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Review of Essential Programs and Services Components:

Findings Report for Operation & Maintenance of Physical Plant

Report for the Maine Department of Education

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Analysis of Essential Programs and Services Components: Operation and Maintenance of Physical Plant

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Background

This report provides analysis of the Operation and Maintenance of Physical Plant (OMP) component within Maine's Essential Programs and Services (EPS) education cost model. The OMP allocation is a system-wide element that allocates a fixed amount of funding per pupil in all districts. The per-pupil dollar amount depends on the grade level of the student.

In the initial cost model, the per-pupil funding amounts for each of these components was set in general alignment with historical district expenditures. In other words, past spending was used as a guideline for establishing the appropriate budget allocation. In subsequent years, the initial per-pupil amount was annually inflated by a consumer price index. However, in FY 2009 the per-pupil funding amount for Facilities Operation and Maintenance was reduced by 5% and the System Administration amount was reduced by half as part of a broader policy initiative to promote school district reorganization. Since that year, the practice of annually inflating the amounts (from the revised and lower baseline amounts) was resumed. The most recent annual inflation factor (from FY2018 to FY2019) was 1.3%.

The study was conducted using expenditure data from FY2018 to analyze the amounts and patterns of spending related to educational facilities. In FY 2018, the Operation and Maintenance of Physical Plant component allocated \$1,089 per preK-8 pupil and \$1,294 per grade 9-12 pupil.

Operation and Maintenance of Physical Plant (OMP) Expenditures

The Operation and Maintenance of Physical Plant (OMP) component corresponds to the respective financial category and is intended to fund “Activities concerned with keeping the physical plant open, comfortable, and safe for use, and keeping the grounds, buildings, and equipment in effective working condition and state of repair. This includes the activities of maintaining safety in buildings, on the grounds, and in the vicinity of schools. Costs for building rental and property insurance should also be included.” (Accounting Handbook, 2018, p. 3-9).

In FY2018 the Operation and Maintenance of Physical Plant expenditure category totaled \$270.4M and accounted for 10.95% of all Maine public school expenditures. Total OMP expenditures increased 5.6% from FY2015 to FY2018; the Consumer Price Index measure of inflation also increased 5.6% in the same time frame.¹ Table 1 summarizes these expenditures by type (object code), and Appendix A details expenditures by function.

Table 1: FY2010, FY2015, and FY2018 Operation and Maintenance Expenditures by Object Code Category (in \$)

Description	FY2010	%	FY2015*	%	FY2018*	%
Salaries, wages, stipends	71,661,939	31%	72,820,358	28%	77,480,722	29%
Employee benefits	25,549,135	11%	28,466,063	11%	31,056,358	11%
Purchased services	55,833,095	24%	66,621,850	26%	78,474,745	29%
Fuel	27,868,293	12%	34,564,084	14%	23,090,948	9%
Electricity	22,964,217	10%	20,917,387	8%	21,914,968	8%
Supplies	11,865,487	5%	11,909,049	5%	12,593,187	5%
Debt Service	13,879,481	6%	15,740,877	6%	19,662,509	7%
Property & Equipment	2,079,341	1%	3,699,401	1%	3,294,418	1%
Other	1,082,724	0.5%	1,275,309	0.5%	2,872,940	1%
Total	232,783,714	100%	256,014,378	100%	270,440,796	100%

**Excludes charter schools, magnet schools, and CTEs for comparability to prior years*

¹ CPI change from June 2015 to June 2018; <https://www.bls.gov/cpi/>

Districts also generated revenues from their physical plant activities, which served to offset their expenses. Table 2 provides a summary of revenues, as well as the statewide net expenditure, for all Maine public school districts (excluding charter, magnet, and CTE schools) in FY2018.

Table 2. OMP Revenues and Net Expenditures, FY 2018

Revenue Type	FY18 Amount	% of Total Revenue
Facility Rentals	\$1,365,610	86%
Other Sales, Transfers, Refunds, and Adjustments	\$221,128	14%
Total Revenue	\$1,586,738	100%
Total Expenditures (from Table 1)	\$270,440,796	
Net Expenditures	\$268,854,058	

Expenditures on school facilities were also analyzed by district to 1) determine the spending per attending student at each grade level and 2) compare OMP spending to the EPS allocated rates. Because the EPS formula allocates separate per-pupil amounts for preK-8 and high school students, these expenditures are calculated for each grade level using the cost center information reported in the OMP expenditure data. System-wide and regional expenses (i.e. those that span grade levels or cannot be readily attributed to a specific grade level) were also calculated. Table 3 provides a summary of OMP expenditures by cost center for traditional public school districts. It also provides total and per pupil expenditures for charter schools (both brick-and-mortar buildings and virtual charter schools). Because most Maine charters are either elementary or secondary, their expenditures do not map neatly into the grade-level and system-wide categories used for traditional public schools and thus only the total spending is depicted.

