The 2009-10 Review of the Small School Adjustment in the Essential Programs and Services School Funding Model

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With passage of the Essential Programs and Services funding Act (2004), Maine adopted a cost-based model for identifying the cost of K-12 education. One of the components of the EPS model is a small school adjustment, and as required by statue, this component of the formula was reviewed in 2009-10.

Before describing the results of this service, some historical prospective is important. The Essential Programs and Services Task force, the task force changed with developing Maine's current funding formula, recognized the importance of a small school adjustment in Maine's formula. However, the task force did not have accurate data of school costs. Thus, the original adjustment was set at 10%. This is to say, per pupil allocations for small, isolated schools was increased by 10%.

It was apparent that this adjustment was not based on a very accurate analysis of school costs. School level expenditures were not reported by SAUs to the Maine Department of Education, only total K-8 and 9-12 expenditures. Additionally, there was no established definition of what it meant to be "isolated." Accordingly, the State Board of Education, and later, the Joint Standing Committee on Education and Cultural Affairs, requested further analyses. The first review resulted in the establishment of a new secondary school adjustment, and a definition of "isolated." The second analysis resulted in setting three elementary school adjustments. The results of these analyses were passed into law in 2006, and have been in effect beginning in FY07. A copy of the current adjustments appears in Appendix A.

In accordance with statue, these isolated small school adjustments have been reviewed in 2009-10. Expenditure data reported to the Department of Education for 2007-2008 were used for this review. Due to changes in the state financial reporting system, schools now report the majority of their expenditures by school (i.e. cost center) which allows for a more accurate measure of school costs. The new analysis paralleled the analyses done earlier, with one additional analysis. That is, costs were analyzed for small higher and lower performing schools. An additional analysis included examining costs in

terms of efficient and inefficient schools. The criteria used in identifying higher and lower performing schools were slightly more liberal than those criteria used in the 2006-07 review. The definitions used in this review were the same definitions used in conducting the 2009-10 staff ratio reviews. These criteria appear in Figure 1.

Figure 1
Criteria for Higher and Lower Performing Maine Schools

Higher Performing Schools. A school is designated as higher performing if it meets *the first four* of the following criteria in the evaluated grades, grades 4 or 8, and *all five criteria* for grade 11:

1. The average cumulative scale score on the state exams (MEA or SAT) is at least one-third of a standard deviation higher than state average,
2. The average cumulative scale score on the state exams is higher than would be predicted based on pupil characteristics and student scores in previous grades,
3. The percentage of pupils at or above the *Meets* proficiency level is higher than the state average, and
4. The percentage of pupils above the *Partially Meets* proficiency level is higher than the state average,
5. For high schools, the four-year graduation rate is higher than the state average.

Lower Performing Schools. A school is designated as lower performing if its average cumulative scale score on the state exams (MEA or SAT) is at least one-third of a standard deviation lower than state average and it fails to meet *any* of the criteria 2 through 4 above.

The results of the application of these definitions to the size categories established in the prior analysis appear in the following tables and analyses.

Tables 1 and 2 report the data for K-8 schools. Table 1 reports 2007-08 per pupil

Table 1. Expenditure Analysis: K – 8 Schools

Average Grade Size	Number of Schools			2007 - 2008 Expenditures		
	Higher-Performing	Lower-Performing	All Schools	Higher-Performing	Lower-Performing	All Schools
Less than 15	6	7	48	$7,894	$8,329	$9,271
All Sizes	14	14	97	$8,530	$8,062	$8,585

Table 2. Comparison between Original and Updated Expenditure Analyses: K – 8 Schools

Comparisons		Original Report		Updated Analysis	
		n	% Difference	n	% Difference
Higher Performing vs. Overall	Fewer than 15	3 vs. 94	12.20%	6 vs. 97	-8.05%
Overall vs. Overall	Fewer than 15	36 vs. 94	8.24%	48 vs. 97	7.99%

expenditures for schools of different sizes (defined by average grade size) and Table 2 provides the analysis of difference in expenditures. As shown in Table 2, whereas the existing adjustment for schools with fewer than 15 students per grade is 12.20%, the most recent data indicates that schools in this category are spending less than the overall per pupil expenditure ($7,894 vs $8,585), and less than lower performing schools.

