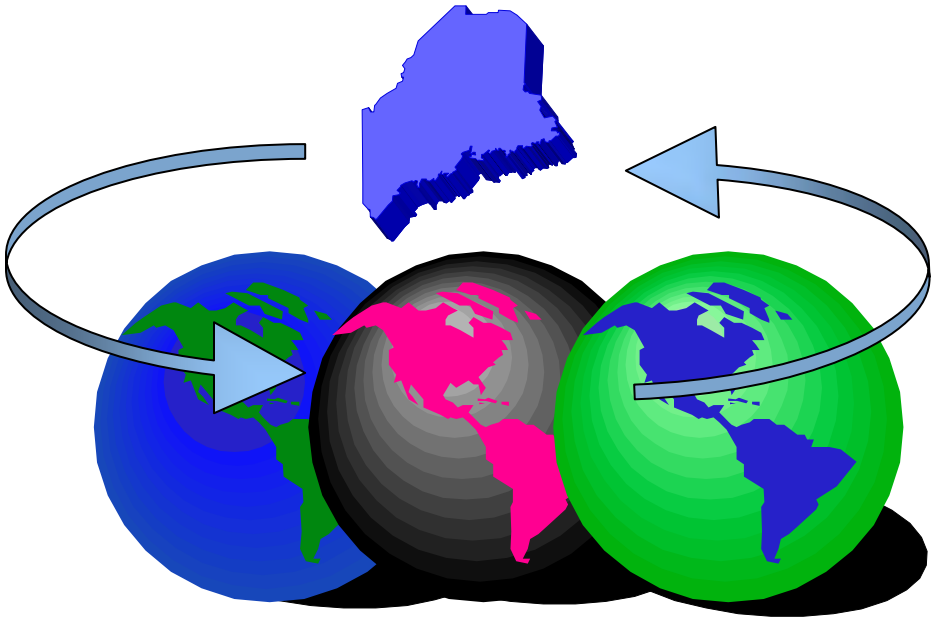
MAINE STATE LEGISLATURE

The Learning State:

Maine Schooling for the 21st Century



State Board of Education
Select Panel on Revisioning Education in Maine

Date: September 12, 2006

Table of Contents

Foreword

The State Board of Education established the Select Panel on Revisioning Education in Maine with the charge that they take a broad look at the condition of education in the state and make strategic recommendations. The Panel submitted its report, "The Learning State: Maine Schooling in the 21st Century" to the State Board and it was adopted on September 12, 2006.

The State Board adopted the report with only minor revisions as follows:

- The section recommending a single collective bargaining agreement for the state was deleted.
- The call for a state-wide common calendar was replaced with a recommendation that common calendars be established for all CTE regions.

The Board replaced the recommendation for a $200 safe mutual fund education account for each child born in Maine with a more general statement establishing an account to support higher education for Maine citizens.

Except for these and some minor changes in word choice the work of the Panel was adopted as submitted.

Preface

The Select Panel on Revisioning Education in Maine was convened by the State Board of Education pursuant to the statutory requirement under Title 20-A, 405(T), which asks the State Board of Education to develop plans "that includes goals and policies for the education of children in kindergarten and grades one to twelve and that promotes services for preschool children." The members of the Panel were carefully selected on the basis of a variety of criteria: statewide representation reflective of demography and geography, people outside the traditional educational stakeholder groups but with known interest and dedication to public education in Maine, creative, "out-of-the-box" thinkers, and individuals respected throughout the State for their proven leadership. The Panel met from the winter into the fall of 2005. In the first half of 2006 the draft report was vetted with a variety of groups across the state.

The central focus of The Select Panel's deliberations and recommendations is the improvement of student learning. The Maine Learning Results commits the State to high standards for ALL students. The Panel believes that fundamental, structural changes in a variety of areas--governance, quality of teaching and learning, time, technology, and societal attitudes-- are essential to creating a learning environment, a context that is fair for ALL students and maximizes the potential for ALL students to achieve these high standards.

This report deliberately does not address the Maine Learning Results (MLR) directly, albeit, they are central to our purpose of improving student learning. A statutory mandated review of the MLR is currently underway under the direction of the Department of Education, and its course is clear. The Select Panel is aware of its efforts, and we continue to support its goals, Guiding Principles, and high standards for all students. Further, the Panel encourages the review to address the issue of accountability by providing authority for the Department of Education to intervene in supportive as well as appropriate directive ways in schools and districts that fail to make progress in providing desirable outcomes for students. As the expectations for student achievement increase to include all students—the great promise of the Maine learning Results—the Panel believes that it is imperative that capacity exists at all levels of the educational establishment—from the classroom to the State Department of Education—to ensure that each student, no matter in what town he or she lives, can be assured of an education that responds to the challenges that the student's future will surely bring. To achieve this we must be very efficient and find the most effective ways to use our resources to improve student learning. That is a central purpose of this work.

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Executive Summary

Maine's schools are not ready for the 21st century. In order for Maine people to flourish in the radically transformed landscape of this new century, dramatic change must occur in Maine's schools.

The data are clear. Maine has one of the most expensive public school systems in the nation, and yet our results measured by multiple indices are flat through recent years. We have strengths, which we must build upon, and we have weaknesses that we must address. The Select Panel report addresses some of the root, structural changes that will be necessary to create a system that is nimble in adjusting to rapid change that insures that young people have the best learning environment possible. The Panel's central purpose throughout its work and the focus of this report are the improvement of student learning.

