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Analysis of the Essential Programs and Services Systemwide Cost Components: System Administration Operations and Maintenance

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Analysis of the Essential Programs and Services Systemwide
Cost Components
System Administration
Operations and Maintenance

Report to the
Maine Department of Education
And
Joint Standing committee on Education and Cultural Affairs
Maine State Legislature

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Analysis of Essential Programs and Services Systemwide Cost Components

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Beginning in FY2006 Maine implemented a new K-12 school funding formula. Historically Maine's formula had been what is called an expenditure-driven formula. In essence, the cost of K-12 education was defined as whatever was expended in K-12 education. The new funding formula, called Essential Program and Services (EPS), was designed to be an adequacy-based formula. In essence, in the new formula the cost of K-12 education was whatever it should cost to meet a pre-determined standard. For Maine the standard was all children having equitable opportunities to achieve the Learning Results.

To determine these costs, a State Board of Education established task force reviewed multiple sources of evidence, received information from many experts, and then established the cost for different components of the EPS formula. These costs were approved by the Maine State Legislature for implementation in FY2006. At the same time the Legislature approved a statutory process for a three year review of each component of the formula. This report presents the evidence from the second scheduled review of two district-wide EPS components: (1) System Administration, and (2) Operations and Maintenance of school district physical plants.

In the original work of the EPS task force, the members concluded that the actual expenditures for these two systemwide EPS components were adequate. Thus, they set the cost of the two components to be actual expenditures. Accordingly, expenditures for these two components have been inflated each year using a CPI, and these cost figures have been used in establishing yearly EPS allocations.

As required by the statute, the System Administration and Operations and Maintenance EPS components were reviewed and updated in 2007-08. But these cost figures were revised as part of the school district reorganization law. The system administration EPS cost component was reduced to one-half, and the operations and maintenance component was reduced by 5%.

This review provides an updated analysis of the cost of these two systemwide components, using the same methodology used in the 2007-08 review. Furthermore, because of the changes in Maine's financial system, this review provides additional information not available in the earlier review.

A. System Administration

In FY2010, Maine school districts spent approximately \$66.4 million on system administration offices and operations. School districts statewide received system administration revenues of approximately \$3.9 million, for a net expenditure statewide of \$62.5 million. Revenue sources, for example, included purchase refunds, sales of school items or equipment, and revenue for administrative services provided to other local governmental units. Table 1 and Figure 1 report how and what percent of these total expenditures were spent on different categories of costs. A breakdown of expenditures by program and function appears in Appendix A.

As shown in the table and figure, approximately 65% of the total system administration expenditures were for personnel salaries and benefits. Purchased services accounted for another 27.5% of expenditures. Debt service statewide was less than one-quarter of one percent.

Table 1
2010 System Administration by Category

Category	Amount	Percentage
Salaries, Wages and Stipends	\$34,000,578	51 %
Employee Benefits	\$9,219,770	14%
<i>Purchased Services</i>		
Assessment for Administration	\$4,422,155	7%
Legal	\$2,490,098	4%
Insurance	\$1,365,388	2%
Other Purchased Services	\$9,916,730	15%
Supplies and Equipment	\$1,465,714	2%
Property	\$763,408	1%
Other	\$2,575,247	4%
Debt Service	\$156,303	0.2%
Total	\$66,375,392	100%