Table 3. OMP Spending by Cost Center, By SAU Type

	Total Expenditure	Pupils	Per-Pupil Expenditure
Public Schools (Non-Charter)			
Elementary	\$137,799,956	123,879	\$1,112
Secondary	\$67,325,340	49,451	\$1,361
System-wide	\$65,315,500	173,330	\$377
Total	\$270,440,796	173,330	\$1,560
Public Charters	\$2,059,894	1,444	\$1,427
Virtual Public Charters	\$92,484	796	\$116

Total spending across all districts was \$1,560 per pupil. Public charters had a slightly lower spending level of \$1,427 per attending student, and virtual charters spent \$116 per pupil on physical plant operations.

Maine school districts spent \$137.8M on elementary and middle school building operation and maintenance; this equates to \$1,112 per pupil in grades pK-8. Districts spent \$67.3M on high school buildings, or \$1,361 per student in grades 9-12. Districts spent \$65.3M on system-wide operation and maintenance of physical plants in FY2018, representing 24% of the total OMP spending. On a per-pupil basis, this system overhead operations expense is \$377 per preK-12 student attending a Maine public non-charter school. Table 4 further describes the total OMP expenditures for non-charter public school districts based on the enrollment size of the district.

Table 4: Total FY2018 OMP Per-Pupil Expenditures, by Attending Enrollment

	Number of pK-12 Students Enrolled in SAU			
	1-299	300-999	1,000-2,999	3,000+
Number of SAUs	83	45	53	10
Total Number of Students	9,683	26,936	97,878	38,833
OMP Expenditure in Size Category	19,728,618	43,903,349	149,642,804	57,101,333
Overall Per-pupil OMP expenditure	\$2,037	\$1,630	\$1,529	\$1,470
Range of SAU OMP per-pupil Expenditures	\$865- \$13,944	\$756- \$2,795	\$1,008- \$2,599	\$1,138- \$1,879

**Includes \$64,693 in expenditures in six districts without attending students*

When expenditures for operations and maintenance are disaggregated by the enrollment in the district, an economy of scale effect can be seen. Per-pupil spending decreases as the size of the district increases, with large districts of 3,000 or more students spending about \$567 less per pupil than those with fewer than 300 students. There are only 10 large school districts and 83 in the smallest size category, which means that many more administrative units are operating at higher per-pupil rates. However, these smaller districts include less than 10,000 pupils, so the overall proportion of Maine students enrolled in smaller districts is low.

Since the district enrollment level has a relationship to the per-pupil expenditure, this method was continued with the next analyses. The subcategories of system-wide OMP expenses, elementary school buildings, and secondary school building costs were also disaggregated by district size (see tables 5, 6, and 7).

**Table 5: FY2018 Grade System-wide Operations and Maintenance
Expenditures per pupil, by District Enrollment Size**

	Number of pK-12 Students Enrolled in SAU			
	1-299	300-999	1,000-2,999	3,000+
Number of SAUs	83	45	53	10
Total Number of pK-12 Students	9,683	26,936	97,878	38,833
System-wide OMP Expenditure (in \$)	1,272,307	8,499,675	38,521,502	16,957,323
Overall System-wide Exp. Per Pupil	\$131	\$315	\$394	\$437
Range of per-pupil spending by SAU	\$4 - \$4,225	\$7 - \$1,247	\$9 - \$1,645	\$105-\$991

**Includes \$64,693 in expenditures in six districts without attending students*

It is noteworthy that the pattern for system-wide expenditures by enrollment size is reversed from the pattern for overall OMP spending. Smaller districts spend \$306 less per pupil on system-level operations (i.e. those infrastructures or activities that are not tied to an elementary or secondary school, or to specific grade levels within a pK-12 school). While the data do not provide any concrete explanations for this pattern, the conventional wisdom suggests

possible reasons. A large district is more likely than a small district to have dedicated district-level staff (e.g. assistant superintendents, HR, curriculum coordinators, etc.) that need to be housed at a central non-school facility. Thus there is less need for physical infrastructure and facilities separate from the schools. Smaller districts also have fewer school buildings than large districts. They rarely have more than one elementary school, and often combine all grade levels into a single building (either K-8 or K-12). This makes it easier to assign each OMP expenditure to a specific school and grade level rather than reporting them as system-wide.