To sustain this kind of dramatic change in the State's level of commitment to education, there must be a fundamental shift in the culture of Maine in regard to education. **Societal Attitudes** must support increased attention to education, especially postsecondary education, as advanced, for example, by the Compact for Higher Education, as never before in our history. All segments of our society, but most especially, government, educators, parents, and students must accept responsibility for effecting this change. The Panel recommends:

Maine has the smallest percent of the population with Bachelor's degrees in New England.

- a public information campaign to underscore the importance of educational achievement;
- the establishment of a safe, cost-effective education account for each child born in Maine;
- half tuition (including the education account accruement and other financial aid received) for two years of post-secondary education for students with financial need computed at the Community College average. The half-tuition award will continue for students seeking teacher certification who commit to teach for three years in a Maine school;
- the elimination of tracking as critical to the attainment of the MLR by all students;
- the introduction of ½ day preschool for all four-year-olds.

The **Quality of Teaching and Student Learning** depends in large measure on the quality of leadership and instruction in the schools. The Select Panel recommends:

- establishing compensation levels that move Maine to 25th in the nation and developing pay schedules based more clearly on multiple credible indicators of performance;
- creating an incentive program for difficult to fill teaching fields;
- amending federal and state rules to allow people to collect social security and Maine State Retirement;
- requiring a Masters or National Certification within 7 years of teaching in the profession; and
- establishing an annual leadership-training program with an emphasis on preparing school leaders as change agents.

A significant number of states and municipalities are inaugurating pay for performance plans.

All across the State educators report that there is insufficient **Time** to satisfy the learning needs of many students. The Panel recommends:

- a ten (10) day increase in school time, with half for professional development and responsibilities;
- a flexibility within this framework to adjust to the varying needs of students;
- differentiated contracts, including full-year contracts, for teachers to respond to varied student needs; and
- CTE regions create a common calendar.

Maine's school year is among the shortest on the planet.

Technology will be a major driver of change in the future. Today's students must understand and master technology. The panel recommends:

The Maine Learning Technology Initiative (MLTI) program for middle schools has engaged students formerly lost.

- each student from grade 7-12 should have an individual wireless computer to take home from school;
- teacher training to integrate technology into daily student work must be advanced;
- an aggressive support system to enable teachers to remain current with rapidly changing new technologies;
- establishment of a task force to study and make recommendations for technologically advanced alternative instructional delivery systems, including the "virtual" school.

Change needs to occur in the **Governance and Political Organization** of the system. Several of these changes will free-up dollars that can be used to enhance learning in other ways. The report recommends:

Maine's pupil per school district ratio is among the smallest in the nation.

- reducing the number of SAUs by creating districts that serve 3000-4000 students;
- recognizing the significant increase in school construction costs per square foot per student when schools are much smaller than 350-450 students in size, and taking appropriate action to limit these costs whenever possible;
- establishing local advisory boards to serve schools within expanded SAUs;
- expanding the current opportunities for school choice;
- clearly defining school board responsibilities;
- Increasing the average class size from 12.7 to the national norm of 15.6.

This agenda represents a beginning for Maine to move its educational system into the 21st century to serve today's and tomorrow's students.

Introduction

Our schools are not ready for the 21st century. A central goal of P-12 education in Maine is that all students graduate from high school ready for college, career, and citizenship. But, many, many Maine students do not graduate from high school ready—20-25% do not graduate from high school, and only half of those who do graduate go to college. Arguably, these students are not ready because the Maine school system is not ready to deliver an education the 21st century demands. If our schools are not ready for the challenges and opportunities ahead, then our children cannot be. If our children are not ready, then they—and we—are destined to fall further behind.

Rapid change will characterize the 21st century.

A generation ago personal computers and fax machines were an oddity, cell phones did not exist, AIDS was virtually unknown and "global warming" was not part of our vocabulary. International affairs were dominated by the Cold War; China, still engulfed in Mao's Cultural Revolution, had neither automobiles nor bathrooms; we knew India only for her poverty; and the idea of 9/11 was unfathomable. Deoxyribonucleic Acid (DNA) was largely a laboratory curiosity, and various medical advances from transplant surgery to anti-cholesterol drugs were unavailable. Although the U.S. led the world in higher education access, still only a minority of its citizens went on to college. Maine still depended on a manufacturing and resource-based economy. In short, the reality of the revolution in biotechnology and information technology and the emergence of a global market economy still lay ahead.

The changes we have witnessed in the last 30 years will probably be dwarfed by the changes our children will face over the next 30 years. No one can precisely predict what those changes might be. Will they mean that almost any job can be filled any place on the globe? Will they mean that almost everyone will require continuing education and training beyond high school? Will a cascade of discoveries in biology, genetics, and nanotechnology transform societies, cultures, and life itself? Will a global economy coupled with chemical and biological tools of war necessitate new forms of governance, citizenship, and divisions of world resources and power? We cannot really know.

