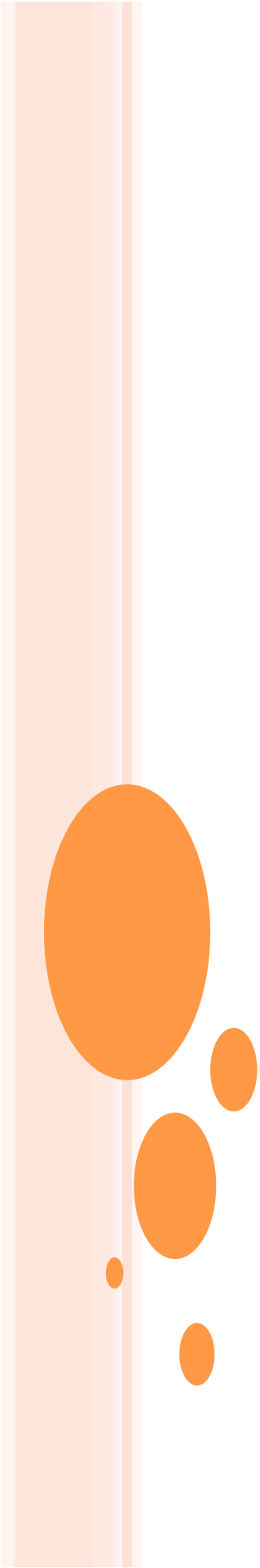


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**UPDATED EXPENDITURE
ANALYSIS AND
SUMMARY OF
PROPOSED EPS MODEL
FOR CAREER AND
TECHNICAL EDUCATION**

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**Updated Expenditure Analysis
and
Summary of Proposed EPS Model for Career and
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Updated Expenditure Analysis and Summary of Proposed EPS Model for Career and Technical Education

Background on CTE Programs

Approximately 8,200 individual students participated in 374 different CTE programs during the 2008 – 2009 school year. Table 1 displays the number of students enrolled in CTE statewide compared to the total number of students in eleventh and twelfth grade since 2001 – 2002. The proportion of eleventh and twelfth graders participating in CTE has varied from 26% to almost 30% over that time. The 374 programs cover 72 different *Classification of Instructional Program (CIP)* codes. Programs were offered through 19 centers and eight regions. Additional CTE programs are also offered at satellite high schools that are affiliated with the centers and regions. A large proportion of these programs are Cooperative Education programs. The total expenditure of the school administrative units for CTE in 2008 – 2009 was \$42.5 million.

Table 1. Career and Technical Education Enrollment Trend

Year	CTE Enrollment	Enrollment in Grades 11 and 12	Percentage of Secondary Students Participating in CTE
2001 - 2002	7,949	28,223	28.2%
2002 - 2003	8,697	29,212	29.8%
2003 - 2004	8,702	29,657	29.3%
2004 - 2005	8,051	29,711	27.1%
2005 - 2006	8,622	29,683	29.0%
2006 - 2007	8,055	30,069	26.8%
2007 - 2008	8,102	29,792	27.2%
2008 - 2009	8,261	31,777	26.0%

Expenditure Analysis

Each center and region is required to report detailed financial data within the MEDMS financial reporting system. This process began with the 2007 – 2008 school year and allows for a detailed examination of CTE expenditures. MEPRI examined the 2007 – 2008 and 2008 – 2009 expenditure data to gain an understanding of how regions and centers are spending dollars and to what degree spending varies among them. The following three questions guided these analyses:

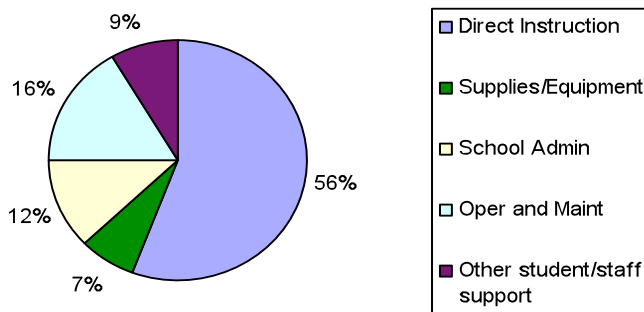
1. What proportion of expenditures were spent on instruction (teachers, ed techs), supplies and equipment, operation and maintenance, school administration, and student and staff support services?
2. How much was spent per-pupil and how does that vary across schools?
3. How much was spent per program and how does that vary across and within programs?

Twenty-five schools were included in the following expenditure analyses. The data include two-years of financial data for 22 schools and one year of data for three schools that have not yet submitted their 2008 – 2009 expenditures. One region has not submitted expenditures to the DOE for the last two years and could not be included in these analyses. The second school, a center, was excluded due to its small size. With fewer than five students per program, the expenditures per-pupil represent outliers in the data. The analyses include expenditures from state, local, and Federal Perkins funds.