Tables 3 and 4 present data for non-K-8 schools. In this case, the updated analysis

Table 3. Expenditure Analysis: Non- K-8 Schools

Average Grade Size	Number of Schools			2007 - 2008 Expenditures		
	Higher-Performing	Lower-Performing	All Schools	Higher-Performing	Lower-Performing	All Schools
Less than 15	9	4	29	$8,966	$7,839	$9,463
15 – 29	13	15	50	$7,515	$6,835	$7,227
30 – 49	17	20	64	$6,908	$6,681	$6,889
50 or more	14	20	49	$7,098	$6,851	$6,886
All Sizes	53	59	192	$7,456	$6,856	$7,364

Table 4. Comparison between Original and Updated Expenditure Analyses: Non K-8 Schools

Comparisons		Original Report		Updated Analysis	
		n	% Difference	n	% Difference
Higher Performing vs. Overall	Fewer than 15	9 vs. 181	13.40%	9 vs. 192	21.75%
	15 - 29	6 vs. 181	8.80%	13 vs. 192	2.05%
Overall vs. Overall	Fewer than 15	28 vs. 181	13.36%	29 vs. 192	28.50%
	15 - 29	45 vs. 181	0.88%	50 vs. 192	-1.86%

indicates the smallest category of schools are spending more than in earlier years (21.75% vs 13.40%) and lower performing schools are spending less than higher performing schools in this size category. In contrast, the higher performing schools in the 15-29

students per grade are spending less than in earlier years (2.05% vs 8.80%), and lower performing schools are spending less than higher performing schools in the same size category.

Tables 5-8 repeat these analyses for schools classified as more Efficient and Inefficient. The criteria used in identifying more Efficient and Inefficient schools appears in Figure 2, and these are the same criteria used in the 2009-10 staff ratio reviews.

Figure 2
Criteria for More Efficient and Inefficient Maine Schools

More Efficient Schools. A school is designated as efficient if it meets the criteria for being a higher performing school and following two criteria:

1. The school's Proficiency Return on Spending is higher than the state average; *
2. The school's Proficiency Return on Spending is higher than would be predicted based on pupil characteristics and student scores in previous grades;

Inefficient Schools. A school is designated as inefficient if it is designated a lower performing school and fails in both criteria 6 and 7 above.

* Proficiency Return on Spending is defined as the percentage of students at or above the Meets proficiency level divided by its annual per-pupil expenditure.

In the case of K-8 schools (Tables 5 and 6), More Efficient small schools are spending approximately 17.6% less than Inefficient schools.

Table 5. Expenditure and Efficiency Analysis: K – 8 Schools

Average Grade Size	Number of Schools			2007 - 2008 Expenditures		
	Efficient	Not Efficient	All Schools	Efficient	Not Efficient	All Schools
Less than 15	5	7	48	$7,071	$8,329	$9,271
All Sizes	9	14	97	$6,950	$8,062	$8,585

Table 6. Comparison between Original and Updated Expenditure Analyses: K-8 Schools

Comparisons		Original Report		Updated Analysis	
		n	% Difference	n	% Difference
Higher Performing vs. Overall	Fewer than 15	3 vs. 94	12.20%	6 vs. 97	-8.05%
Efficient vs. Overall*	Fewer than 15	N/A	N/A	5 vs. 97	-17.64%
Overall vs. Overall	Fewer than 15	36 vs. 94	8.24%	48 vs. 97	7.99%

* The original report did not include an efficiency definition.

For non-K-8 schools, (Tables 7 and 8) more Efficient schools with fewer than 15 pupils per grade were spending 5.42% more than all schools whereas more Efficient schools with between 15-29 pupils per grade were spending 13.89% less than all schools. For both pupil groupings, Inefficient schools were spending more than more Efficient schools.

