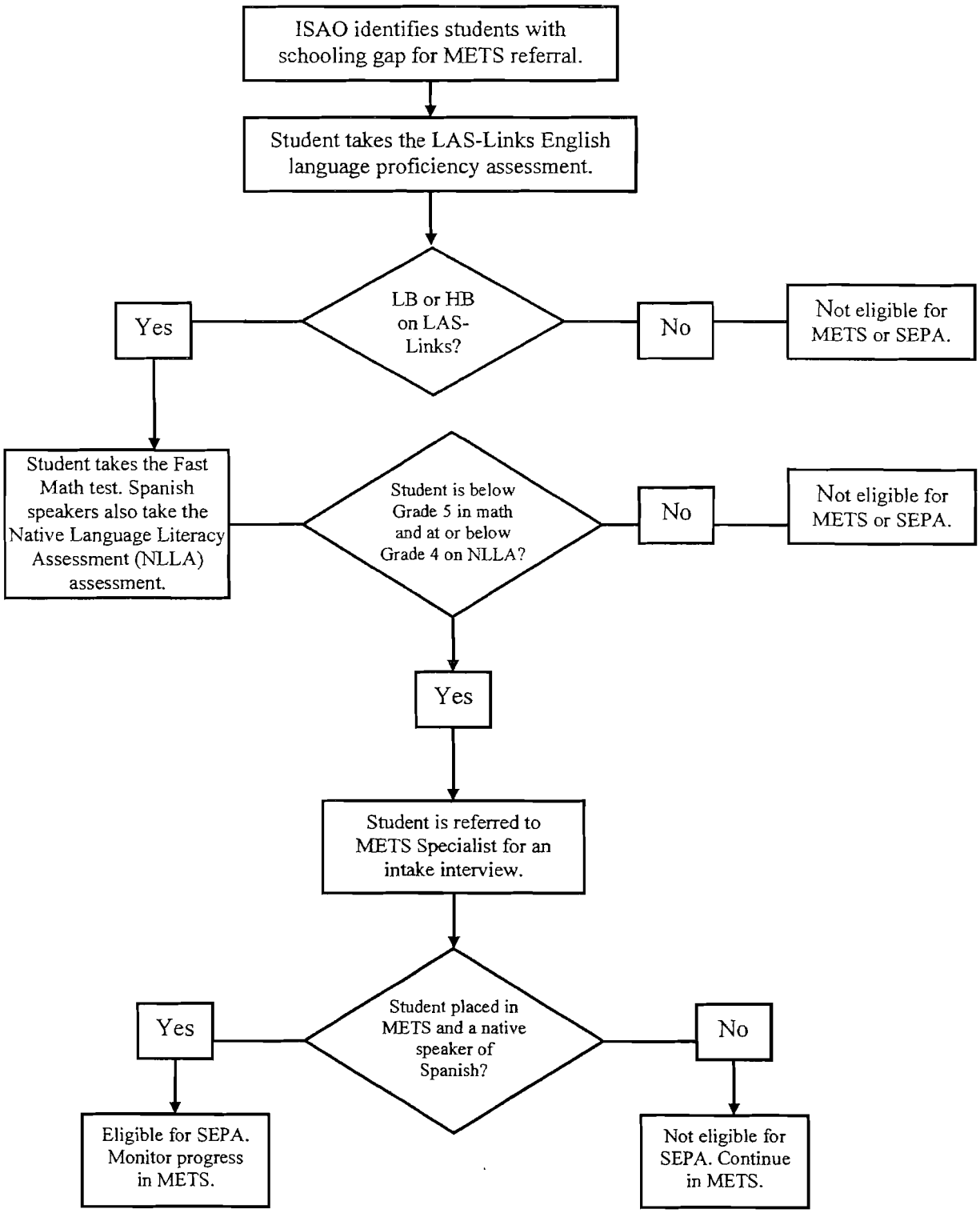
5. Spanish speaking students also take the **Native Language Literacy Assessment.** This assessment consists of two subtests: reading and writing. Students who score *at or below Grade 4* in reading comprehension are eligible for METS.

6. The ESOL Testing Center will deliver all METS pertinent data to the METS specialist. If eligible for METS, the family will complete the intake interview with the METS specialist.

7. Students who are placed in the METS program **and are native speakers of Spanish** are identified as possible candidates for the SEPA program. During the school year, these students are monitored and assessed to determine their eligibility for SEPA, as described on the following pages.

This process is illustrated on the diagram Initial Enrollment Process for METS and SEPA Programs on the next page.