What proportion of expenditures were spent on instruction (teachers, ed techs), supplies and equipment, operation and maintenance, school administration, and student and staff support services?

Figure 1 displays the proportion of the 2007 – 2008 and 2008 – 2009 total expenditures reported in each of the five categories. The majority of total expenditures are for instruction (56%), followed by operation and maintenance (16%) and school administration (12%).

Figure 1. Proportion of Expenditures by Category



How much was spent per-pupil and how does that vary across schools?

Table 2 displays the range of two-year average school-level per-pupil expenditures. There is a wide range in per-pupil expenditures across schools. For example, total per-pupil expenditures range from a minimum of \$3,387 to a maximum of \$11,118. Caution should be taken when interpreting this as per-pupil expenditures can be influenced both by school size (small schools will often have very high per-pupil amounts) and accounting practices. For example, accounting practices related to the allocation of certain expenses to the centers that are connected or within a regular high school building may differ from school to school.

Table 2. Range in Per-Pupil Expenditures by Category

	Minimum*	Maximum	Median	Mean
Total Per-Pupil	\$3,387	\$11,118	\$5,493	\$5,891
Direct Instruction	\$1,968	\$6,918	\$2,974	\$3,273
Supplies and Equipment	\$149	\$1,147	\$434	\$456
Student/Staff Support	\$0	\$1,334	\$362	\$485
Operation/Maintenance	\$0	\$2,408	\$847	\$912
School Administration	\$340	\$2,282	\$678	\$784

* One center did not report any operation and maintenance expenditures and one center did not report any student/staff support expenditures. These were not the same centers.

How much is spent per program and how does that vary across and within programs?

To answer this question, programs were divided into 16 broad categories. (Please see the appendix for the programs included in each category.) Only programs with expenditures and associated student counts are included in this analysis. Some programs, such as multi-disciplinary programs (99.4000) or tech labs (99.3000) do not have corresponding student counts in the reporting system and therefore, an accurate per-pupil expense could not be calculated.

Table 3 displays the range of two-year average program-level expenditures across and within programs. Forestry programs, on average, operate at the highest expense per-pupil (\$5,671) and Protective Services programs operate at the lowest expense per-pupil (\$2,445). Within each program, however, there are a wide range of expenditures. For example, Communications programs range from \$877 per-pupil to \$13,851.

Table 3. Two-Year Average Program Expense Per-Pupil

Range by Broad Program Category	Programs	Mean Expense Per-Pupil	Minimum Expense Per-Pupil	Maximum Expense Per-Pupil	Median Expense Per-Pupil
Forestry	5	\$5,671	\$4,592	\$7,652	\$5,107
Other	19	\$5,567	\$451	\$19,464	\$4,349
Business	25	\$5,189	\$932	\$19,499	\$3,883
Special Needs	11	\$5,163	\$2,002	\$10,136	\$4,681
Agriculture	9	\$4,483	\$1,749	\$9,928	\$2,925
Communications	22	\$4,366	\$877	\$13,851	\$3,613
Computers	17	\$4,223	\$1,909	\$9,831	\$3,592
Machine Tool	11	\$4,192	\$1,857	\$7,423	\$3,672
Building Trades	36	\$3,889	\$1,378	\$9,031	\$3,618
Drafting	13	\$3,871	\$1,321	\$5,998	\$3,733
Culinary	18	\$3,232	\$1,855	\$4,971	\$3,163
Auto Trades	42	\$3,590	\$1,610	\$8,168	\$3,348
Welding	12	\$3,559	\$2,308	\$4,891	\$3,471
Health Occupations	23	\$3,523	\$1,377	\$5,861	\$3,633
Childcare*	17	\$3,362	\$1,286	\$29,148	\$3,415
Protective Services	10	\$2,445	\$1,414	\$3,169	\$2,441

Recommended EPS Model for CTE

MEPRI worked with an advisory group on CTE funding throughout 2006 and 2007. This work resulted in the development of a preliminary model based on the following six categories: direct instruction, operation and maintenance, school administration, supplies, equipment, and student and staff support. The equipment category was the only category that had not been developed at the conclusion of the working group. A recommended model, excluding a recommendation for equipment, was presented to the Education Committee in 2007. At the request of the Committee MEPRI submitted an additional report in 2009 that provided a detailed summary of the reported equipment needs and current inventory of CTE schools. That report also included a recommendation for incorporating equipment within the EPS model.