Figure 1: System Administration Expenditure Percent by Category

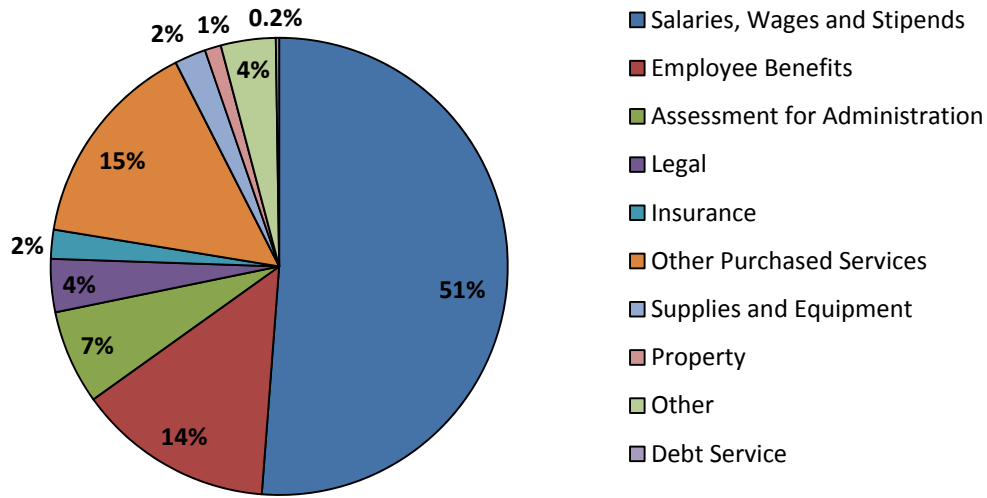


Table 2 reports system administration expenditures by percent below or above the EPS rate. For FY2010, the EPS Allocation rate was \$210 per pupil. As shown in the table, 95% of

**Table 2
System Administration Expenditures by Percentage Above or Below EPS Rate**

EPS Profile	# of SAUs	% of SAUs	Total K-12 Enrollment	% Total Enrollment	Avg. K-12 Enrollment	Avg. Per Pupil Amount	Per Pupil Amount Range
At or below EPS Rate	8	5%	17,050	10%	2,131	\$132	\$8-\$202
EPS Rate						\$210	
0-10% above	7	4%	12,676	7%	1,811	\$219	\$212-\$230
10%-20% above	7	4%	15,867	9%	2,267	\$237	\$231-\$241
20%-50% above	20	13%	46,731	27%	2,337	\$277	\$255-\$312
50%-100% above	38	24%	52,230	30%	1,374	\$367	\$316-\$420
100%-200% above	53	34%	29,506	17%	557	\$590	\$421-\$829
Over 200% above	25	16%	2,085	1%	83	\$1,528	\$902-\$4,505

the school districts included in this analysis had per pupil expenditures for system administration above the EPS allocation rate. Approximately three-quarters of the school districts had expenditures 50% or more higher than the EPS allocation, and these districts enrolled approximately one-half (48%), of the total K-12 students.

Table 3 reports FY2010 system administration expenditures by school district size. The data indicates that as the size of the school district increases, the per pupil costs decrease. This is also true for expenditures relative to the \$210 EPS allocation rate. In both cases, the relationship appears to be linear; that is, as district size increases, per pupil expenditures decrease and expenditures relative to the EPS rate decreases. However, the evidence in the last column, the Percent of EPS Rate Range, indicates there is considerable variance in per pupil system administration expenditures among any school district size group.

Table 3
System Administration Per Pupil Expenditures by SAU Size

SAU Size (Students)	Number of SAUs	Total Number of Students	Avg. Size	Avg. Per Pupil Amount	Per Pupil Amt Range	Avg. % of EPS Rate	% of EPS Rate Range
0-300	59	6,448	109	\$998	\$228 -\$4,505	475%	109% -2145%
300-1,000	36	21,824	606	\$417	\$8 -\$769	198%	4% -366%
1,000-3,000	49	95,313	1,945	\$317	\$62 -\$579	151%	29% -276%
Over 3,000	14	52,560	3,754	\$271	\$186 -\$469	129%	89% -223%

