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**Fiscal Analysis of the Report of the Select Panel on  
Revisioning Education in Maine**

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### **Background**

In late 2005 the Select Panel on Revisioning Education in Maine issued their draft report describing a series of recommendations for the improvement of student learning in Maine. The Panel, convened by the Maine State Board of Education, and pursuant to Title 20-A statutory requirements, developed their recommendations through six months of data collection and analysis, discussions and deliberations, culminating in a draft report for further discussions and debate by the Maine citizenry. In summer 2006 the Select Panel requested the Center for Education Policy, Applied Research and Evaluation (CEPARE) at the University of Southern Maine conduct a cost analysis of the Panel's recommendations. This report describes the findings from the cost analysis.

### **Methodology**

The authors of the report met several times with members of the Select Panel to establish the processes and assumptions to be used in the cost analysis. More specifically, we met with the Panel to determine: (1) the various assumptions the Panel held in formulating their recommendations; and (2), any modifications the Panel was making in their original recommendations, based on public input and further deliberations by the Select Panel. Information from these discussions with the Panel was then used by the authors of this report for establishing five year projected costs for implementing the Select Panel's revised recommendations. In the following pages, the assumptions used in the analysis are provided, along with five year projections for each recommendation. An annual inflation rate of 2.4% was used in the calculations.

**Cautionary Note.** The cost analyses for each recommendation are based on independent assumptions. That is to say, projected impacts of one recommendation on another were not factored into calculations. In all likelihood, once implemented, some recommendations would impact others, and consequently, have an impact on cost figures. Additionally, the projections are linear extrapolations and did not take into account the impacts, for instance, of base year implementations on subsequent year cost figures within each recommendation. For these reasons, and others, **extreme caution should be exercised in the use of the cost estimates.**

### **Disclaimer**

It is clear that, if implemented, these recommendations would have significant and far reaching impacts on K-12 education in Maine. However, the authors of this cost analysis report neither endorse nor oppose these recommendations. We were asked to project costs and we have done so based on the recommendations and assumptions of the Select Panel. Consequently, the information contained in this report does not necessarily reflect the positions of the authors, the positions or policies of the University of Southern Maine, nor those of the Maine Education Policy Research Institute.

### **Summary Findings**

Four Select Panel recommendations were designed to result in education cost savings. The cost analysis projections of savings over 5 years are estimated to be \$878,514,556. Nine recommendations would require additional education funds in the projected amount of \$745,094,503 over 5 years. The resulting net **savings** of implementing the Select Panel recommendations is \$133,420,053. A description of potential savings and expenditures associated with each recommendation appears in the subsequent pages of this report.

## Savings

### **Recommendation 1: SAU Consolidation**

The Select Panel draft report recommended that the number of School Administrative Units (SAUs) in Maine be reduced from approximately 286 to 35, to coincide roughly with the existing 35 Maine Senate Districts. Testimony received by the Select Panel indicated that while many believe it to be beneficial to reduce the number of SAUs, reducing the number to 35 SAUs may not be feasible. Consequently, the Panel revised their recommendation by targeting SAUs to have enrollments between 3,000 and 4,000 students, excluding currently larger SAUs, which would result in the reduction of the existing number of SAUs to approximately 65 SAUs.

**Methodology.** An analysis of current enrollments indicated that SAUs with between 3,000 and 4,000 students had lower central office per-pupil expenditures than smaller SAUs and SAUs in metropolitan areas. Current central office expenditures for existing SAUs of size 3,000 to 4,000 students average \$279 per pupil. Five-year savings were calculated, adjusted for inflation, assuming central office costs in targeted SAUs were \$279 per pupil. (Only potential savings in central office costs were calculated for this Select Panel recommendation.)

**Cost Analysis.** The analysis resulted in the following 5 year cost savings:

SAUs of 3,000 to 4,000 Students	Savings
Year 1	\$15,663,029
Year 2	\$16,038,942
Year 3	\$16,423,876
Year 4	\$16,818,049
Year 5	\$17,221,683
<b>Total</b>	<b>\$82,165,580</b>

### **Recommendation 2: Establish Minimum School Construction Size**

The Select Panel recommended the implementation of new minimum school construction size standards. Specifically, the Panel recommended that the State Board of Education approve new construction projects only for secondary schools with a minimum of 450 students and elementary schools with a student enrollment minimum of 350 students.