Initial Enrollment Process for METS and SEPA Programs



Process for Referring Students to the SEPA Program

A high school ESOL student enrolled in a METS program who is a native speaker of Spanish and will be at least eighteen (18) years of age by June 30th of the following school year may be referred for possible placement in the SEPA Program.[1] Schools should follow the process for referring METS students to the SEPA Program outlined below:

1. In the spring, the METS/ESOL teacher or ESOL Resource Teacher initiates a SEPA Program Referral for students who meet the following eligibility criteria:
   - Student is a native speaker of Spanish
   - Student will be at least eighteen (18) years of age by June 30th of his or her first year in the SEPA program
   - The student has demonstrated limited academic progress (based on work samples and formative assessments)
   - Student demonstrates an overall beginning level of English language proficiency (LB to HB level on LAS-Links)
   - Student demonstrates reading skills below grade 3.0 in English
   - Student performs below grade 5 in mathematics
   - Student demonstrates limited reading comprehension skills in Spanish (as measured by the Brigance Reading Comprehension assessment)
   - Data indicates that the student is highly unlikely to meet MCPS graduation requirements by the age of 21.

   The SEPA Program Referral must be completed in consultation with a school-based counselor and reviewed by the student's ELL Team. *The SEPA Program Referral is included in this document.*

2. Once approved by the ELL Team, original copies of the Referral are sent to the SEPA Instructional Specialist at the ESOL Program Office with supporting data. Copies should be retained for the student's cumulative and ESOL folders.

3. Referrals are reviewed by the SEPA/METS team. The SEPA Instructional Specialist will contact the school with a list of approved SEPA candidates.

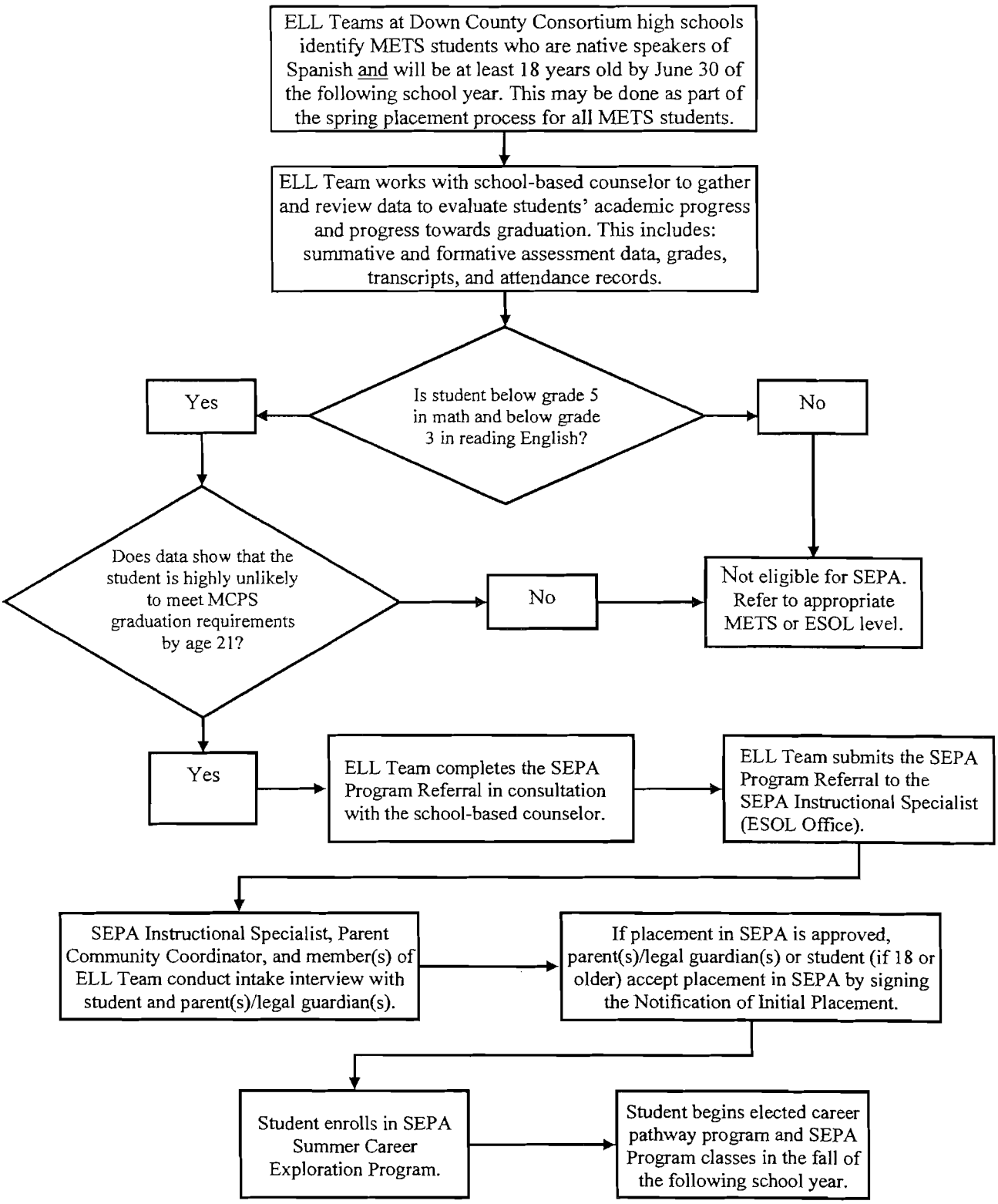
4. The SEPA Parent Community Coordinator, SEPA Instructional Specialist, and member(s) of ELL Team conduct a SEPA intake interview with each eligible student and his or parent(s)/legal guardian(s). At the interview, families are given information about the student's academic progress, graduation requirements, and the SEPA program. At the end of the interview, families decide if they will accept the student's placement in SEPA and sign the Notification of Initial Placement to indicate their decision.

