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**The 2009-10 Review of the
Staff Ratio Components in the Essential Programs and Services
School Funding Model**

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The 2009-10 Review of Staff Ratio Components of the Maine Essential Programs and Services School Funding Model

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In 2004 the *Essential Programs and Services Funding Act* was signed into Maine Law. This law established the methodology for calculating the total cost of K-12 education in Maine, and the methodology for determining the cost of each component for the funding formula. Maine's Essential Programs and Services (EPS) school funding formula is essentially a cost-based model. One of the key components in this model is recommended school staffing ratios. More specifically, the formula has established recommended staff ratios which are used to determine funding allocations for Maine's school districts. The methodology for establishing these recommended involves examining existing ratios, and deliberation by the Joint Standing Committee on Education and Cultural Affairs of the Maine State Legislature.

In accordance with Maine statute, the components of the EPS formula are subject to review on a three year cycle. One of the components reviewed in 2009-10 is the staff ratios. In Phase One of the review, the process used in establishing the original ratios has been replicated. That is to say, ratios for various staff positions were examined for three different grade configurations and two different groups of schools within these grade configurations. The three grade configurations were elementary grades (K-5), middle school grades (6-8) and high school grades (9-12), and the two groups were higher performing and lower performing schools. Phase Two involved a new review process which analyzed staff ratios for the same three grade configuration, but for two groups of schools defined as Efficient and Inefficient.

As in the original analysis, performance was defined in terms of Maine Education Assessments (MEAs) using two years of test scores. Higher and lower performance was defined in terms of performance levels above and below state averages and expected performance. Specifically, the criteria used in identifying schools appears in Figure 1 on the next page. These criteria are similar to those used in the last review (2006-07). The application of these criteria resulted in the identification of subsets of Maine schools that were higher and lower performing schools. The number of these subsets of the three different grade configurations appear in Table 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.

Table 1: Higher and Lower Performing Maine Public Schools

School Level	Schools Evaluated	Higher Performing	Range in School Size	Lower Performing	Range in School Size
High School (9-12)	109	14 (12.8%)	160-1021	27 (24.8%)	88-1035
Middle School (6-8)	93	19 (20.4%)	139-813	35 (37.6%)	85-715
Grade School (K-5)	198	55 (27.8%)	12-677	60 (30.3%)	56-872

As may be seen from the information in the table, approximately 30% of the K – 5 schools were identified as higher performing, and a similar proportion were identified as lower performing. In the case of middle and high schools, there were approximately twice as many lower performing schools as higher performing schools.

An additional finding from this review was that there were considerable ranges in school sizes for both higher and lower performing schools. There were smaller and larger higher performing schools, as well as smaller and larger lower performing schools. As in the 2006-07 review, these subsets of schools were analyzed further in terms of staff ratios. The results of this analysis appear in Tables 2 – 4. An examination of the information in these

Table 2: Grade School by Performance

	All	Higher	EPS	Lower
Teacher	13.24 (4 – 21)	13.30 (6 – 19)	17	13.78 (10 – 18)
Guidance	300.21 (57 – 731)	327.68 (85 – 731)	350	299.31 (90 – 566)
Librarian	696.81 (130 – 4335)	608.23 (198 – 1600)	800	1001.68 (151 – 4335)
Ed. Tech.	64.06 (6 – 516)	70.04 (13 – 516)	100	66.55 (16 – 290)
Media Tech	325.41 (65 – 2100)	345.92 (65 – 835)	500	321.57 (79 – 742)
Health	441.61 (105 – 1182)	485.93 (126 – 1182)	800	469.20 (161 – 1155)
Clerical	155.89 (20 – 363)	157.25 (20 – 338)	200	170.55 (66 – 363)
School Admin.	268.76 (24 – 1095)	267.42 (24 – 1065)	305	288.45 (77 – 1060)