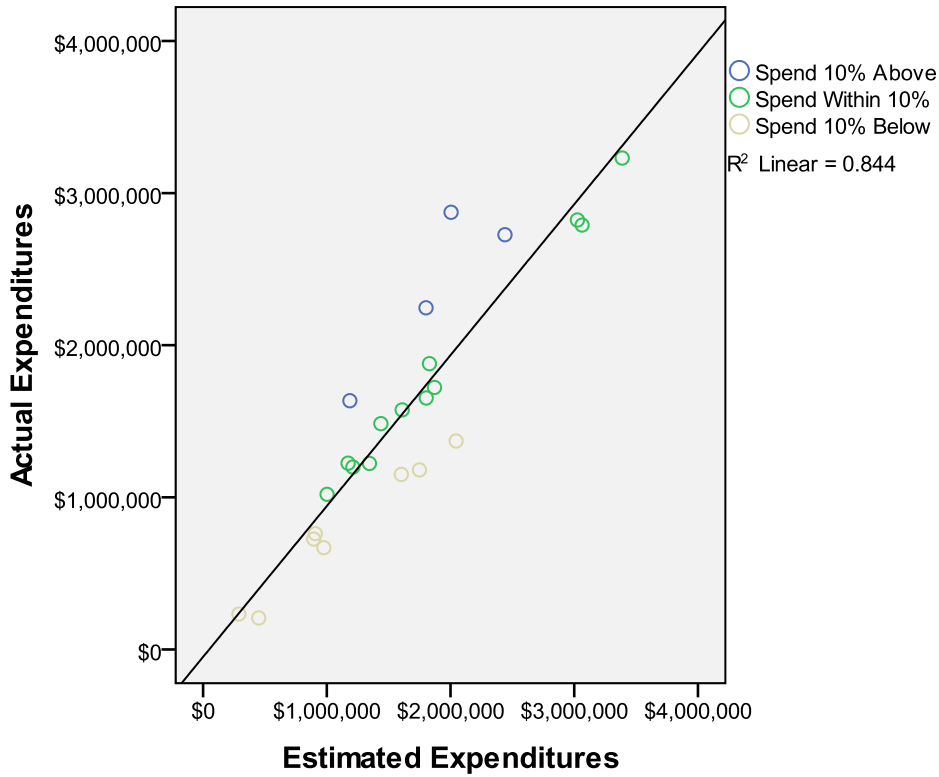
Table 4 displays a brief description of the parameters included in the proposed model. The equipment parameters are still preliminary as they were included in the recommendations in MEPRI’s June 2009 report to the Education Committee but have not formally been presented to the Committee. MEPRI will present that information to the Committee upon request.

Table 4. Parameters Included in Recommended CTE EPS Model

Direct Instruction*	Allocated number of teachers and ed techs dependent on program enrollment
	Use of CTE specific salary matrix for determining allocation
Supplies*	Per-program allocation dependent on program type
	Incremental per-student allocation
School Administration	One director per school
	One assistant director per school with over 350 students
	One business manager position per region
	Clerical allocation at 245:1 ratio
	Additional 16% for other administrative expenses
Operation and Maintenance	\$5.49 per square foot
Student Staff Support*	One guidance counselor (or student services position) per 250 students
	\$35 per student for technology
	\$40 per student for safety
	\$37 per student for co-curricular activities
	\$19 per student for professional development
Equipment**	Per-program amount
<p>* The details of the generation of these parameters appear in: Maine Education Policy Research Institute (2007). Preliminary Report: Development of a funding model for Career and Technical Education. Orono, Maine: Author. http://www2.umaine.edu/mepri/sites/default/files/ctereport0907.pdf</p>	
<p>** The details of the generation of the preliminary allocation method can be found in : Allen, D. (2009). Funding for career and technical education. http://www2.umaine.edu/mepri/. The amounts used for the comparative analysis are preliminary, the final per-program amounts are yet to be determined.</p>	

An estimated allocation using the model with 2008 – 2009 staffing and student data was compared to the actual 2008 – 2009 expenditures by school. The relationship between the estimated allocations and the actual expenditures is presented in Figure 2. Of those schools for which 2008 – 2009 expenditure data were available, four schools spent at least 10% above the model estimates, twelve spent within 10%, and eight spent at least 10% below the estimates. The model explains approximately 84% of expenditures.

Figure 2. Relationship between Model and Expenditures 2008 - 2009



The model is estimated to cost approximately 6% above the current level of expenditures. This is a preliminary estimate due to the fact that MEPRI has not received the completed 2008 – 2009 actual expenditures for four regions. Table 5 displays the comparison between the estimated allocation and the actual expenditures.