**Methodology.** Per pupil costs for construction of new schools for elementary schools above and below 350 students, and for secondary schools above and below 450 students were calculated for schools constructed between 2000-2005. The average difference for elementary schools was approximately \$4,370, and for secondary schools it was approximately \$6,750. These differences in per pupil costs above and below the recommended minimum were then applied to the current list of 13 approved schools. This difference was multiplied by 5 years with inflation adjustments. (The cost of debt service was not included in the calculations.)

**Cost Analysis.** The resulting savings is as follows:

<b>Savings with Application of New Minimum Enrollments</b>	<b>Savings</b>
Year 1: Current list of 13 approved school projects	\$9,958,560
Year 2: 13 approved projects	\$10,197,566
Year 3: 13 approved projects	\$10,442,307
Year 4: 13 approved projects	\$10,692,923
Year 5: 13 approved projects	\$10,949,553
<b>Total</b>	<b>\$52,240,910</b>

### **Recommendation 3: Increase Student-Teacher Ratio Statewide**

According to the National Education Association (2005) the teacher-student ratio in Maine in 2005 was 12.7. In other words, statewide Maine employs, on average, one full-time teacher for every 12.7 students. Historically the student-teacher ratio in Maine has been higher, 18.6 in 1999 and 16.3 in 2000. The six states most similar to Maine in 2005 population density were Arizona, Oklahoma, Colorado, Oregon, Kansas, and Utah. Their student-teacher ratios ranged from 14.3 in Kansas to 22.6 in Utah with an average student-teacher ratio of 18.6. The current national ratio is 15.6. The Select Panel has recommended that Maine's student-teacher ratio be set at the national average.

**Methodology.** The 2005-06 public school K-12 statewide student enrollment was divided by 15.6 and 12.7. The difference resulted in the equivalent of 2,867 full time teachers. This total difference of 2,867 teachers was multiplied by the statewide average teacher salary, plus 19% for benefits, to determine the first year savings. This process was replicated for the remaining 4 years using State Planning Office projected student enrollment. A salary inflation factor of 2.4% was included in the salary and benefits calculations.

**Cost Analysis.** The 5 year projected salary and benefits savings are:

<b>Reduction in Total Number of Full-Time Teachers</b>	<b>Savings</b>
Year 1: 2,867 teachers	\$138,205,046
Year 2: 2,887 teachers	\$142,530,722
Year 3: 2,813 teachers	\$145,611,214
Year 4: 2,751 teachers	\$152,883,002
Year 5: 2,698 teachers	\$164,878,082
<b>Total</b>	<b>\$744,108,066</b>

#### **Recommendation 4: Implement One Statewide K-12 Collective Bargaining Agreement**

The Select Panel heard considerable evidence of the perceived potential impacts of implementing one statewide K-12 collective bargaining agreement. Potential impacts included cost savings in negotiations and reductions in the number of conflicts and disagreement among parties, resulting in the smoother resolution of issues.

**Methodology.** An attempt was made to determine the costs of collective bargaining agreements. A review of self-reported costs by a sample of Maine SAUs yielded a wide range of costs and unstable estimates. A search of national literature and research revealed no cost estimates. Consequently, the authors were unable to establish a potential projected cost savings from implementation of one statewide collective bargaining agreement. *Important note:* However, the authors do wish to note that any potential cost savings may be minimal if a common statewide agreement were to be implemented. This is because we assume the resulting salary and benefits schedule would, in all likelihood, reflect the higher salary and benefits schedules currently in place across the state.

**Cost Analysis.** The fiscal impact of this recommendation can not be determined with available information.

## **Expenditures**

### **Recommendation 5: Implement Pre-K for all 4 year olds**

The Select Panel reviewed the national evidence and research which has documented the many potential early and long term benefits of Pre-K education. Accordingly, the Panel recommended the implementation of Pre-K programs for all Maine 4 year olds.