Table 3: Middle School by Performance

	All	Higher	EPS	Lower
Teacher	13.18 (5 – 19)	13.36 (10 – 16)	16	13.06 (9 – 19)
Guidance	257.20 (94 – 924)	267.62 (156 – 401)	350	244.12 (119 – 437)
Librarian	490.45 (170 – 1930)	567.30 (235 – 1930)	800	435.48 (170 – 715)
Ed. Tech.	137.99 (5 – 924)	142.46 (39 – 448)	100	122.81 (19 – 500)
Media Tech	417.53 (137 – 941)	468.67 (183 – 934)	500	371.62 (137 – 916)
Health	525.25 (172 – 1425)	509.96 (235 – 884)	800	496.16 (284 – 715)
Clerical	172.91 (68 – 359)	192.48 (117 – 335)	200	159.57 (85 – 291)
School Admin.	249.54 (40 – 592)	262.25 (139 – 407)	305	230.42 (91 – 423)

Table 4: High School by Performance

	All	Higher	EPS	Lower
Teacher	13.76 (4 – 18)	13.53 (11 – 16)	15	13.54 (8 – 17)
Guidance	192.18 (50 – 388)	182.66 (111 – 360)	250	188.29 (88 – 326)
Librarian	593.12 (50 – 1429)	585.38 (161 – 886)	800	454.98 (127 – 1035)
Ed. Tech.	180.66 (5 – 2260)	200.60 (40 – 666)	250	159.65 (23 – 747)
Media Tech	515.82 (88 -1319)	648.04 (250 – 1021)	500	405.16 (88 – 755)
Health	736.16 (190 – 1429)	724.42 (396 – 1394)	800	587.68 (240 – 1035)
Clerical	122.95 (50 – 242)	137.74 (79 – 242)	200	115.67 (53 – 202)
School Admin.	271.80 (33 – 817)	284.92 (179 – 363)	315	240.48 (88 – 1035)

tables revealed four findings:

1. There are wide ranges in staff – student ratios in the higher performing schools. The same is true for lower performing schools.

2. The wide ranges are found for all staff position categories, and for all three grade configurations.
3. The ranges are similar for both higher and lower performing schools.
4. The current EPS ratios are all within the ranges of ratios for staff positions in higher performing schools.

Phase Two of the 2009-10 review examined staff ratios in terms of efficiency. Efficiency was defined as the relationship between proficiency performance and education spending. These criteria appear in Figure 2. The application of these criteria resulted in a

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.

profile of schools not unlike the profile of higher and lower performing schools found in Table 1, *except* there were fewer schools in each category and at each of the three grade level configurations. The new profile appears in Table 5.

Table 5: Efficient and Inefficient Maine Public Schools

School Level	Schools Evaluated	More Efficient	Range in School Size	Inefficient	Range in School Size
High School (9-12)	109	11 (10.1%)	269-1021	20 (18.3%)	88-1035
Middle School (6-8)	92	15 (16.3%)	271-813	28 (30.4%)	85-639
Grade School (K-5)	198	43 (21.9%)	53-677	46 (23.5%)	56-872

As is the case for higher and lower performing schools, the ranges in size of More Efficient and Inefficient schools are wide, indicating that efficiency is not consistently tied to one size category of schools. The subsets of More Efficient and Inefficient schools were also analyzed by the different staff ratios in the EPS formula, and these analyses appear in Tables 6-8.

Table 6: Grade School by Efficiency

	All	More Efficient	EPS	Inefficient
Teacher	13.24 (4 – 21)	13.76 (9 – 19)	17	13.68 (11 – 17)
Guidance	300.21 (57 – 731)	349.71 (85 – 731)	350	285.15 (90 – 566)
Librarian	696.81 (130 – 4335)	628.85 (219 – 1600)	800	1071.36 (151 – 4335)
Ed. Tech.	64.06 (6 – 516)	75.29 (16 – 516)	100	61.51 (16 – 232)
Media Tech	325.41 (65 – 2100)	333.76 (78 – 768)	500	311.90 (79 – 644)
Health	441.61 (105 – 1182)	504.61 (126 – 1182)	800	481.63 (161 – 1155)
Clerical	155.89 (20 – 363)	175.25 (53 – 338)	200	159.69 (66 – 363)
School Admin.	268.76 (24 – 1095)	286.23 (103 – 1065)	305	277.38 (77 – 1060)