Table 5. Estimated Cost of Recommended EPS Model for Career and Technical Education

	Actual	Model Estimate	Dollar Difference	Percentage Difference
2009 - 2009 Report State/Local Expenditures for Reported CTE Centers and Regions	\$34,729,503	\$37,091,770	\$2,362,267	7%
2008 - 2009 Reporting Satellites*	\$712,394	\$743,298	\$30,904	4%
2008 - 2009 Estimated for Non-Reporting Schools***	\$7,104,873	\$7,459,808	\$354,934	5%
Total	\$42,546,770	\$45,294,876	\$2,748,105	6%

* Twelve units reported satellite expenditures.

** Three regions have not fully reported their 08 - 09 expenditures. These reflect 07 - 08 expenditures inflated to 08 - 09 dollars. One region did not fully report either 07 - 08 or 08 - 09 expenditures so their estimate is based on 06 - 07 expenditures inflated to 08 - 09 dollars.

APPENDIX: PROGRAM CATEGORIES

Program Category	CIP Code	Program
Agriculture	1.0000	Agriculture, Agriculture Operations, and Related S
	1.0205	Agricultural Mechanics and Equipment/Machine Techn
	1.0304	Crop Production
	1.0601	Applied Horticulture/Horticulture Operations, Gene
	3.0201	Natural Resources Management and Policy
Forestry	3.0511	Forest Technology/Technician
Communications	10.0202	Radio and Television Broadcasting Technology/Techn
	10.0301	Graphic Communications, General
	10.0303	Prepress/Desktop Publishing and Digital Imaging De
	10.0305	Graphic and Printing Equipment Operator, General P
	50.0402	Commercial and Advertising Art
	50.0409	Graphic Design
	50.0602	Cinematography and Film/Video Production
Culinary	12.0505	Food Preparation/Professional Cooking/Kitchen Assi
	12.0503	Culinary Arts/Chef Training
Computers	11.0103	Information Technology
	11.0801	Web Page, Digital/Multimedia and Information Resou
	47.0104	Computer Installation and Repair Technology/Techni
Drafting	15.0000	Engineering Technologies/Technicians
	15.0613	Manufacturing Technology/Technician
	15.1301	Drafting and Design Technology/Technician, General
	15.1303	Architectural Drafting and Architectural CAD/CADD
	15.1302	CAD/CADD Drafting and/or Design Technology/Technic
	14.1801	Materials Engineering
Childcare	19.0709	Child Care Provider/Assistant
Building Trades	46.0000	Construction Trades
	46.0101	Mason/Masonry
	46.0201	Carpentry/Carpenter
	46.0302	Electrician
	46.0503	Plumbing Technology/Plumber
	47.0101	Electrical/Electronics Equipment Installation and Construction/Heavy Equipment/Earthmoving
	49.0202	Equipment
Auto Tech	47.0302	Heavy Equipment Maintenance Technology/Technician
	47.0603	Autobody/Collision and Repair Technology/Technicia Automobile/Automotive Mechanics
	47.0604	Technology/Technic
	47.0606	Small Engine Mechanics and Repair Technology/Techn
	47.0616	Marine Maintenance/Fitter and Ship Repair Technolo
	48.0508	Welding Technology/Welder
Health Occupations	51.0000	Health Professions and Related Clinical Sciences
	51.0703	Health Unit Coordinator/Ward Clerk
	51.1614	Nurse/Nursing Assistant/Aide and Patient Care Assi

	51.2602	Home Health Aide/Home Attendant
	51.0710	Medical Office Assistant/Specialist
Business	52.0201	Business Administration and Management, General
	52.0302	Accounting Technology/Technician and Bookkeeping
	52.0399	Accounting and Related Services, Other
	52.0401	Administrative Assistant and Secretarial Science,
	52.0407	Business/Office Automation/Technology/Data Entry
	52.0408	General Office Occupations and Clerical Services
	52.0701	Entrepreneurship/Entrepreneurial Studies
	52.0803	Banking and Financial Support Services
	52.1801	Sales, Distribution, and Marketing Operations, Gen
	52.1803	Retailing and Retail Operations
Protective Services	43.0000	Security and Protective Services
	43.0107	Criminal Justice/Police Science
Machine Tool	48.0501	Machine Tool Technology/Machinist
	48.0506	Sheet Metal Technology/Sheetworking
Special Ed	99.7000	Vocational Special Needs
Other	31.0301	Parks, Recreation and Leisure Facilities Managemen
	32.0105	Job-Seeking/Changing Skills
	41.0101	Biology Technician/Biotechnology Laboratory Techni
	49.0205	Truck and Bus Driver/Commercial Vehicle Operation
	50.0101	Visual and Performing Arts, General
	99.1000	Cooperative Education
	99.3001	Tech Lab/Intro to Technology
	99.4000	Applied Academics
	32.0107	Career Exploration/Awareness Skills