But, we do know that the certainty of rapid and unparalleled change, driven by increasingly powerful discoveries in science and technology and upheavals in social and political structures, will pose immense challenges for what we understand as school and schooling as well as for the students who emerge from those

schools. The evidence around us would suggest that models we have inherited from the past will be inadequate for the challenges we face. Maine's schools are the eighth most expensive in the nation with declining student numbers; too many young people are not meeting reasonable standards of competence. Maine's record for college going is beginning to lag other countries. The State still ties school schedules to an agricultural economy and very local agendas. Maine does not support teachers to reasonable expectations of professional development. Maine does not learn from the many things in education that we are doing well, and it has not yet learned how to make necessary fundamental changes to our education system.

Maine schools are the eighth most expensive in the nation on a per pupil basis.

We also know that while the world around us has changed rapidly, the world of schools has changed alarmingly little. Created on an agrarian calendar for an industrial society, the schools we know are suited for a different time and a different culture.

We can build on the strengths we have in Maine. For example, the "Guiding Principles" that Maine adopted as part of its Learning Results define well the broad skills and capacities that will be indispensable for this new world (see Appendix A). But, we will need to be far more resourceful, bold, and creative if we are to fulfill those worthy ambitions for schools and schooling in Maine. This Report of the Select Panel on Revisioning Education in Maine is a first important step in reinventing schooling for the 21st Century. The implementation of this Report, as well as further ideas, proposals, and actions will need to follow.

Vision: A Glimpse of the Future

ALL Maine students need to leave the educational system ready to compete with their counterparts across the globe for their place in the rapidly evolving global economy. They graduate from high school ready for college, career, and citizenship—choices they can make. The economic future of the whole state depends on their ability to do so. New high school graduates go on to post-secondary education and find rewarding work locally in the global economy. As a result, the median income in Maine rises to the midpoint of the New England states, the number of good paying jobs increases and poverty in Maine decreases, and more young people remain in the state.

Change is critical to the success of our young people.

Maine's PK-12 education system is organized in fewer, more cost effective districts with school and class sizes that meet the national norms for cost and student learning effectiveness. Students have more choices in schools and in alternative educational opportunities.

Schools attract well-qualified teachers. Teachers have contracts of differentiated length, including full-year contracts, compensation is competitive in the market, and it is based more clearly on multiple, credible measures of performance. Many teachers have appropriate master's degrees and/or are nationally certified. They participate regularly in leadership seminars. Education outcomes improve, reflecting increased teacher capacity in content and pedagogy.

The school year is significantly longer allowing more time for academics and for teacher development. Time is more flexible and oriented to the needs of children and teachers.

Students and teachers integrate technology into their learning, teaching, and lives. All students access technology in and out of the classroom and are creative in their use of it.

The entire statewide community supports and understands the importance of quality education, not only for the students and their future, but also for the community's own economic and social health. Young people enter school ready to learn and high school graduates are supported in postsecondary education. Education is the primary driver of Maine's successful participation in the 21st century. (See Appendix B for vignettes exemplifying this vision.)

Recommendations

A small percentage of those who enter 9th grade continue to receive an Associates' or Bachelors' degree.

Societal Attitudes Toward Learning: The Case for Preschool and Postsecondary Education

The challenges and opportunities before Maine at this juncture are so significant and foundational that a successful response will require a concerted and collegial effort by all the stakeholders--policymakers, state and local administrators, the Legislature, the Governor's Office, the Department of Education, parents, teachers, and students. For effective engagement of these diverse groups there must be a shift that recognizes now more than ever that the key to quality individual lives and a robust Maine economy is a profoundly transformed educational system. The measures recommended in this report point the initial direction of that effort. The political will needed to enact such a transformation must come from Maine's people. That will cannot be driven by politicians alone. Rather it must be summoned by leaders from all walks of life capable of showing our citizens a realistic vision of a successful future for our children and a path to that vision.

Maine has the lowest percentage of citizens with baccalaureate degrees of any state in New England. That distinction cannot stand. The days when a high school diploma was the key to successful employment with a reasonable income are long past. We simply must graduate high school students ready for college, careers, and citizenship. Then they will have a choice--one that makes a huge difference. It is the $1,000,000 choice--the estimated average earning difference over a lifetime between a holder of a high school diploma and the recipient of a college degree. We must take bold steps at this time to ensure that all Maine youth who wish to pursue postsecondary degrees have an opportunity to do so. The Select Panel views this as a must for young people to have a chance to lead productive, successful lives. To aim to have all graduates be "college ready" but fail to make it possible for as many of the qualified students who wish to attend postsecondary programs to do so is a wasteful exercise in rhetoric. We must act at this time to provide the support necessary for students to pursue their educations beyond high school. This is consistent with the goals of the Compact for Higher Education in Maine, whose goals and objectives have the full endorsement of the Select Panel (See Appendix F).

To achieve this higher level expectation for all of Maine's children, there must be a broad and pervasive change in societal

attitudes to support and value the notion that education is fundamentally important, achievement in school is respected and honored, and that each child will progress to the highest educational level of which he/she are capable.

Goals for Shift in Societal Attitudes Towards Learning:

1. **Create a shared commitment among students, parents, educators, community members, and policymakers to graduate every student ready for college, work, and citizenship;**
2. **Make the necessary changes in structures and practices in our schools to ensure that all students graduate with this level of readiness;**
3. **Address the affordability gap—both perceptual and real; and**
4. **Provide pre-school opportunities for all Maine children.**

The world of work increasingly requires "college ready."

The Select Panel's recommendations are designed to "jump start" this cultural change.