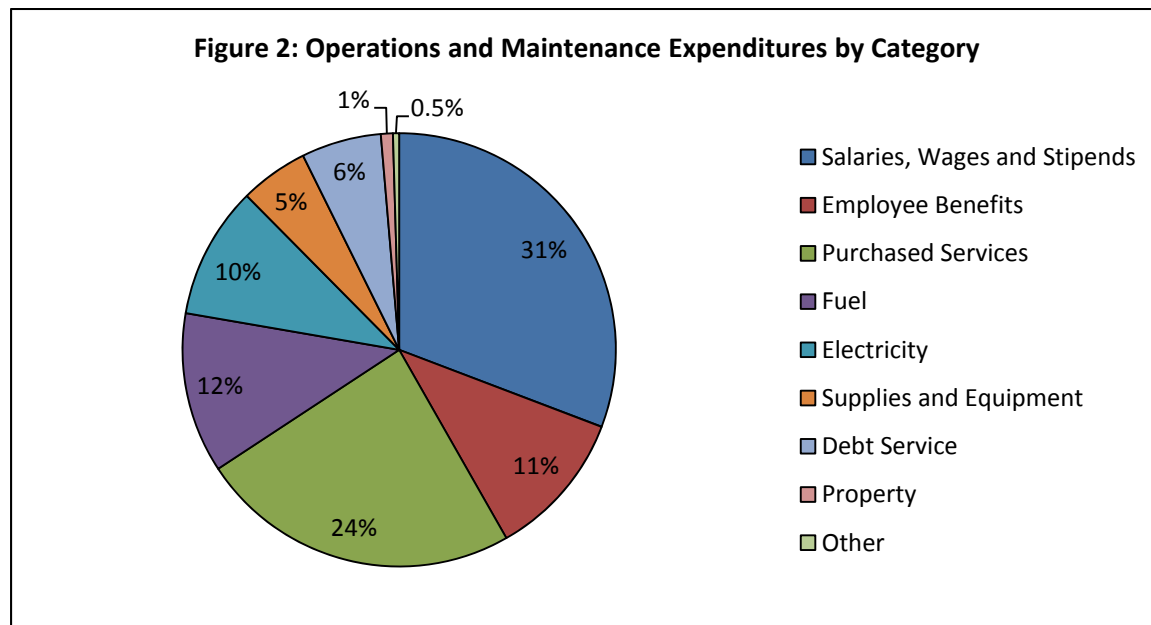
In summary, the EPS 2010 allocation rate for system administration was \$210 per pupil. Most school districts exceeded this allocation rate. The per pupil system administration rates are related to school district size, but there is considerable difference in per pupil expenditures even within each district size grouping.

B. Maintenance and Operations

In FY2010 school districts spent approximately \$233 million for operations and maintenance. Table 4 and Figure 2 on the next page provide a breakdown of these expenditures by different categories of costs. A breakdown of expenditures by program and function appears in Appendix B. The data indicates approximately 42% of expenditures were for salaries and benefits of personnel. Approximately one-fifth (22%) of expenditures were for fuel and electricity, and another one-quarter of expenditures were for purchased services. Purchased services include expenditures for utility services, repairs and maintenance, insurance, cleaning services, and telephone, etc.

Table 4
2010 Operation and Maintenance by Categories

Description	Sum	Percentage
Salaries, Wages and Stipends	\$71,661,939	31%
Employee Benefits	\$25,549,135	11%
Purchased Services	\$55,833,095	24%
Fuel	\$27,868,293	12%
Electricity	\$22,964,217	10%
Supplies and Equipment	\$11,865,487	5%
Debt Service	\$13,879,481	6%
Property	\$2,079,341	1%
Other	\$1,082,724	0.5%
Total	\$232,783,714	100%



Tables 5 and 6 on the next page report per pupil operation and maintenance expenditures relative to the FY2010 EPS allocation rates. EPS includes two operation and maintenance allocation rates; (1) K-8 = \$962 per pupil; and (2) 9-12 = \$1143 per pupil. In the case of K-8 per pupil expenditures, the data in Table 5 indicates 83% of school districts spent more than the K-8 allocation. For those school districts with expenditures below the EPS allocation, their aggregated enrollment is approximately 23% of the total K-8 enrollment and their per pupil

expenditures were equivalent to approximately 90% of the EPS allocation rate. School districts spending 50% or more above the EPS rate represent 30% of the total SAUs, and only approximately 12% of the total K-8 enrollment.

Table 5: K-8 Operation and Maintenance Expenditures by Percentage Above or Below EPS Rate

EPS Profile	# of SAUs	% of SAUs	Total K-8 Enrollment	% Total Enrollment	Average K-8 Enrollment	Per Pupil Cost	Range Per Pupil Cost
At or below EPS Rate	26	17%	28,264	23%	859	\$868	\$673-\$962
EPS Rate						\$962	
0-10% above	17	11%	10,233	8%	602	\$1,030	\$980-\$1,058
10%-20% above	19	12%	26,011	21%	1,369	\$1,114	\$1,068-\$1,154
20%-50% above	48	31%	43,501	36%	906	\$1,296	\$1,156-\$1,429
50%-100% above	24	15%	9,132	7%	381	\$1,555	\$1,447-\$1,914
100%-200% above	18	12%	4,853	4%	270	\$2,611	\$1,934-\$3,611
Over 200% above	4	3%	84	1%	21	\$4,179	\$3,929-\$5,375