5. Students accepted into the SEPA program enroll in the SEPA Summer Exploration Program. Students begin their elected career pathway program and SEPA program classes in the fall of the following school year.

The process is followed by staff at the student's home school in collaboration with the ESOL office. The Identification Process for the SEPA Program diagram on the next page illustrates the process.

[1]SEPA is currently available only to METS students who attend high school in the Down County Consortium (DCC).

Process for Referring Students to the SEPA Program



SEPA Program Referral 2008-09

Montgomery County Public Schools • Division of ESOL/Bilingual Programs

Directions

Complete the SEPA Program Referral for ESOL students who are eligible and may be recommended for placement in the Students Engaged in Pathways to Achievement (SEPA) Program. *Once the ELL Team has approved the referral in consultation with the school counselor*, send this document to the SEPA Instructional Specialist.

Part I: Identifying Information

Student's Name: First	Last (1)	Last (2)	Grade

Student ID#	MCPS Entry Date	Date of Birth	Age	Gender	Home Language

Home Address (Street address, city, zip code)	Telephone Number

Part II: Assessment Data. Include most recent data available. Attach additional information if necessary.

LAS Links English Language Proficiency Assessment Data (PL):	Speaking PL	Listening PL	Reading PL	Writing PL	Overall PL	Date of Assessment
Fast Math Assessment Data:	Score	Grade Level	Date of Assessment			
Reading Assessment Data: English	Score	Grade Level	Date of Assessment		Name of Assessment	
Reading Comprehension Assessment Data: Spanish	Score	Grade Level	Date of Assessment		Name of Assessment	

❒ Please attach a copy of student's transcript, recent grades/report card, and any other supporting data.

Part III: SEPA Eligibility Checklist. Please check (✓ or X) next to all that apply.

	Is the student a native speaker of Spanish?
	Will student be 18 years of age or older by June 30, 2009?
	Is the student reading below a Grade 3 level in English?
	Is the student's reading comprehension at or below a Grade 3 level in Spanish?
	Is the student performing below Grade 5 in math?
	Does data indicate the student is highly unlikely to meet MCPS graduation requirements by the age of 21?

Has the student expressed an interest in career education classes? Please list any specific career courses or fields the student has an interest in:

Part IV: Comments. Add or attach information that supports your recommendation to place the student in SEPA.

Name of Referring Teacher	Signature	School

Name of School-based Counselor	Signature	Date of Referral

DISTRIBUTION: 1) Student's Cumulative Record 2) ESOL Folder 3) SEPA Instructional Specialist

Montgomery County Public Schools
Division of English for Speakers of Other Languages/Bilingual Programs
Rocking Horse Road Center
4910 Macon Road, Room 115
Rockville, Maryland

Notification of Initial Placement in the Students Engaged in Pathways to Achievement Program

Thank you for attending this meeting about your child's eligibility to participate in the Students Engaged in Pathways to Achievement (SEPA) program. SEPA is an instructional program designed specifically for high school English for Speakers of Other Languages (ESOL) students who have interrupted or no formal schooling. The goal of SEPA is to provide students with opportunities to learn English, to develop native language literacy and communication skills, and to acquire entry-level job skills in a career field.

Your child is recommended for placement in SEPA based on the following criteria:

1) Age 18 or older before the end of the school year
2) Speaks Spanish but has limited skills in reading and writing Spanish
3) Has reading, mathematics, and basic academic skills several years below grade level compared to other high school students
4) By age 21, will be unable to meet Montgomery County Public Schools and Maryland State Department of Education graduation requirements due to large gaps in his or her formal education.

The SEPA program offers students ESOL classes that focus on teaching English for the purpose of exploring and preparing for jobs and careers. The program also provides classes in Spanish literacy development, mathematics, and career education. In addition to the regular school year program, students in the SEPA program take free summer school classes in English and career education.

Upon successful completion of the program, students receive a Certificate of Participation in their specific career education program that indicates the specific job skills acquired. Students also will complete a work portfolio that includes a resume, examples of their work, and letters of recommendation from their instructors.

In addition to the instructional program, SEPA offers participating students and their families a broad range of bilingual support, including counseling, parent outreach, and services resulting from partnerships with community organizations. The SEPA program can assist students in planning for post-high school work and other educational opportunities.

For more information regarding the program, please contact Ms. Deborah Becker, instructional specialist, SEPA Program, Division of ESOL/Bilingual Programs, at 301-230-0670.

Please complete the back of this page to indicate your placement decision. You will receive a copy of these pages for your records.