1. Emulating some of the successful strategies of the smoking cessation campaign in Maine and the nation, the state will develop a carefully constructed multimedia public information program that underlines the importance of educational achievement and the assumption that postsecondary education is the norm.
2. To encourage and support the importance of providing funds for post-secondary education, the State of Maine will develop a program for safe and cost-effective investment accounts for Maine children and will provide the initial investment in that account. Proceeds of the accounts will be payable to Maine residents for postsecondary education.
3. All graduates of an approved secondary school who are admitted to a postsecondary institution that offers an Associate's or Bachelor's degree will receive half tuition for two years computed at the average tuition of the Community College System, if they demonstrate financial need. Students who elect to pursue teacher certification and commit to teach in Maine for three years are eligible for the half-tuition stipend in the junior and senior years. This money may only

be used for public institutions in Maine. The total financial aid package will include the return on the general fund account when appropriate as well as other forms of financial aid received by the candidate.

4. Eradicate "tracking" of students and mandate a curriculum that prepares all students to meet the MLR.
5. Provide half-day pre-school for all Maine four-year-olds.

Structural Reform: Quality for Teaching and Student Learning

The presence of a quality teacher is the single most important factor in student performance.

As noted earlier, the research shows conclusively that the single most important variable in determining student performance is the quality and effectiveness of the teacher. This is more important than ever because of the high standards of the Maine Learning Results and the state's commitment that ALL students will achieve them. Leadership is also documented in the literature as critical to high-performing schools. Hence, The Select Panel makes recommendations in these two areas forcefully.

This need is underscored by the fact that so many of our students are not prepared for college, career, and citizenship. High school graduates matriculating to college has not risen appreciably since 1998. Students who do matriculate require remedial courses at an alarming rate. And there are untold representations from the world of work that being "college ready" is increasingly necessary for the careers of the 21st century.

Maine students have benefited from a high-quality teaching force over the years. However, there are a large number of "baby boomer" retirements on the horizon, and we need to be sure that we have the best-qualified teachers possible in Maine schools. This is a challenge in a rural state with varying local resources. The Panel believes that the teaching profession must undergo a significant transformation in Maine that moves aggressively to professionalize the practice and the contexts that surround teaching.

Goals for Quality of Teaching and Learning

1. **Teaching must be conducted in an environment of both individual and shared accountability for results;**
2. **Teachers must demonstrate individual responsibility for continual career development and enhancement of their skills;**
3. **The structure by which compensation for teachers is determined must reflect both the need to differentiate roles within the profession and the market forces of the broader economy;**
4. **The process by which teachers are supported in the early years of their career, must include extensive mentoring and coaching; and**
5. **The practice of teaching must be influenced by and evaluated on the basis of research.**

The Panel believes that the realization of these goals will encourage more of the most able young people to consider careers in public education and remain in the profession.

Policy Recommendation for the Quality of Teaching and Learning

1. The level of compensation for Maine teachers is a major impediment to attracting and retaining superior teachers. Of equal concern is a compensation structure that treats all teachers the same rather than rewarding teachers on the basis of performance as measured in part by student learning and the nature of responsibilities. A successful effort to address current inappropriate compensation structures will require fundamental attitudinal and organizational changes. The needed resources required by these changes will in large measure come from using current education resources more effectively and from savings generated by changes recommended elsewhere in this Report.

   A. Within five years, beginning teacher compensation levels will attract well-qualified teachers, and pay schedules will be more clearly aligned with performance. Teacher salaries will move over the next five years to the mid-

Continued professional development is key to quality teaching.

point in comparative state rankings. A "Maine Performance-Based Program" must be developed that depends heavily on student learning and a credible, transparent, rigorous evaluation system. The program should allow high-performing teachers to advance financially at a faster pace than is currently the case. Two to five pilot systems should be operative within three years. Differences in pay should reflect not only success in improving student performance but also different responsibilities (teacher leader, e.g.) as defined by a career ladder model such as the Milken Model (See Appendix E).

B. To attract and retain teachers in difficult to fill fields (math, science, foreign language, special education, etc.), Maine needs to develop a financial incentive program of a $5000 bonus paid over two years and consider differential pay in order to make these fields competitive with other opportunities. In addition, Maine should consider the creation of a pilot Math/Science Teacher Corps and a Foreign Language Teacher Corps to serve schools throughout Maine in developing curriculum and pedagogical best practice, delivering instruction through distance learning, and working in the schools in a direct way. If evaluations show this approach effective and efficient, similar teacher corps should be developed in other difficult to fill fields.

2. In order to attract good candidates who are interested in making mid-career changes to the educational ranks, retirement system federal laws and regulations statutes must change to allow teachers entering the profession to collect both Social Security, if they are eligible, and Maine State Retirement benefits.

3. A challenge in the future will be to continually grow the capacity of educators to meet the rapidly changing demands of the 21st century. To that end, the Panel recommends that all teachers must achieve a Master's degree in pedagogy or content discipline within 7 years of teaching in the profession. The cost computed at the University of Maine System (UMS) rate for courses taken for the Master's will be borne 25 percent by the educator with the balance borne equally by the School Administrative Unit (SAU) and the State.