Table 7. Expenditure and Efficiency Analysis: Non K-8 Schools

Average Grade Size	Number of Schools			2007 - 2008 Expenditures		
	Efficient	Not Efficient	All Schools	Efficient	Not Efficient	All Schools
Less than 15	6	4	29	$7,764	$7,839	$9,463
15 – 29	8	13	50	$6,342	$6,841	$7,227
30 – 49	17	16	64	$6,908	$6,899	$6,889
50 or more	12	13	49	$6,790	$7,150	$6,886
All Sizes	43	46	192	$6,889	$7,035	$7,365

Table 8. Comparison between Original and Updated Expenditure Analyses: Non K-8 Schools

Comparisons		Original Report		Updated Analysis	
		n	% Difference	n	% Difference
Higher Performing vs. Overall	Fewer than 15	9 vs. 181	13.40%	9 vs. 192	21.75%
	15 - 29	6 vs. 181	8.80%	13 vs. 192	2.05%
Efficient vs. Overall*	Fewer than 15	N/A	N/A	6 vs. 192	5.42%
	15 - 29	N/A	N/A	8 vs. 192	-13.89%
Overall vs. Overall	Fewer than 15	28 vs. 181	13.36%	29 vs. 192	28.50%
	15 - 29	45 vs. 181	0.88%	50 vs. 192	-1.86%

* The original report did not include an efficiency definition.

Turning to the analyses of small secondary schools, three analyses are reported. Table 9 reports student-teacher ratios like the present secondary school adjustments. The ratio is the same for high schools with fewer than 100 students, and one student less for 100-199 pupil high schools.

Table 9. Student-Teacher Ratios by Enrollment Group

Enrollment	Original Analysis	Updated Analysis: Average Teacher Ratio (06-07/07-08)*
Fewer than 100	11	11
100 - 199	13	12
200 - 349	15	14
350 - 599	15	14
600 - 849	16	15
850 or more	17	15
All Sizes	15	14

* Due to issues in distinguishing between teachers' elementary and secondary time, six K - 12 schools were not included in this analysis.

In the case of performance (Table 10) and efficiency (Table 11), the analysis indicated there was too few small higher performing or more efficient high schools to permit viable analyses. The analysis did reveal that small lower performing or inefficient high schools were spending more per pupil than all but one other size categories.

Table 10. Expenditure Analysis: Secondary Schools

Enrollment	Number of Schools			2007 - 2008 Expenditures		
	Higher-Performing	Lower-Performing	All Schools	Higher-Performing	Lower-Performing	All Schools
Less than 200	1	10	24	$10,828	$9,436	$10,474
200 - 349	1	8	24	$7,553	$8,570	$8,889
350 - 599	5	5	25	$9,117	$7,626	$8,266
600 - 849	5	5	21	$9,297	$7,821	$8,239
850 or more	2	1	22	$7,007	$9,533	$7,422
All Sizes	14	29	116	$8,891	$8,610	$8,687

Table 11. Expenditure and Efficiency Analysis: Secondary Schools

Enrollment	Number of Schools			2007 - 2008 Expenditures		
	Efficient	Not Efficient	All Schools	Efficient	Not Efficient	All Schools
Less than 200	0	9	24	-	$9,722	$10,474
200 - 349	1	7	24	$7,553	$8,741	$8,889
350 - 599	5	3	25	$9,117	$8,016	$8,266
600 - 849	3	1	21	$8,778	$9,171	$8,239
850 or more	2	1	22	$7,007	$9,533	$7,422
All Sizes	11	21	116	$8,499	$9,116	$8,687

The funding formula includes additional adjustments for island schools beyond the elementary level per pupil allocation percentages and the reduced student-teacher ratio for high schools. The additional adjustments were: (1) reimbursement for transportation costs; and (2) increases in operation and maintenance allocations. Table 12 reports the 2004 findings which led to the adjustment of 13-26%. Table 13 reports comparable data