Notification of Initial Placement in the
Students Engaged in Pathways to Achievement Program

STUDENT INFORMATION:

Last Name	First	MI	Student ID

School	Grade

Please sign your name below to show that you have—

- received this notice;
- have had the opportunity to discuss the SEPA program with a MCPS staff member;
- understand that your child may not complete MCPS and Maryland high school graduation requirements; and
- **approve of your child's placement in the SEPA program.**

Parent/Legal Guardian (or student if 18 years of age or older)	Date

Please sign your name below to show that you have—

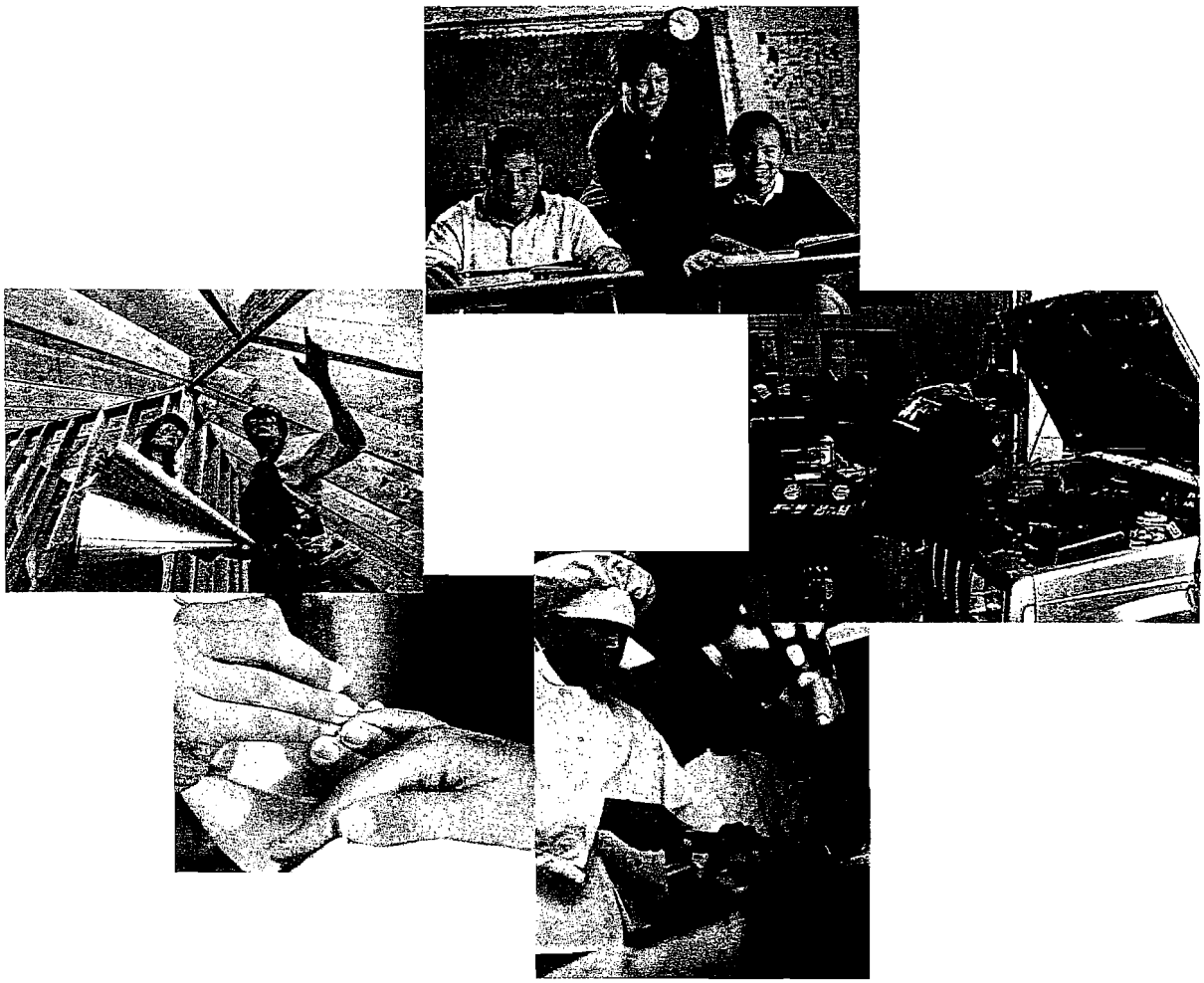
- received this notice;
- have had the opportunity to discuss the SEPA program with a MCPS staff member;
- understand that your child may not complete MCPS and Maryland high school graduation requirements; and
- **do not approve of your child's placement in the SEPA program.**

Parent/Legal Guardian (or student if 18 years of age or older)	Date

DISTRIBUTION: 1) Parent/Guardian 2) Student's Cumulative Record 3) SEPA Instructional Specialist

The SEPA Program: Options and Opportunities

Programa SEPA: Opciones y Oportunidades



Montgomery County Public Schools, Maryland

Montgomery County Public Schools Division of ESOL/Bilingual Programs
The SEPA Program: Options and Opportunities

Purpose

This document provides information on the **Students Engaged in Pathways to Achievement (SEPA)** program for Montgomery County Public Schools (MCPS) students and families.