Next to teacher capacity in importance, the quality of leadership is a constant factor for high-performing schools. Particularly important is the capacity of leaders to serve as change agents in the school environment. The Select Panel recommends that:

4. The DOE and the UMS cooperate to offer annual leadership training institutes for teachers and administrators. The Institutes will focus on the skills of change agency, strategic planning, and the necessary background in organizational, human resource, and financial management to meet the challenges of the future. Each Institute cohort will gather for a week in each of the two succeeding summers to do follow-up work on real leadership issues facing schools in Maine. Educational administrators (principals and superintendents) must participate in the Institute every five years as a condition of recertification.

Effective leadership is the second most important factor in student performance.

Structural Change: Time

Many of Maine's students need more time to learn. Some students need less. Time must be restructured to be more flexible to address variable student needs and to allow greater emphasis on core academic subjects. It is more than a decade since the release of the national study, *"Prisoners of Time."* That document called for a revolution in the way in which time functions as a variable in the educational arena. Simply put, it asserted that student learning and teacher needs should determine how time is structured rather than time or schedule dictating the limits in which student and teacher needs must fit.

This Report identifies time, both the amount of time and the flexibility of its use, as one of the basic structural variables that must be addressed for effective education in the 21st century. The changes recommended are fundamental and they respond to what we know from research about student learning. All recognize that schools are asked to accomplish much more than they did even 10 or 20 years ago, let alone a century or more past. Research tells us that good, solid teaching requires reflection and continuous learning. And, we know that children learn in different ways and at different rates. The Panel's recommendations are designed to address these realities for teaching and learning in the 21st

century.

Goals for Time

1. **Increase time for student learning and teacher preparation, reflection, collaboration, and professional development;**
2. **Increase scheduling flexibility to allow students to learn at other times and in other places.**
3. **Create common calendars for CTE regions.**

Research shows that students learn and progress at different rates.

The panel recommends the following policy changes in this area:

1. All students and teachers need more time to accomplish the expanded goals of public schools. In order to deal with this time crunch while at the same time recognizing that this recommendation advances "outside parameters" within which flexibility to address student needs must be the final arbiter of school time, the Select Panel recommends a general increase of 10 days in school time, half of which is for professional development and responsibilities for all educators. This should be phased in over five years. In addition, the Panel recommends:
   - A. The norm for the student's school day should allow for variability dictated by individual student needs and be aligned to the MLR.
   - B. The school year should expand by adding 10 days so that it reaches the point where there is sufficient time for all students to meet the Maine Learning Results. The calendar should include additional time for professional development and responsibilities for teachers and administrators.
   - C. Teacher contracts could be differentiated in length, including full-year contracts, to correspond with student needs, teacher responsibilities, and appropriate vacation time.
   - D. Each Career and Technical Education (CTE) region shall develop a common calendar.

2. The school day and year must gain more flexibility. For example, Maine needs to move toward the abandonment of rigid adherence to grade spans and seat time. Students should be able to progress through the Maine Learning Results at different paces. Some students will need a longer day; others will need a shorter day. Some students will need a longer year; others will find 175 days or less to be sufficient. Some will need enrichment programs and/or early college. Others will need tutorial support. The point is student learning needs should determine the time structures.

Technology

Technology will be a major "driver" of the 21st century.

Technology, which is not limited to computers, is already arguably the principal driver of economic progress in the 21st century. It will become more so.

Maine made a significant step into the world of technology and learning with the laptop program for middle school children. Initial research shows that this has had a significant positive impact on learning in our middle schools. Students are more engaged and responsible for their own learning. Efforts have been made to extend the initiative to high school students with very uneven success. Properly configured and fully integrated into student learning, technology can change what we mean by school and schooling. Not only can it transform the classroom, but it also opens up the possibility of greater student independence in learning away from the traditional confines of the school in "virtual" learning situations. If Maine and its citizens are to be competitive in the 21st century global economy, then ALL students must be prepared for the world of technology. Recent research demonstrates that all students benefit from the use of technology to improve learning—and that this benefit is most keenly realized by students who are not thriving in their traditional school settings.

The Select Panel is fully convinced that failure to fully integrate technology into the framework of 21st century education will condemn our young people to lives of compromised quality. It is important to emphasize that "fully integrate" means moving well beyond the "down the hall once a week" concept of technology as an adjunct to learning to the use of technology as an integral part of every day learning.

Goals for Technology:

1. **Increase student access to technology;**
2. **Integrate technology into teaching and learning;**
3. **Increase teacher training in the use of technology—and do so on an ongoing basis to ensure we maintain expertise in the face of rapid change; and**
4. **Assess the possibilities of new technologically advanced systems of instructional delivery.**

The Select Panel makes the following recommendations in the area of technology:

Technology = Computers + ?

1. From grades 7 through 12 each student must have an individual wireless device he/she may take home everyday and have for use at home during vacations.
2. All teachers must receive continuous training on the use of the computer and other new, emerging technologies in schools and on different models of effective integration into the daily work in the classroom. This training should be an integral part of teacher preparation, certification, and recertification. In order to support this important initiative, the State must provide effective professional development.
3. The Department of Education needs to establish a task force to consider opportunities for technologically alternative systems of delivery of instruction and to assess the viability of the "virtual school."