Table 7: Middle School by Efficiency

	All	More Efficient	EPS	Inefficient
Teacher	13.18 (5 – 19)	13.88 (12 – 16)	16	12.64 (10 – 15)
Guidance	257.20 (94 – 924)	286.36 (183 – 401)	350	246.08 (119 – 437)
Librarian	490.45 (170 – 1930)	491.25 (271 – 799)	800	399.69 (170 – 639)
Ed. Tech.	137.99 (5 – 924)	126.10 (42 – 406)	100	99.66 (19 – 344)
Media Tech	417.53 (137 – 941)	502.48 (271 – 934)	500	342.28 (137 – 639)
Health	525.25 (172 – 1425)	537.91 (329 – 884)	800	489.26 (284 – 712)
Clerical	172.91 (68 – 359)	204.56 (132 – 335)	200	158.12 (85 – 291)
School Admin.	249.54 (40 – 592)	280.13 (182 – 407)	305	209.19 (91 – 291)

Table 8: High School by Efficiency

	All	More Efficient	EPS	Inefficient
Teacher	13.76 (4 – 18)	13.81 (12 – 16)	15	12.87 (8 – 16)
Guidance	192.18 (50 – 388)	169.70 (111 – 247)	250	178.73 (88 – 326)
Librarian	593.12 (50 – 1429)	608.11 (269 – 886)	800	388.85 (127 – 1035)
Ed. Tech.	180.66 (5 – 2260)	200.75 (40 – 666)	250	107.73 (22 – 211)
Media Tech	515.82 (88 -1319)	643.93 (250 – 1021)	500	336.06 (88 – 647)
Health	736.16 (190 – 1429)	658.51 (396 – 1021)	800	564.90 (240 – 1035)
Clerical	122.95 (50 – 242)	139.26 (79 – 242)	200	102.55 (53 – 168)
School Admin.	271.80 (33 – 817)	288.63 (179 – 363)	315	213.31 (88 – 389)

Key findings from these analyses and comparisons with the information found in Table are :

1. Staff – student ratios vary widely in efficient and inefficient schools.
2. In a large majority of cases (75%), the ratios in more efficient schools are higher (i.e., more students per staff member).
3. In a large majority of cases (88%), ratios are smaller (i.e., fewer students per staff member) in inefficient schools as compared to lower performing schools.
4. The current EPS ratios are within the ranges of ratios for staff positions in more efficient schools.

Summary

In summary, this review of the staff ratios in the EPS funding model by, first, replicating the process used in setting the original EPS ratios, and, second, by adding an efficiency criteria revealed wide ranges of staff ratios in Maine’s higher and lower performing schools, and efficient and inefficient schools. Furthermore, the analysis revealed that the ratios found in higher performing schools and efficient schools, were not unique and distinctly different from ratios found in lower performing schools and less efficient schools. The current EPS ratios for different staff positions are within the ranges of ratios in higher performing schools, and more efficient schools. Given this evidence, the existing EPS staff ratios appear to be appropriate for calculating EPS allocations.

Appendix A

Table 1: Grade School Ranges

Staff Position	High	EPS	Low
Teacher	10 – 21	17	11 – 19
Guidance	144 – 759	350	111 – 722
Librarian	98 – 963	800	161 – 649
Ed. Tech.	21 – 398	100	19 – 342
Media Tech.	64 – 764	500	39 – 519
Health	198 – 963	800	185 – 1159
Clerical	53 – 358	200	64 – 322
School Admin.	86 – 784	305	89 – 927

Table 2: Middle School Ranges

Staff Position	High	EPS	Low
Teacher	11 – 16	16	9 – 17
Guidance	159 – 438	350	84 – 500
Librarian	234 – 815	800	192 – 727
Ed. Tech.	51 – 514	100	26 – 612
Media Tech.	354 – 968	500	164 – 640
Health	377 – 925	800	164 – 855
Clerical	101 – 271	200	82 – 295
School Admin.	159 – 408	305	129 – 593

Table 3: High School Ranges

Staff Position	High	EPS	Low
Teacher	9 – 19	15	9 – 19
Guidance	118 – 334	250	127 – 341
Librarian	244 – 1467	800	142 – 1128
Ed. Tech.	77 – 396	250	53 – 1137
Media Tech.	100 – 1085	500	87 – 1611
Health	160 – 1467	800	219 – 1253
Clerical	80 – 387	200	51 – 184
School Admin.	80 – 489	315	109 – 564