Original Table 12 (December 2004)

	Elementary				Secondary	
	1-20 Students		21-75 Students		Fewer than 100	
	Non Islands	Islands	Non Islands	Islands	Non Islands	Islands
Average Number of Students	14	9	54	49	71	37
Number of Districts	3	5	18	3	5	3
Oper and Maint Exp Per Student*	$1,575	$1,780	$1,179	$1,488	$1,192	$1,490
% Difference Oper and Maint		13%		26%		25%

*Expenditures are from the 2001-2002 school year.

for 2007-08. One difference between the current and previous analysis is that the previous analysis was limited to district-level data while the new analysis benefits from the school-level reporting in the new financial system. As may be seen from the tables, the difference in operations and maintenance expenditures between non-island and island schools in the new analysis has increased. The new range is 22%-56%.

Table 13 (December 2007-2008)

	Elementary				Secondary	
	1-20 Students		21-75 Students		Fewer than 100	
	Non Islands	Islands	Non Islands	Islands	Non Islands	Islands
Average Number of Students	11	9	51	53	73	41
Number of Districts	5	6	45	6	9	3
Oper and Maint Exp Per Student*	$2,720	$3,325	$1,793	$2,803	$1,914	$2,065
% Difference Oper and Maint		22%		56%		8%

*Expenditures are from the 200-2008 school year.

At first blush, this data may suggest that the operations and maintenance adjustment for island schools should be increased. However, the new ranges reflect only one year of financial data. Additionally, it is unclear how these expenditures compare to those found in a variety SAUs of differing size and location. This type of analysis is scheduled to be completed in 2010-11 as part of the three-year schedule for reviewing EPS components. Thus, one option may be to maintain the current adjustment percentages for islands for one year until the larger analysis is completed.

In summary, the new analysis of expenditures in small schools suggests some differences in adjustments from the previous analysis. In the case of K-8 schools, the difference for schools with fewer than 15 students per grade changed from +12.20% to -8.05%. For non K-8 schools the difference for schools with fewer than 15 students per grade changed from +13.40% to 21.75%, and the difference for schools with 15-29 students per grade changed from 8.80% to 2.05%. In the case of high schools the teacher-student ratios changed only slightly, and for the island schools the adjustment for operations and maintenance increased substantially. Thus, some changes in the small school adjustments may be warranted.

Appendix A

Isolated Small Elementary Schools

Existing K-8 Schools:
QUALIFICATIONS:
a. Fewer than 15 students per grade level.
b. Number of school options available fewer than 5.
c. Nearest school is more than 8 miles away.
ADJUSTMENT:
a. 12.% of the weighted per pupil amount

Existing Non K-8 Schools:
QUALIFICATIONS:
a. Fewer than 29 students per grade level.
b. Number of school options available fewer than 5.
c. Nearest school is more than 8 miles away.
ADJUSTMENT:
a. Less than 15 students – 13.4% of the weighted per pupil amount.
b. 15 to 29 students – 8.8% of the weighted per pupil amount.

Isolated Small Secondary Schools

QUALIFICATIONS:
a. Fewer than 200 students per school.
b. Distance from furthest point in the district to nearest high school is at least 18.5 miles
c. Distance between the high school and nearest high school is more than 10 miles.
ADJUSTMENT:
a. Student – teacher ratio reduced to 11:1 for school with fewer than 100 students and
b. 13:1 for schools with 100-199 students.

Island Schools

QUALIFICATIONS:
a. Island operating schools
ADJUSTMENT:
a. Isolated small secondary schools student – teacher adjustment for high schools with fewer than 200 students
b. Isolated small elementary school adjustments
c. 13% - 26% adjustment to EPS operating and maintenance costs, depending upon school level and size, for islands operating schools. (Less than 20 students 13%, 21 to 75 students 26%)
d. Transportation adjustment equal to approved transportation expenditures – adjusted in EPS Transportation Allocation.