What is SEPA?

SEPA is an acronym for the Students Engaged in Pathways to Achievement program. SEPA is a career-based instructional program for Spanish-speaking high school ESOL students who have experienced interrupted or limited formal education. To be eligible for the SEPA program, students must be at least eighteen (18) years of age by the end of the school year.

Due to significant gaps in their schooling, SEPA students begin high school with academic skills that are several years below their grade level. For this reason, SEPA students are not likely to meet Montgomery County Public Schools graduation requirements by age 21. The SEPA program provides an alternative instructional pathway that allows students to continue their education while preparing for the world of work in the United States.

SEPA students take specialized classes to develop career skills, learn English and math, and improve reading, writing, and academic skills. SEPA students also receive a wide range of support such as small class sizes, native language literacy development, summer programs, bilingual classroom support, bilingual counseling, and assistance with student fees required at the Thomas Edison High School of Technology.

In this document, you will find information about:

The SEPA Instructional Program

Year 1: 2008-2009 Courses for First Year SEPA Students

Summer Program 2008

In year one, SEPA students attend a free, four–week summer program at the Thomas Edison High School of Technology. Classes introduce students to four different career areas. At the end of the program, students choose the career program they wish to study during the school year.

Schedule

Monday – Friday, 8:15 a.m.–1:00 p.m. Breakfast and lunch are provided.

Classes

Week 1: Restaurant Management
Week 2: Automotive Technology
Week 3: Nail Technology
Week 4: Construction

2008-2009 School Year: Courses for First Year SEPA Students

SEPA students are enrolled in the following courses during their first year in the program.

ESOL (1-2 class periods)	In the SEPA ESOL course, students learn English through a career exploration curriculum. For example, students learn to: ▪ Describe their goals, interests, abilities, and experiences ▪ Research careers and jobs ▪ Communicate in English in school and at work Students will take a double period ESOL class if the schedule permits.
Spanish Literacy for Native Speakers	SEPA Spanish Literacy for Native Speakers class is for Spanish speakers who need to develop reading, writing, and vocabulary in their native language.[1]
Math	Students take an assigned math class at their home school.
Career Program (3 class periods)	Students enroll in one of the following career programs at the Thomas Edison High School of Technology*: ▪ Nail Technology ▪ Construction ▪ Restaurant Management ▪ Automotive Technology *Spaces may be limited in some classes. Transportation is provided between the students' home school and Thomas Edison High School.

[1] Research suggests that native language literacy helps students better develop and read English (Rivera, 1988).

Year 2: 2008-2009 Courses for Second Year SEPA Students

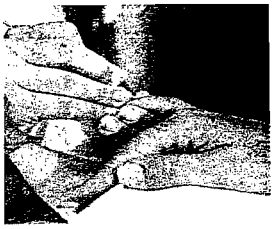
Summer Program 2008

After completing their first year in the SEPA program, students are able to apply for a summer work-based internship experience. The internship allows students to gain real work experience while working with a supervising adult professional. Most internships are part-time. Students may also enroll in Regional Summer School ESOL classes at Wheaton High School.

2008-2009 School Year: Courses for Second Year Students

SEPA students are enrolled in the following courses during their second year in the program.

CWE: Cooperative Work Experience	In the CWE course, students learn skills for researching, finding, and being successful in a job. For example, students learn: ▪ How to develop a plan to find a job ▪ How to prepare for and participate in a job interview ▪ How to communicate effectively with co-workers	
ESOL	In the SEPA ESOL course, SEPA students extend skills learned in the previous year as they continue to learn English for career development and practice language skills related to topics covered in their CWE class.	
Math	Students take an assigned math class at their home school.	
Career Program (3 class periods)	Students continue classes in a career program at Thomas Edison High School of Technology.	In the second semester, students may participate in an On-the-Job Training (OJT) experience as part of their career program.
Software Applications Management	In the Software Applications Management course, students learn basic use of computers, online resources, and computer programs, including Microsoft Word, PowerPoint, and Excel.	



SEPA Career Program Pathway: Nail Technology
2008- 2009

Guided Research in Nail Technology A/B

This is an alternative course for first year SEPA students who participate in the Nail Technology program. SEPA students are not eligible to take the Maryland State Board Nail Technician exam in their first year.

SEPA students may be graded on adjusted course outcomes.

↓

Nail Technology A/B

Nail Technology A/B prepares students for the Maryland State Board Nail Technician exam. A SEPA student may enroll in this course after successfully completing their first year if:

- The student has a recommendation by the teacher to enroll and
- The student has a valid Social Security Number

↓

On-the-Job Training (CWE OJT)

Students gain experience in a job setting. Positions are paid or unpaid. For paid positions, students must be eligible to work and provide appropriate documentation.