**Methodology.** Using Maine State Planning Office projections the potential number of 4 year olds was calculated for the next five years. These yearly numbers minus 15%, which represents the current number of 4 year olds enrolled in Pre-K regular education programs, were multiplied by the average un-weighted EPS elementary per pupil allocation excluding special education and transportation, adjusted for inflation. These yearly costs were divided by 2 (proxy for half day programming) and then 10% of annual transportation costs were added for additional midday transportation costs.

**Cost Analysis.** The additional costs of implementing Pre-K programs for all 4 year olds were estimated as follows:

<b>Pre-K Programs for All 4 year olds</b>	<b>Cost</b>
Year 1: 12,212 four year olds	\$36,099,201
Year 2: 12,433 four year olds	\$37,486,296
Year 3: 12,700 four year olds	\$39,030,164
Year 4: 13,013 four year olds	\$40,740,194
Year 5: 13,347 four year olds	\$42,562,952
<b>Total</b>	<b>\$195,918,808</b>

## **Recommendation 6: Increase School Time**

After reviewing the status of achievement of Maine's Learning Results, the Select Panel concluded schools need more time for all children to achieve Maine's high academic standards. Thus, the Select Panel recommended that the school year be gradually expanded by 10 days.

**Methodology.** A per day cost was calculated by dividing total K-12 expenditures by 175 days. This per day cost was multiplied by 2 days and increased by 2 days, adjusted for inflation, for five consecutive years, for a total of 10 days.

**Cost Analysis.** The cost of extending the school year by 10 days, phased in over 5 years is calculated to be:

<b>Phase-In of Additional School Days</b>	<b>Cost</b>
Year 1: Addition of 2 days	\$18,068,007
Year 2: Addition of 2 days (n=4)	\$37,003,278
Year 3: Addition of 2 days (n=6)	\$56,837,034
Year 4: Addition of 2 days (n=8)	\$77,601,497
Year 5: Addition of 2 days (n=10)	\$99,329,917
<b>Total: 10 additional days</b>	<b>\$288,839,732</b>

## **Recommendation 7: Increase Teachers' Salaries**

According to the National Education Association (2005), Maine's average teacher salary in 2005 was \$40,940, ranking Maine 34<sup>th</sup> in the nation. The Select Panel concluded that to recruit and retain a highly qualified teacher workforce Maine's teacher salaries must be increased over time to a national norm.

**Methodology.** The difference in the average teacher salary in Nevada, the state ranking 25<sup>th</sup> in salaries, and Maine's average teacher salary was divided by 5 to establish a required average 5 year rate of increase to achieve a 25<sup>th</sup> ranking for Maine. The yearly cost was adjusted for 10% attrition without replacement; 10% is the present yearly attrition rate for Maine teachers.

**Cost Analysis.** The projected costs of increasing teacher salaries are as follows:

<b>Teacher Salary Increases with 10% Annual Attrition</b>	<b>Cost</b>
Year 1	\$8,925,832
Year 2	\$16,452,094
Year 3	\$22,743,375
Year 4	\$27,947,059
Year 5	\$32,195,012
<b>Total</b>	<b>\$108,263,373</b>

## **Recommendation 8: Financial Incentives for Difficult to Hire Teacher Positions**

Like many rural states, Maine has difficulty in hiring and retaining teachers in some disciplines. The four most difficult to fill positions in Maine are in mathematics, science, foreign languages, and special education. The Select Panel concluded that a differential salary incentive program should be implemented in these four fields to make salaries competitive with other employment opportunities.

**Methodology.** The annual teacher attrition rate for those leaving the profession or state is approximately 10% in Maine. This equates to 526 teachers in the four fields of mathematics, science, foreign languages, and special education. Keeping this cohort of 526 constant, a bonus of \$2,500 per year for 2 years was calculated for each year for 5 years.

**Cost Analysis.** The cost analysis of the financial incentive program would be as follows:

<b>Bonus Salary for Difficult to Fill Teaching Positions</b>	<b>Cost</b>
Year 1: 526 teachers (new hires) x \$2,500	\$1,315,000
Year 2: 999 teachers (526 new hires + 473 second year) x \$2,500	\$2,497,500
Year 3: 999 teachers (526 new hires + 473 second year) x \$2,500	\$2,497,500
Year 4: 999 teachers (526 new hires + 473 second year) x \$2,500	\$2,497,500
Year 5: 999 teachers (526 new hires + 473 second year) x \$2,500	\$2,497,500
<b>Total</b>	<b>\$11,305,000</b>

## **Recommendation 9: Performance Based Compensation**

The Select Panel concluded that one factor which may improve the quality of teaching and learning is differential teacher pay based on results. Thus, the Select Panel recommended that a pilot program of performance based compensation based on student learning and responsibilities be implemented over a 5 year period.