Spending for operation and maintenance for grades pK-8 was \$1,489 per pupil overall (\$1,112 elementary specific plus \$377 system-wide), or 137% of the EPS allocation of \$1,087 per grades pK-8 pupil, as shown in Table 6; 87% of all non-charter SAUs spent more per pK-8 pupil than they received through EPS.

Table 6: FY2018 Grade pK-8 Operations and Maintenance Per Pupil Expenditures, by District Enrollment Size

	Number of pK-12 Students Enrolled in SAU			
	1-299	300-999	1,000-2,999	3,000+
Number of SAUs	83	45	53	10
Total Number of pK-8 Students	8,698	19,919	68,083	27,179
Grade pK-8 OMP Expenditure (in \$)	16,280,141	22,661,646	70,323,933	28,534,236
Expenditure Per pK-8 Pupil	\$1,872	\$1,138	\$1,033	\$1,050
System-wide spending per pupil (Table 5)	\$131	\$315	\$394	\$437
Total pK-8 spending per student	\$2,003	\$1,453	\$1,427	\$1,487
Per pupil spending as a % of EPS pK-8 allocation of \$1,089	184%	133%	131%	137%

**Table 7. FY2018 School Operations and Maintenance Per Pupil Expenditures
in Grades 9-12, by Enrollment Size**

	Number of pK-12 Students Enrolled in SAU			
	1-299	300-999	1,000-2,999	3,000+
Number of SAUs	83	45	53	10
Total Number of 9-12 Students	985	7,017	29,795	11,654
Grade 9-12 OMP Expenditure (in \$)	2,176,169	12,742,028	40,797,370	11,609,773
Expenditure Per Secondary Pupil	\$2,209	\$1,816	\$1,369	\$996
System-wide spending per pupil (Table 5)	\$131	\$315	\$394	\$437
Total high school spending per student	\$2,340	\$2,131	\$1,763	\$1,433
Per pupil spending as a % of EPS 9-12 allocation of \$1,294	181%	165%	136%	111%

Spending for operation and maintenance of physical plants for grades 9-12 was \$1,738 per pupil overall (\$1,361 secondary specific plus \$377 system-wide), or 134% of the EPS allocation of \$1,294 per grades 9-12 pupil, as shown in Table 7. Over 85% of districts spent more per high school pupil than they were allocated in EPS.

The pattern of per-pupil spending on elementary and high school buildings by enrollment size mirrors that seen for total spending. Smaller districts spend \$516 more per student to operate grade K-8 schools, and \$907 more per student to operate high schools. These differences more than compensate for their lower per-pupil spending on district-level buildings and result in the higher total per-pupil spending depicted in Table 4. These findings are generally consistent with those in the last MEPRI review in 2016, which was based on FY 2015 data.

Conclusions & Policy Implications

In general, these analyses demonstrate that districts are spending well above the amount allocated by the EPS model for operation and maintenance of physical plants. Larger school districts (those with over 1,000 students) spend less on a per-pupil basis than smaller units, yet

even the most efficient still spend about 37% and 11% more than the model provides for elementary and high school students (respectively). Smaller districts spend even more per pupil and have costs that are about 80% more than provided. There is variation across SAUs, with some districts in each size range spending less than the EPS allocations. However, districts are spending above the model amount, meaning they are either raising unsubsidized local funds or drawing from other resources provided within the model to pay for their facilities. What cannot be determined from the available data is whether these higher spending levels are being used to provide better or bigger facilities than are strictly necessary for the adequate functioning of a school system. From available anecdotal reports of budget challenges and widespread deferred maintenance, this is not likely to be the case.

At the time the EPS formula was developed and implemented, the per-pupil allocation amounts for operation and maintenance of physical facilities was selected as the best method for estimating costs. An alternate model of cost-per-square-foot was also investigated but was not as good of a “fit” to actual school spending as the per-pupil model. The per-pupil amounts for each grade level were established at the spending level that was in place at the time. However, the spending pattern has shifted in the meantime; districts have been spending substantially more than EPS provides in both of the two prior reviews of OMP spending in 2010 and 2016. Spending on school buildings is comparatively fixed; it is not easy to alter square footage or utility needs, even when faced with declining student enrollments. Substantial decreases in facility spending typically happen only in the face of a major change: school construction, major renovation, or closure / consolidation.