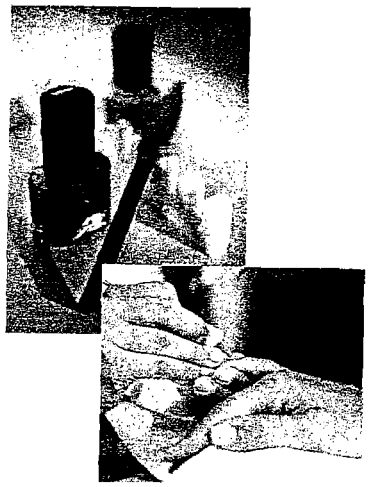
↓

Program Outcomes

- The student creates a professional portfolio with a resume and work samples.
- The student earns Certificate of Participation in the Nail Technology Program and a list of skills learned.
- The student gains Program Completer status if he or she earns 4.0 or more course credits in the career area.
- Licensed students are eligible to work as a Nail Technician.
- Non-licensed students are eligible to work as a Salon Receptionist/Cashier or Nail Technician Assistant.

Nail Technology

Topics and Skills Taught in the Program



- Basic manicure
- Pedicure
- Advanced nail technology
- Salon management
- Interpersonal skills
- Oral / written communication
- Related theory
- Bacteriology
- Sanitation
- Skin / nail diseases / disorders
- Anatomy and physiology
- Comprehensive instructional support
- Freehand nail design
- Airbrush nail design
- Acrylic nail technology
- Tips with acrylic and nail wraps
- Gel nail applications
- Electric filing
- Aromatherapy
- Memorize and use vocabulary related to the field, including anatomy and physiology words
- Fine motor skills needed for intricate applications of chemicals to the nails
- Ability to safely handle chemicals that could burn upon contact
- Social skills required for working with other students and communication with clients

SEPA Career Program Pathway: Professional Restaurant Management
2008- 2009

Restaurant Management 1A (semester 1)
Restaurant Management 1B (semester 2)

Students must pass the written **ServSafe Certification exam** in English or Spanish in Restaurant Management 1A.

SEPA students may be graded on adjusted course outcomes.

↓

Optional Course Repeater

To extend skills learned, SEPA students may repeat the Restaurant Management course in their second year, if space is available.

Second year course code: **5394/5395 RESRCH HOSP A/B**

↓

On-the-Job Training (CWE OJT)

Students gain experience in a job setting. Positions are paid or unpaid. For paid positions, students must be eligible to work and provide appropriate documentation.

↓

Program Outcomes

- The student earns National Restaurant Association Educational Foundation (NRAEF) ServSafe Certification for food training and safety.
- The student creates a professional portfolio with a resume.
- The student earns a Certificate of Participation in the Professional Restaurant Management Program with a list of skills learned.
- The student gains Program Completer status if he or she earns 4.0 or more course credits in the career area.
- The student may be ready for entry-level positions in the culinary arts field.

Professional Restaurant Management

Topics and Skills Taught in the Program

- Operate a small restaurant (Cafe Edison) bakery, snack bar, and catering service within a school facility
- Describe several job opportunities in the hospitality industry
- Use safety and sanitation principles, which are required for safe food handling
- Identify the principles involved in the prevention of food-borne illness
- Use and care of commercial food service equipment
- Display evidence of acquired self-development and work attitudes compatible to obtaining and maintaining a job
- Develop menus
- Develop fine motor skills necessary for measurement, use of kitchen equipment and cooking techniques
- Learn to work with others in kitchen production
- Use basic math skills including fractions needed to cut recipes

Examples of Job Opportunities Related to the Program

- Bussing
- Dishwashing
- Restaurant host or cashier
- Restaurant server
- Prep cook or line cook
- Catering assistant
- Baker's assistant/cake decorator
- Banquet set-up assistant

SEPA Career Program Pathway: Construction
2008- 2009

Foundations in Building and Construction Technologies
(1 semester: 1.5 credits)
Course may be repeated if necessary.

Student selects one specialization area:

Plumbing
(2 semesters)

Masonry
(2 semesters)

Carpentry
(2 semesters)

Course Continuation

Students continue or repeat coursework in the Construction program to extend learning.

On-the-Job Training (OJT)

Students gain experience in a job setting. For paid positions, students must be eligible to work and provide appropriate documentation.

Program Outcomes

A student who successfully completes course work and exams:

- Is entered on the National Center for Construction Education and Research (NCCER) registry. The registry lists the competencies and skills that the student has successfully demonstrated.
- Earns a Certificate of Participation in the Construction Program.
- Completes a professional resume.
- Receives a competency profile and list of employability skills learned in the program.
- Gains Program Completer status if he or she earns 4.0 or more course credits in the career area.
- May be prepared to work in one or more of the following areas: construction, building, and remodeling; home-improvement retail/sales; construction supplies merchandising; or military.

SEPA students may be graded on adjusted outcomes if recommended by the instructor and ELL team.