**Methodology.** To calculate the cost of this program it was assumed the program would be implemented in 5 SAUs, starting with one and adding one each year for 5 years. It was further assumed 1/3 of the teaching faculty would qualify for the performance based compensation. The 5 SAUs were selected to reflect small to large SAUs, and the compensation rate was set at 4% per year for the length of the pilot program.

**Cost Analysis.** The cost of the pilot performance based compensation program was calculated, adjusted for inflation to be:

<b>Performance Based Compensation Pilot Program for 5 SAUs</b>	<b>Cost</b>
Year 1: 1 SAU; 33% of 50 teachers	\$25,259
Year 2: 2 SAU; 33% of 141 teachers	\$69,929
Year 3: 3 SAU; 33% of 471 teachers	\$292,882
Year 4: 4 SAU; 33% of 548 teachers	\$341,911
Year 5: 5 SAU; 33% of 805 teachers	\$515,051
<b>Total</b>	<b>\$1,245,032</b>

## **Recommendation 10: Leadership Training**

The Select Panel reviewed a great deal of evidence and testimony establishing the importance of school leadership to school success and high student performance. Accordingly, the Select Panel recommended the implementation of leadership training institutes for school administrators.

**Methodology.** For purposes of calculating costs, it was assumed three groups of 20 participants would participate in institutes annually for three years. The first year institute would be for 2 weeks, followed by one week in each of the two subsequent years. The institute program would be implemented for 5 years, and costs would include room and board for participants, institute leader and consultant salaries, and materials, etc.

**Cost Analysis.** Implementing the leadership institutes over five years is estimated to cost:

<b>Leadership Institutes</b>	<b>Cost</b>
Year 1: 60 participants 2 weeks	\$69,000
Year 2: 60 participants 2 weeks; 60 for 1 week	\$105,984
Year 3: 60 participants 2 weeks; 120 for 1 week	\$144,703
Year 4: 60 participants 2 weeks; 120 for 1 week	\$148,176
Year 5: 60 participants 2 weeks; 120 for 1 week	\$151,733
<b>Total</b>	<b>\$619,596</b>

**Recommendation 11: Expansion of Maine Learning Technology Initiative (MLTI)**

The Select Panel recognized the importance of technology in the future, and the potential for using technologies to improve student learning. Building on the success of Maine's middle school laptop program, the Select Panel recommended the phased expansion of the program to all Maine high schools.

**Methodology.** Assuming future costs of laptops are similar to present day costs, the laptop program was extended into high school, one additional year for each of four years. An annual high school dropout rate of 3% was used to establish grade level enrollments. Additionally, it was assumed that for each high school grade level, a textbook savings of \$75 per textbook per pupil for science and social studies textbooks may be feasible. (Additional technology support personnel and services were not included in the calculations.)

**Cost Analysis.** The projected cost of expanding the laptop program into high school is:

<b>Expansion of Laptop Program into Maine's High Schools</b>	<b>Cost</b>
Year 1: Add grade 9 and savings from textbook purchases	\$11,748,653
Year 2: Add grade 10 and savings from textbook purchases	\$16,018,309
Year 3: Add grade 11 and savings from textbook purchases	\$20,101,330
Year 4: Add grade 12 and savings from textbook purchases	\$23,939,787
Year 5: Continuing with grades 9-12	\$25,452,664
<b>Total</b>	<b>\$97,260,743</b>

## **Recommendation 12: Mutual Fund for Children Born in Maine**

The Select Panel recognized the importance of post-secondary education to the future wellbeing of Maine's citizens and the economic viability of the State of Maine. Additionally, the Select Panel recognized expenses for post secondary education may become cost prohibitive for many Maine students. Thus, the Panel recommended the establishment of a \$200 mutual education account for every child born in Maine, redeemable as a Maine resident for payment of post-secondary education costs.