At the secondary level, 21% of the school districts, which represent 33% of the high school enrollments, are spending below the 2010 EPS allocation rate for operations and maintenance; approximately 86% of the EPS allocation rate. In contrast, 30% of the school districts are spending 50% or more above the EPS allocation, and these school districts also represent approximately 12% of the total 9-12 enrollments.

**Table 6
9-12 SAU Operation and Maintenance Expenditures by Percentages Above and Below EPS Rate**

	# of SAUs	% of SAUs	Total 9-12 Enrollment	% of Total Enrollment	Avg. 9-12 Enrollment	Per Pupil Cost	Range Per Pupil Cost
At or below EPS Rate	22	21%	17,556	33%	798	\$982	\$43-\$1,140
EPS Rate						\$1,143	
0-10% above	7	7%	6,660	12%	951	\$1,197	\$1,144-\$1,250
10%-20% above	19	18%	11,659	22%	614	\$1,315	\$1,262-\$1,370
20%-50% above	25	24%	11,059	21%	442	\$1,513	\$1,374-\$1,677
50%-100% above	17	16%	4,906	9%	289	\$2,008	\$1,717-\$2,269
Over 100% above	15	14%	2,227	3%	148	\$3,058	\$2,291-\$3,985

Tables 7 and 8 provide per pupil operation and maintenance expenditures by school district size. As is the case for system administration per pupil expenditures, as district size increases, per pupil expenditures decrease, both at the K-8 and 9-12 levels. But also like system administration expenditures, there are considerable differences in per pupil expenditures among school districts within each enrollment category.

Table 7
K-8 Operations and Maintenance Per Pupil Expenditures by School District Size

SAU Size (K-8 Students)	Number of SAUs	Total Number of Students	Avg. Size	Avg. Per Pupil Amount	Per Pupil Amount Range	Avg. % of EPS Rate	% of EPS Rate Range
0-300	66	7,430	113	\$1,737	\$673-\$5,375	181%	70%-559%
300-1,000	42	26,750	637	\$1,252	\$709-\$2,938	130%	74%-305%
1,000-3,000	46	79,673	1,732	\$1,204	\$773-\$3,203	125%	80%-333%
Over 3,000	2	8,225	4,113	\$1,040	\$794-\$1,286	108%	83%-134%

Table 8
9-12 Operations and Maintenance Per Pupil Expenditures by School District Size

SAU Size (9-12 Students)	Number of SAUs	Total Number of Students	Avg. Size	Avg. Per Pupil Amount	Per Pupil Amount Range	Avg. % of EPS Rate	% of EPS Rate Range
0-300	42	6,545	156	\$2,074	\$43-\$3,985	187%	4%-359%
300-1,000	50	31,569	631	\$1,356	\$708-\$3,424	122%	64%-308%
1,000-3,000	13	15,953	1,227	\$1,158	\$640-\$1,518	104%	58%-137%

An additional analysis of operations and maintenance expenditures was undertaken for this 2011 review. That is, square footage costs. One potential reason why per pupil operations and maintenance costs may be higher for smaller school districts is fixed costs. For example, heating costs may not vary much whether one is heating the same building for 100 or 200 pupils, However, the per pupil expenditures for the 100 pupils enrollment size building will be higher.

Thus, a square footage cost was calculated using the 2010 expenditure data. This was not possible for the 2008 review of this EPS component, and even in this current review, considerable caution must be used in interpreting the findings. This is the case because there is no comprehensive and verified accurate data of square footage for each school district. The

Maine Department of Education is in the process of developing standard statewide definitions and procedures for measuring square footage and is collecting new building inventory data.

The per square footage is only slightly less predictive (84%), and the 50/50 model is the same as the current model.