Construction

Topics and Skills Taught in the Program

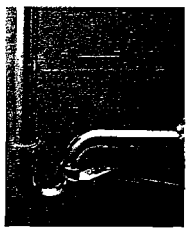
Foundations of Building and Construction Technology (Core Curriculum)

- Basic Safety
- Introduction to Construction Math
- Introduction to Hand Tools
- Introduction to Power Tools
- Basic rigging
- Basic Communication Skills
- Basic Employability Skills

Masonry

- Introduction to Masonry
- Masonry Tools and Equipment
- Measurements, Drawings, and Specifications
- Mortar
- Masonry Units and Installation Techniques

Plumbing



- Introduction to the Plumbing Profession
- Plumbing Safety
- Plumbing Tools
- Introduction to Plumbing Math
- Introduction to Plumbing Drawings
- Plastic Pipe and Fittings
- Cast-Iron Pipe and Fittings
- Carbon Steel Pipe and Fittings
- Corrugated Stainless Steel Tubing
- Fixtures and Faucets
- Introduction to Drain, Waste, and Vent (DWV) Systems
- Introduction to Waster Distribution Systems

Carpentry

- Orientation to the Trade
- Building Materials, Fasteners, and Adhesives
- Hand and Power Tools
- Reading Plans and Elevations
- Floor Systems
- Wall and Ceiling Framing
- Roof Framing
- Introduction to Concrete, Reinforcing Materials, and Forms
- Windows and Exterior Doors
- Basic Stair layout

SEPA Career Program Pathway: Automotive Technology
2008- 2009

Foundations of Automotive Technology

1 year, 3.0 credits
Students may repeat the course if necessary.

Course Continuation

Students continue or repeat coursework in the Transportation program to extend learning.

On-the-Job Training (OJT)

Students gain experience in a job setting. For paid positions, students must be eligible to work and provide appropriate documentation.

Program Outcomes

A student who successfully completes course work and exams:

- Earns a Certificate of Participation in the Transportation Program.
- Completes a professional resume.
- Receives a competency profile and list of employability skills learned in the program.
- Gains Program Completer status if he or she earns 4.0 or more course credits in the career area.
- Will be prepared to work in one or more of the following areas: porter, detailer, body repair apprentice, paint prep/polisher, apprentice painter, body repair technician, collision estimator, or parts clerk.

Students may be graded on adjusted outcomes if recommended by the ELL Team.

Foundations in Automotive Technology

Topics and Skills Taught in the Program

Students will learn how to:

- Properly use tools & equipment
- Lab/Shop Safety
- Detail vehicles
- Apply and sand body filler
- Repair body panels
- Replace body panels
- Prep and paint vehicles
- Perform preventative maintenance and service fluids

Students will also learn to:

- Put forth a positive attitude toward work and professionalism
- Function effectively in a working team of ideologically and culturally diverse persons
- Think logically, decisively and effectively solve problems pertaining to automotive repair
- Demonstrate competence in the use of tools related to automotive repair

Students should:

- Want to work on cars
- Have a positive work ethic
- Have standard work skills - report on time, turn work in completed, etc.
- Be able to follow multi-step directions
- Be willing to get dirty
- Be willing to do a lot of physical labor and stand on their feet for 2 or more hours
- Have good gross and fine motor skills to handle tools

Examples of Job Opportunities Related to the Program

- Parts clerk
- Porter
- Detailer
- Body repair apprentice
- Paint prep/polisher
- Apprentice painter
- Body repair technician
- Collision estimator

FAQs: Frequently Asked Questions

1. **Can I graduate from high school?**
2. **If I do not graduate, can I still get a high school diploma? Can I go to college?**
3. **What do I need to know and do in order to pass the GED?**
4. **How will the SEPA program help me plan for my future?**
5. **What are my options if I choose not to participate in SEPA?**

1. Can I graduate from high school?

MCPS students must meet the following four types of requirements in order to graduate and earn a diploma from MCPS:

- Course Credits: Students must earn a total of 22 total course credits. The MCPS document "Graduation Requirements for Secondary Schools" lists the specific courses that students must pass.
- Student Service Learning: Students must earn service-learning hours by participating in volunteer service. The number of hours that are required varies depending on when the student enrolls in MCPS.
- High School Assessment Exams (HSAs): The student must pass all state exams in Algebra, Government (NSL), Biology, and English 10. The exams are given in English.

Students may stay enrolled in an MCPS high school until they are 21 years old. They have until this time to meet graduation requirements.

For more information about graduation requirements, please see the document "Graduation Requirements for Secondary Schools," available in English, Spanish, and other languages.

2. **If I do not graduate, can I still get a high school diploma? Can I go to college?**

   Some students do not graduate from high school. They may obtain a Maryland high school diploma by passing the General Education Development (GED) Tests.

   If a student passes the GED Tests, he or she can earn a high school diploma. Individuals are able to take the GED Tests in Maryland when they meet all of the following criteria:

   - Are at least 16 years old.
   - Are not high school graduates and have been officially withdrawn from high school for 3 months or more.
   - Have been a Maryland resident for at least 3 months.
   - Have a Maryland Motor Vehicle Identification Card, License or Learners Permit or an active military ID.
   - Have a valid Social Security number or can show they applied for a Social Security number.
   - Have attained a minimal score in content areas related to writing skills, social studies, science, literature and the arts, and mathematics.