**Methodology.** Maine State Planning Office birth rate projections for the next 5 years were multiplied by \$200.

**Cost Analysis.** The projected cost of the mutual fund program is:

<b>\$200 Mutual Fund for Newborns</b>	<b>Cost</b>
Year 1: 14,505 newborns x \$200	\$2,901,000
Year 2: 14,789 newborns x \$200	\$2,957,800
Year 3: 15,075 newborns x \$200	\$3,015,000
Year 4: 15,349 newborns x \$200	\$3,069,800
Year 5: 15,598 newborns x \$200	\$3,119,600
<b>Total</b>	<b>\$15,063,200</b>

### **Recommendation 13: Community College Tuition Program**

The Select Panel also recognized the importance of increasing post-secondary education opportunities for Maine's youth who will complete their high school education in the near future. Thus, to increase access and affordability the Select Panel recommended the implementation of a college tuition program. Specifically, the Select Panel recommended that all Maine graduates of accredited secondary schools who are admitted to a Maine public post-secondary institution offering an Associate's or Bachelor's degree receive one-half tuition for two years, at community college tuition rates, if they qualify for financial aid. The one-half tuition award will continue for an additional two years for students seeking teacher certification who commit to teach for three years in a Maine school.

**Methodology.** Currently approximately 50% of current high school graduates enroll in a post-secondary institution in the fall after graduating high school. Of this 50%, 61% attend Maine institutions, and 82% of those attending Maine institutions are attending public post secondary institutions. Currently 2.6% of undergraduates graduate with a degree in education. This figure was used in calculating the number of students that qualified for third and fourth year awards. For purposes of calculating the percent who may qualify for financial aid, the current Maine community college rate of 78% was used, and full time enrollment was considered 24 credits per academic school year.

**Cost Analysis.** The projected cost of the full-time post-secondary student enrollments at one-half the Maine community college tuition rate for two years is:

<b>Full Time Post-secondary Enrollment at One-half Tuition for Two Years</b>	<b>Cost</b>
Year 1: N= 3259	\$2,952,842
Year 2: N= (3259) + (3173)	\$5,943,150
Year 3: N= (3173) + (3115)	\$5,922,388
Year 4: N= (3115) + (3045)	\$5,913,049
Year 5: N= (3045) + (2934)	\$5,847,589
<b>Total</b>	<b>\$26,579,018</b>

### **Summary**

The preceding pages of this report describe the results from a cost analysis of the 13 recommendations of the Select Panel on Revisioning Education in Maine. A summary of the projected savings and expenditures accompanying implementation of the recommendations appears in the table below.

<b>Initiatives with Projected Savings</b>	
<u>Recommendations</u>	<u>Savings Projections</u>
1. SAU Consolidation	\$82,165,580
2. School Construction	\$52,240,910
3. Teacher Ratios	\$744,108,066
4. One Collective Bargaining agreement	Unknown
<b>Total Savings</b>	<b>\$878,514,556</b>
<b>Initiatives with Projected Expenditures</b>	
<u>Recommendations</u>	<u>Costs Projections</u>
1. Pre-K for all 4 year olds	\$195,918,808
2. Increase school time	\$288,839,732
3. Increase teacher's salaries annually for 5 years	\$108,263,373
4. Financial Incentive for Difficult to Hire Subject Areas	\$11,305,000
5. Performance Based Compensation	\$1,245,032
6. Leadership	\$619,596
7. Expand MLTI	\$97,260,743
8. \$200 per child born in Maine	\$15,063,200
9. 50% Community College Tuition	\$26,579,018
<b>Total Costs</b>	<b>\$745,094,503</b>
<b>Summary</b>	
Savings Projection	\$878,514,556
Expenditures Projection	\$745,094,503
<b>Net Savings</b>	<b>\$133,420,053</b>

As may be seen in the table, over a five year period, the projected savings may be approximately \$879 million, and the projected additional expenditures needed to be approximately \$745 million, for a net savings of approximately \$133 million.

It is important to note once again that these cost analyses of the Select Panel recommendations involved many assumptions, any of which, if changed, would have an impact on either projected savings, expenditures, or both. Nevertheless, it is hoped that the analyses provided in this report will contribute to the ongoing discussions of the Select Panel report and the future design of Maine's K-12 public education system.