Table 9
Relationship between Expenditures and Models (All SAUs)

Model	Per Pupil Expenditures	A Per Pupil Model	B Per Square Foot Model	C 50/50 Model
Per Pupil Expenditures	1.00			
A. Per Pupil Expenditures	.933	1.00		
B. Per Square Foot	.919	.959	1.00	
C. 50/50	.936	.990	.990	1.00

To explore these relationships further, the same three models and correlations were calculated for smaller school districts; that is, school districts with fewer than 1,200 pupils. These results appear in Table 10. In this case, the per square foot model is slightly better than the current model (78% vs. 72% accuracy). And the most accurate model for correlating with

Table 10
Relationship between Expenditures and Models (SAUs With Fewer Than 1,200 Students)

Model	Per Pupil Expenditures	A Per Pupil Model	B Per Square Foot Model	C 50/50 Model
Per Pupil Expenditures	1.00			
A. Per Pupil Expenditures	.851	1.00		
B. Per Square Foot	.885	.741	1.00	
C. 50/50	.908	.914	.950	1.00

actual expenditures is the 50/50 model, where the accuracy is approximately 82%. However, this accuracy level is still below the accuracy levels of each of the models when using all statewide school district data.

In summary, analysis of FY2010 operations and maintenance expenditures indicated approximately 80% or more of school districts were spending above the EPS allocation rate. The

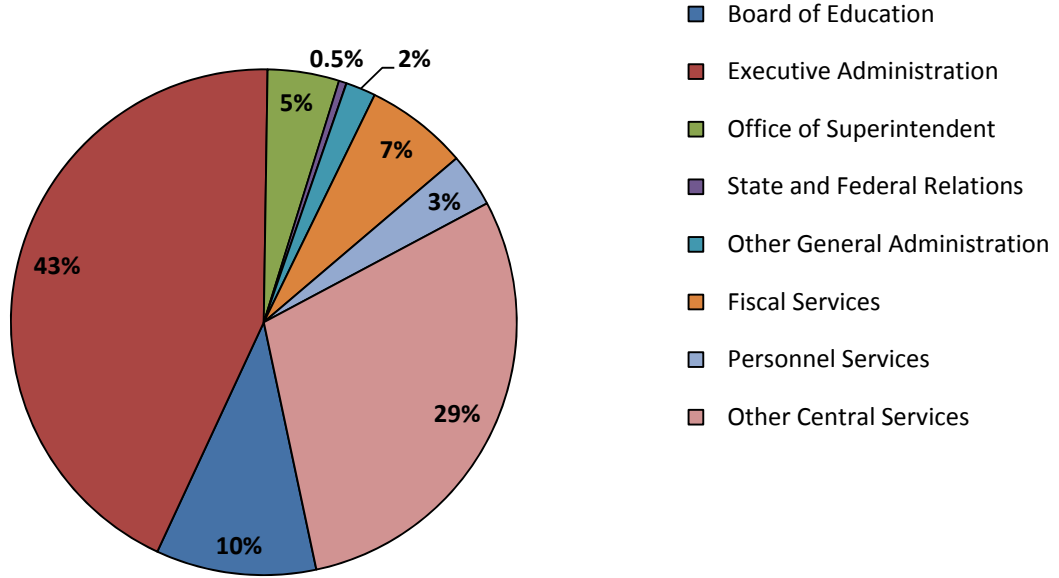
expenditure rates varied by school district size, with larger districts reporting lower per pupil operations and maintenance expenditures. But there still was considerable variation of expenditure levels within school district size groupings. Analysis based on per square foot expenditures did not yield a better model overall for correlating with actual expenditures, although it was slightly better in the case of school districts with fewer than 1,200 pupils. However, because of data issues, implementing a per square footage model or combination model of pupils and square footage is not recommended at this time. If and when more accurate square footage may be obtained and verified for accuracy in the future, the square footage model should be reconsidered.