Structural Reform: Governance and Political Organization

Maine cannot afford the educational infrastructure currently in place. As noted, there are 286 SAUs administered by 152 superintendents and 45% more principals per student than the national average. Maine has 33% more educational employees per student than the national average. Maine has twice the number of school district officials per student than the average. Common sense tells us that administrative costs do not rise in proportion to increases in students, but are clearly more closely related to the number of administrative units—not their size. All of this suggests that we have an enormously cumbersome and

inefficient system, the product of historical circumstance and geographic limitations of an earlier time. Maine does not have a rational system designed to streamline the effective delivery of services to improve student learning. There is an enormous cost to taxpayers that drains resources from the classrooms where they could positively impact student learning. The structures simply must change if we are to move forward.

The Select Panel believes that the recommendations that follow will begin to capture significant savings that can be redirected to classrooms across Maine to fund many of the changes for improved student learning advanced in this Report.

Goals for Government/Political Organization

1. **Create an efficient educational system—one with a more streamlined structure but still allowing for local voice and connection;**
2. **Bring administrator-to-student ratios more in line with national averages;**
3. **Take a hard look at school size and reduce cost per student in school construction; and**
4. **Bring the teacher-to-student ratio in line with the national norm.**

1. STATE LEVEL:

   A. Consistent with much of existing state law, SAU school boards will have responsibility for educational policy, the school district budget, and the employment of the Superintendent. Other governance and personnel matters will be within the purview of the Superintendent. In addition to the Superintendent and School Board for each school administrative unit (SAU), a "Local Advisory Board" will be established to work with community or neighborhood schools to ensure local input and a real voice in the schools in these expanded districts. Principals, staff, and community members will work together to create a school culture and approach to student learning that meets the needs of students.

2. DISTRICT LEVEL:

   A. The number of SAUs will be reduced dramatically from the

current 286. A bi-partisan Redistricting Panel representative of the State's diverse geography will be appointed (two members—one Republican, one Democrat-- each appointed by the Governor, the Senate President, the Speaker of the House, a member of the State Board of Education, two representatives of the MSMA, a representative of the MMA, and a Teacher of the Year chosen by the MEA) to redraw district lines so that each district will serve 3000-4000 students (current districts of this size or larger will remain in tact). Districts will be in two forms—municipalities or SADs. In doing their work the Redistricting Panel will give priority to retaining community integrity, current district integrity, transportation issues, etc. The plan submitted to the Legislature will receive an up or down vote, but not be subject to amendment.

3. SCHOOL LEVEL:

A. The state will move as rapidly as possible over time to minimum standards for major capital construction -- about 350 students for schools that are not secondary schools and 450 students for high schools. Recent state and national studies show that per student per square foot construction costs for schools smaller than this skyrocket (See Appendix D). Exceptions should be made for isolated small schools and geographic areas where transportation time would be excessive. In addition, "schools within schools" and other personalizing strategies should be established to ensure that each student has a sustainable relationship with a group of teachers--where students are known as individuals. The point is to move from tiny schools to small learning communities across the state.

The quality of instruction and the culture of the school are more important than school size.

4. SCHOOL AND STUDENT LEVEL:

A. The current "school choice" option administered through "superintendent agreements" will be administered by the DOE and requests to attend another school will not be unreasonably denied by either the sending district or the receiving district as long as space is available. Choice cannot be exercised simply to gain advantage in competitive extracurricular activities. Students who move to a school outside their SAU will be funded at the

tuition rate of the receiving district. Funding for special education students is the responsibility of the State.

B. The class size in Maine, currently at 12.7, shall be aligned with the national norm of 1 teacher to 15.6 students.

What the Data Tells Us: Why Fundamental Change Is Necessary Now

Maine is not a wealthy state. It has been generous to education and must continue to be so in the future, but it must seek more efficient ways to deliver high-quality education with improved student learning. As a matter of fundamental fairness, that focus on quality cannot be compromised. The data below suggests that while we have real strengths, and we need to pay careful attention in the future to means of raising performance for ALL students to world-class standards.

Data: Societal Attitudes Toward Learning

Societies with greater numbers of college graduates tend to assign a greater value to post secondary education. Maine is at the bottom of the New England states in that regard in part because of a relative lack of jobs that require college degrees and in part because fewer Maine students persist in college. The most recent data is as follows:

State	Population with Bachelor's
Massachusetts	37.6%
New Hampshire	34.0%
Connecticut	33.5%
Vermont	31.3%
Rhode Island	27.6%
United States	27.2%
Maine	23.7%

It is no coincidence that equally important and related data shows Maine as second to last in the number of secondary school graduates who enter postsecondary education.

State	Percent High School Graduates Who Enroll in a Degree-granting Institution
Maine	50%
Connecticut	63%
Massachusetts	65%
New Hampshire	58%
Rhode Island	54%
Vermont	45%

The data on return on educational investment for individuals and for Maine is astounding. It is estimated that the annual average salary of a high school graduate will be $27,915; the figure for a person with an Associate's degree is $35, 958; and the person with a Bachelor's degree earns $51,206. These figures underscore the importance of postsecondary education to the quality of individual lives and the future economic viability of the State.

Data: Structural Change: The Quality of Student Learning

Maine is in a strong position to foster significant change. We have clear strengths; yet, there is a growing body of data that suggests we must improve by building on our strengths and addressing our weaknesses in order to enhance student learning and prepare young people for the 21st century.