These criteria are set by the state of Maryland. *Criteria may be different for other states or in the District of Columbia.* Montgomery College and other adult education institutions offer GED preparation classes. The school Counselor and/or Parent Community Coordinator can assist students in finding more information about GED preparation classes.

If you do not have a high school diploma, you can take non-credit classes at Montgomery College if you meet requirements for admission.

3. **What do I need to know and be able to do in order to pass the GED?**

   - Proficiency in English. You may request to take the GED in Spanish. However, in addition to the tests in Spanish, examinees must also take the Language Arts/Writing Skills Test in English. The Writing Skills Test consists of both an essay and multiple-choice questions.
   - Reading skills. You should be able to read at a 9th grade level to pass the GED.
   - Writing skills. You need to write an essay.
   - Knowledge of math, science and social studies.

4. **How will the SEPA program help me plan for my future?**

The SEPA program helps students develop skills for life and work. In the SEPA program students will:

- Improve their ability to speak, understand, read, and write English.
- Improve their Spanish literacy and oral communication skills.
- Continue their studies in mathematics.
- Develop an understanding of how to find and be successful in a job in the U.S.
- Learn skills for a career field.
- Develop a professional portfolio that includes work samples, a Certificate of Participation in the program, a resume, and a list of competencies learned.
- Learn to set goals for work and education.
- Interact with English-speaking classmates.
- Interact with adult professionals in different career areas.

The SEPA program can also assist eligible students with learning about work-study internships/training and post-high school opportunities.

5. **What are my options if I choose not to participate in SEPA?**

- Students are referred to SEPA only when the program is highly recommended by the school's ELL Team and other ESOL staff members. If a student's parent or legal guardian chooses to declines this recommendation and decides not to enroll in the SEPA Program, the parent/legal guardian should contact the school's Parent Community Coordinator or the ESOL Resource Teacher.
- If the student is not in the SEPA program, he or she will stay enrolled at the assigned home school. The student will continue to take ESOL and other classes.
- If a student withdraws from the SEPA program, the student will be withdrawn from classes at Thomas Edison High School of Technology unless the student applies and is accepted for a position at the school. Admission to Thomas Edison High School is by application only. Students must apply through their school counseling office.
- Students that have been identified as eligible for SEPA should understand that they may not meet MCPS graduation requirements.

APPENDIX K
School Counseling Services Student Survey Results
Source: MCPS School Counseling Services

Middle School School Counseling Services Survey - 2006-2007 Composite

Counseling Activity	Strongly agree		Agree		Disagree		Strongly Disagree	
	#	%	#	%	#	%	#	%
Access to my counselor								
I talk with my school counselor (Freq - never)	308	7%	1201	26%	2284	50%	814	18%
When needed, I can meet with my counselor	1366	30%	2560	55%	485	10%	217	5%
If needed, I am willing to meet with my school counselor	1380	30%	2369	52%	558	12%	285	6%
Scheduling, academic advising, four year plan								
Y:N - I have met with my school counselor for scheduling/academic advising/4-year plan revision	3323 (Yes)	72%	1297 (No)	28%				
My counselor understood my concerns	1283	37%	1702	49%	358	10%	143	4%
My counselor helped me think about my concerns	1116	32%	1642	47%	497	14%	211	6%
My counselor helped me resolve my concerns	1040	30%	1627	47%	548	16%	242	7%
College/career counseling								
Y:N My conselor has introdced me to this topic	3033 (Yes)	71%	1249 (No)	29%				
	Career Day/Fair		Classroom Lesson		Career Speaker		Other	
How was this done?	907	19%	1790	38%	839	18%	1190	25%

High School School Counseling Services Survey - 2006-2007 Composite

Counseling Activity	Strongly agree		Agree		Disagree		Strongly Disagree	
	#	%	#	%	#	%	#	%
Access to my counselor								
I talk with my school counselor (Freq - never)	457	9%	1937	38%	1915	37%	826	16%
When needed, I can meet with my counselor	1793	35%	2721	53%	419	8%	161	3%
If needed, I am willing to meet with my school counselor	1929	38%	2697	53%	358	7%	146%	3%
Scheduling, cademic advising, four year plan								
Y:N I have met with my school counselor for scheduling/academic advising/4-year plan revision	3799 (Yes)	74%	1325 (No)	26%				
My counselor understood my concerns	1542	37%	2273	55%	249	6%	72	2%
My counselor helped me think about my concerns	1519	37%	2209	54%	325	8%	59	1%
My counselor helped me resolve my concerns	1355	33%	2280	55%	393	10%	85	2%
College/career counseling								
Y:N I have met with my school counselor for college/career counseling	2435 (Yes)	48%	2614 (No)	52%				
My counselor understood my concerns	1045	36%	1623	55%	222	8%	47	2%
My counselor helped me think about my concerns	1036	36%	1573	54%	245	8%	50	2%
My counselor helped me resolve my concerns	931	32%	1594	55%	298	10%	67	2%

Appendix L
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