Appendix A

2010 System Administration Expenditures by Program and Function

Amount by Program		
Description	Amount	Percentage
Overhead	\$66,375,392	99.9%
Career and Technical Education	\$70,162	0.1%
	\$66,445,554	100%
<i>Less Miscellaneous Revenues</i>	<i>(\$3,980,376)</i>	
Total	\$62,465,178	
Amount by Function		
Description	Amount	Percentage
<i>General Administration</i>		
Board of Education	\$6,801,349	10%
Executive Administration	\$28,754,701	43%
Office of Superintendent	\$3,034,970	5%
State and Federal Relations	\$325,733	0.5%
Other General Administration	\$1,277,609	2%
<i>General Central Services</i>		
Fiscal Services	\$4,353,017	7%
Personnel Services	\$2,276,465	3%
Other Central Services	\$19,551,549	29%
Total	\$66,375,392	100%

System Administration Expenditure Percents by Function

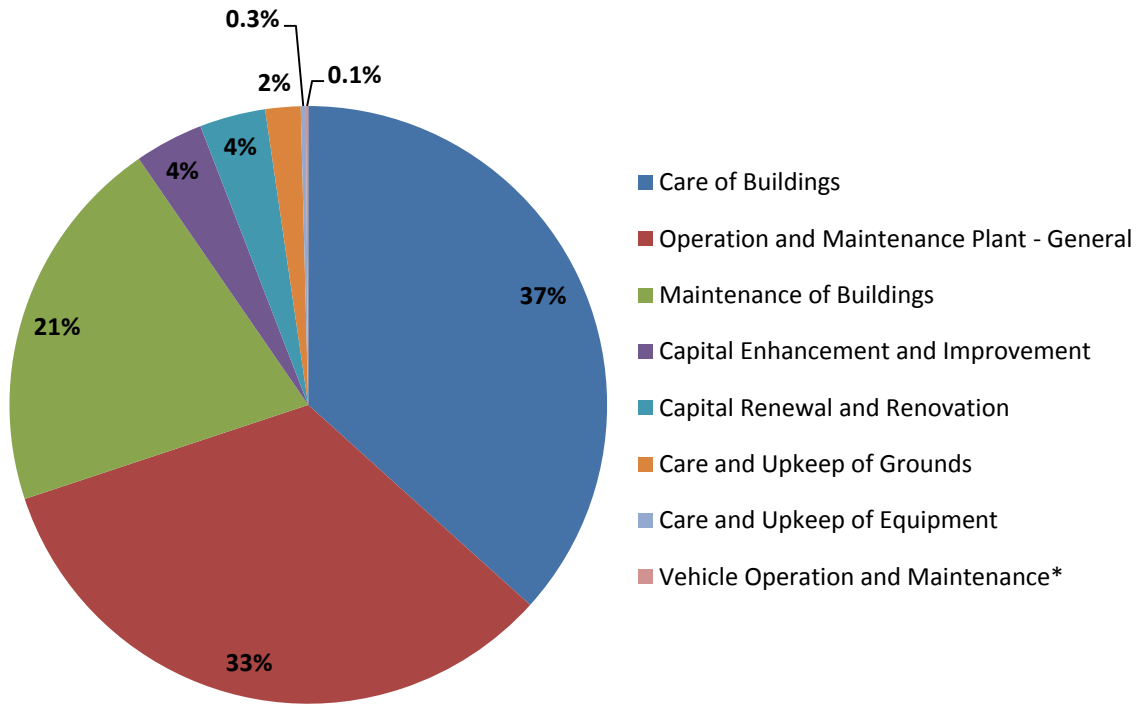


Appendix B

2010 Operations and Maintenance Expenditures by Program and Function

Amount by Program		
Description	Amount	Percentage
Overhead	\$232,774,810	98%
Career and Technical Education	\$4,163,954	2%
Adult Education	\$350	0.0001%
Community Services	\$70,321	0.03%
Co-Curricular and Extra-Curricular Programs	\$8,904	0.004%
Total	\$237,018,339	100%
Amount by Function		
Description	Amount	Percentage
Care of Buildings	\$85,383,168	37%
Operation and Maintenance Plant - General	\$77,336,869	33%
Maintenance of Buildings	\$47,722,535	21%
Capital Enhancement and Improvement	\$8,659,159	4%
Capital Renewal and Renovation	\$8,301,386	4%
Care and Upkeep of Grounds	\$4,451,733	2%
Care and Upkeep of Equipment	\$631,844	0.3%
Vehicle Operation and Maintenance (other than Student Transportation Vehicles)	\$297,018	0.1%
Total	\$232,783,714	100%

Operations and Maintenance Expenditure Percents by Function



*(other than Student Transportation Vehicles)