Student Performance

The national comparative data on student performance as measured by the National Assessment of Educational Performance (NAEP) has been comparatively strong for Maine. The results on a scale of 0-500 with most state scores in the low 200s by grade for mathematics and reading for three years of available data are:

	2003		2000		1996	
Grade 4	State	National	State	National	State	National
Mathematics	238	234	230	224	232	222

	2003		2002		1998	
Grade 4	State	National	State	National	State	National
Reading	224	216	225	217	225	213

	2003		2000		1996	
Grade 8	State	National	State	National	State	National
Mathematics	282	276	281	272	284	271

	2003		2002		1998	
Grade 8	State	National	State	National	State	National
Reading	268	261	270	263	271	261

While the Panel takes note of some stagnation in results and recognizes that our student population is relatively homogenous (absent significant numbers of minorities), nevertheless, our State's performance on the NAEP exams is an indication of strength and should give us confidence as we move forward.

The results of the Maine Educational Assessments (MEA) continue to cause concern. The data on the "Does not meet" and "Partially meets" standards are as follows for the last three available years in math and reading:

11TH GRADE

	2003-2004		2002-2003		2001-2002	
	Math	Reading	Math	Reading	Math	**Reading**
Partially Meets	41%	43%	40%	43%	43%	39%
Does Not Meet	34%	9%	41%	10%	38%	8%

8TH GRADE

	2003-2004		2002-2003		2001-2002	
	Math	Reading	Math	Reading	Math	Reading
Partially Meets	46%	50%	50%	43%	39%	44%
Does Not Meet	32%	13%	32%	12%	40%	12%

4TH GRADE

	2003-2004		2002-2003		2001-2002	
	Math	Reading	Math	Reading	Math	Reading
Partially Meets	48%	42%	43%	40%	49%	42%
Does Not Meet	20%	7%	28%	11%	29%	10%

Clearly, in spite of some progress, the panel is troubled that such a large portion of Maine's students continues to score in these unacceptable categories. This is especially important since Maine has mandated by law that ALL students meet the high standards of the Maine Learning Results.

Another disturbing indicator is the number of students who enter the University and Community College systems requiring

remedial work before they can begin to accumulate credit toward a degree. In Maine, the Department of Education reports that 25% to 50% of students entering the community college system and the University of Maine System must take remedial work in literacy. In 2002, 28% of U.S. freshman entering postsecondary education were recorded as taking at least one remedial course (42% at public two-year institutions, 20% at public four-year institutions, and 12% at private four-year institutions.)

Global Comparisons of Student Performance

What all of us must recognize, however, is that in this global economy where national boundaries are far less meaningful than in the past, we must pay attention to the performance of Maine children in comparison to other nations. According to the Trends in International Mathematics and Science (TIMSS) Study, the United States fares poorly in this international comparative context. Although above the average, the U.S. has slipped to 20th out of 45 nations in eighth grade mathematics. In the Program for International Student Assessment (PISA) of 15-year-olds in industrial nations, the U.S. scored 24 out of 29 countries in mathematical literacy. Many of the countries achieving ahead of the U.S.A. have longer school years and provide greater time for professional development for teachers.

Teachers

Teacher quality is an area of historic strength, but there is a need for improvement in the future. For example, 6,196 teachers in Maine have a Master's Degree. The number of teachers who have achieved National Certification is on the rise, but still remains below 100. We are moving in the right direction, and we should continue to build on this base. Professor David Silvernail's MEPRI study of high performing schools showed a distinctive positive correlation between faculty with advanced work and student achievement.

The correlation between teacher preparation and student performance is corroborated in national research on student performance. Ronald Ferguson's 1991 study "*Paying for Public Education: New Evidence on How and Why Money Matters"* concluded:

"What the evidence suggests most strongly is that teacher

quality matters and should be a major focus of efforts to upgrade the quality of schooling. Skilled teachers are the most critical of all schooling inputs."

A 1997 study by the National Commission on Teaching and America's Future found that 43% of student gains in mathematics from grade three to grade five were the result of teacher quality.

Teacher compensation must be a major focus area for successful recruitment and retention of quality teachers in the future. Yet, the extent of local responsibility for school funding means that economically struggling communities, where education offers a ladder out of poverty, are often unable to afford to hire the most experienced and qualified teachers. The most recent data on average faculty salaries shows that Maine stands 35th in the nation--down from 28 a few years ago. The ranking among New England states is as follows:

State	Average Salary	Rank
National Average	$45,726	
Maine	$38,864	35th
Connecticut	$57,337	2nd
Massachusetts	$53,076	7th
Rhode Island	$52,261	9th
New Hampshire	$42,689	25th
Vermont	$42,007	27th

Related to this data is the disturbing fact that Maine, prior to recent increase of the base starting salary to $27,500, was ranked 47th in the nation in beginning teacher salaries. There is also a great deal of disparity in compensation across the state. Last year starting salaries ranged from $20,750 to $33,000. The range for a B.A. teacher at the top of the salary schedule was from $32,050 to $57,150. After ten years of teaching with a Bachelor's degree the range is $28,750 to $48,850. These disparities do not speak well for equity and fairness for both teachers and students.

Further, the teaching force is aging. The average age is 44. The number of retirements in the coming years will be significant. That makes it critical for Maine's teacher compensation to be sufficient to attract high-quality educators to the teaching force.

Data: Structural Change: Time

The most telling data on time is the international comparison of student time in the classroom (see Appendix D). For example:

- "U.S. eighth grade students' instructional time takes place within a school year of approximately 180 days as compared to 188 in Germany and 220 in Japan."