A likely contributing factor to the change in per-pupil OMP spending is that Maine’s public school attending student population declined 5% in the 8 years between 2010 and 2018

(from 185,171 to 175,570). Over the same time period, 110 public schools closed and 56 new school buildings were opened (including 44 district schools and 12 charter school campuses). In rural areas where enrollments are decreasing, districts are educating fewer children in each school building. Because the OMP allocation is on a per-pupil basis, the lower enrollments generate less revenue per school, and the resulting allocations may not be keeping pace with facility expenses. This points to a need to evaluate whether the current EPS formula is providing adequate resources for school districts to operate their facilities, and whether the per-pupil funding method remains the best option in the current environment.

As a next step, we recommend further data collection to prepare for an analysis of the potential for a model based on facilities square-footage. In order to conduct such analysis, MEPRI will first need to identify the schools that are operating with an adequate level of resources. The expenditures in those selected districts and school sites would be used for the determination of adequate funding levels. In contrast, a district that has overcrowded or poorly maintained school buildings would be under-spending on OMP and should not be treated as a prototypical example. By the same token, a small rural school operating at only half capacity is spending more than is necessary for the cost of education, and similarly should be excluded from the sample. As a next step, MEPRI will request further information about the current administrative data that is being collected by the Department and may be used for selection criteria. If the available data are not sufficient to provide insight into the adequacy of existing spending levels, additional data may need to be collected through a survey tool.

Because that process may take time and school districts are already dedicating substantially more resources for OMP than are provided through EPS, we recommend increasing the base allocations to an intermediate level, using the most efficient (i.e. lowest-cost) enrollment

size group as a proxy for adequate spending. Namely, the \$1,433 in spending per grade 9-12 student in the largest districts (i.e. those with over 3,000 pupils) can be seen as a guideline for adequacy for high school funding. Similarly, the \$1,427 in spending per pK-8 pupil in districts with 1,000 to 2,999 students can be seen as an estimate for a minimum pK-8 allocation level. However, it is more difficult to assess whether that current spending level is adequate. There are many small elementary schools in Maine that are facing declining enrollments and are operating with less than full enrollments, so it is possible that \$1,427 per pupil is a high estimate of adequacy. Furthermore, the current policy incentives to expand public pre-K programs using available space in public school buildings may serve to increase enrollments in these schools; this, in turn, would generate more revenue even without raising the per-pupil rate. Thus we suggest consideration of an increase to \$1,300 per pK-8 pupil, a level between the current (FY20) allocation level and the target spending level from FY18 spending, as a conservative measure while additional study is underway. Table 8 below estimates the costs of a change in allocation if these suggestions were to be implemented for FY2020-21.

Table 8. Cost Estimate of Recommended OMP Allocation Increase

	Grades pK-8	Grades 9-12
FY 2020 Allocation	\$1,122	\$1,333
FY 2021 Inflated Rate (2%)	\$1,144	\$1,360
FY 2021 Recommendation	\$1,300	\$1,433
Cost Per-pupil to Increase	\$156	\$73
Estimated Pupils (FY2019)	124,067	49,436
Estimated Cost of Increase	\$19.3 M	\$3.6 M
Total	\$22.9M	

Appendix A: Operation and Maintenance of Physical Plant Expenditures* by Function

Description	Amount	Percent of Total
Expenditures by Function		
Care and Operation of Buildings	\$92,945,293	34%
Operation and Maintenance - General	\$76,093,272	28%
Maintenance of Buildings	\$61,855,952	23%
Capital Renewal and Renovation	\$18,646,943	7%
Capital Enhancement and Improvement	\$11,792,407	4%
Care and Upkeep of Grounds	\$6,511,659	2%
Security & Safety	\$1,327,119	0.5%
Care and Upkeep of Equipment	\$530,163	0.2%
Vehicle Operation and Maintenance (other than Student Transportation Vehicles)	\$320,038	0.1%
Facilities Acquisition and Construction	\$417,950	0.2%
Total Expenditures	\$270,440,796	100%

* Excludes charter and magnet schools