There is a correlation between high-performing countries and the length of instructional time. In a study done in 1999 based on the TIMSS data, the high-performing countries of Japan, Korea, and Singapore reported an average number of instructional days of 200 a year at both 4th and 8th grades. (Michael Martin, et. al., *The School Contexts for Learning and Instruction*) Indeed, all the countries that performed better than the U.S. except for Hong Kong, Singapore, and Belgium had longer school years ranging from 188 days to 225 days. Only two (2) of the thirteen nations in the TIMSS math and science study had fewer days in schools than Americans. On average, students in participating countries had 193 school days compared to only 180 in America.

It was also clear that students outside the U.S. spent more time out of school doing studies. In Singapore, 59% of eighth graders spent more than three hours daily on homework, while only 22% of Americans reported that they did.

Similarly, on the national stage, Maine has among the shortest school years of any state. Only eight states have 175 days (Maine's minimum) or fewer as the minimum for student instruction. Thirty-two states have 180 or more.

Data: Technology

In 2004 The Great Maine Schools Project studied Piscataquis Community High School, which had provided students in grades 9-12 with one-to-one computing beginning in 2002. The results

were quite positive in a number of realms as follows:

- Computer Skills and Access to Resources:
  - 52% of students reported that their computer skills advanced;
  - The majority of students used the computer for daily work, homework, and e-mailing students and teachers;
  - 96% of teachers reported that their programs were enhanced;
  - 74% of parents reported that their child had greater access to educational resources.
- Student Motivation and Interest:
  - 79% of students indicated they were more motivated to do their school work;
  - Daily attendance improved by 7 points;
  - Teachers and parents report improved student engagement.
- Quality of Work and Student Achievement
  - 71% of students agree that laptops improved the quality of their school work;
  - 64% of teachers report improvement in the quality of student work;
  - 42% of parents agree that the quality of their child's work has improved.
- Classroom Practice:
  - "Near majorities" of teachers and students report they rely less on textbooks;
  - A majority of students report that they "explore a topic more on their own," "write more than one page," and "present their work in class."

Finally, in the Piscataquis Community High School study, 86% of teachers report that they can provide more personalized instruction, about half of the teachers report increased rigor, and most importantly, a majority of teachers reported that at-risk and low-achieving students performed better.

In a Career and Technology Education (CTE) center in central Maine, there were dramatic reductions in discipline issues (a half-dozen a year) as compared with the sending schools, and approximately 55% of graduates who matriculated to post-secondary school. Approximately 80% of students graduating from this school were employed in the regional area in their secondary school concentration.

Structural Change: Governance and Political Organization

Maine's educational structure and governance is complex to say the least. There are 286 School Administrative Units (SAU) with six different types of administrative systems:

- School administrative districts or SADs;
- Municipal units otherwise know as cities and towns;
- School Unions;
- Community school districts or CSDs;
- Agents – towns under school agent supervision; and
- Education in the Unorganized Territories (EUT).

These school units oversee 689 separate public schools responsible for approximately 204,000 students. As Philip Trostel and Catherine Reilly point out in their recent study, this means that the average school in 2000-2001 had 290 students in comparison to the national average of 506. They also note that there were 734 students on average per district compared to a national average of 3,177. Maine's K-12 public school system has one (1) FTE professional educator per 6.2 students--second lowest among the 50 states, and our administrator to student ratio places us among the lowest as well. In 2000-2001 Maine had one administrator per 393 students; the national average was one per 816. Maine has one principal and one assistant principal for every 230 students; nationally the ratio was one principal and assistant principal for every 333 students. Trostel and Reilly examined data on operating costs per student in Maine's school districts from 1998-99 to 2002-03. These data suggest that the unrealized economies of scale in Maine's public education system are $270 million per year (almost 20% of the total cost). In other words, public education in Maine costs roughly $270 million more than it would if all school districts were operated at the cost-minimizing enrollment size. Geographic considerations and transformation costs would mean that Maine would not realize a complete saving of $270,000,000, but the Trostel and Reilly study gives a sense of the magnitude of resources that could be captured and redirected to other student learning needs identified in this report.

We simply must address the cumbersome inefficiency that

diverts resources from student learning. This is particularly true when we recognize that the per capita income of Maine citizens is $30,566, which places us 24th in the nation while Maine is 8th in the nation in per student subsidy.

Cost and Savings Estimates

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

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August 2006

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 Tile 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 State Board 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) of 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 -ear 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.

Recommendation 1: 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:

Full Time Post-secondary Enrollment at One-half Tuition for Two Years	Cost
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
Total	$26,579,018

Recommendation 2: Increase Teachers' Salaries

According to the National Education Association (2005), Maine's average teacher salary in 2005 was $40,940, ranking Maine 34th 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 25th 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 25th 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:

Teacher Salary Increases with 10% Annual Attrition	Cost
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
Total	**$108,263,373**

Recommendation 3: 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:

Bonus Salary for Difficult to Fill Teaching Positions	Cost
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
Total	**$11,305,000**

Recommendation 4: 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:

Performance Based Compensation Pilot	Cost
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
Total	**$1,245,032**

Recommendation 5: 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:

Leadership Institutes	Cost
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
Total	**$619,596**

Expenditures

Recommendation 6: 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:

Pre-K Programs for All 4 year olds	Cost
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
Total	**$195,918,808**

Recommendation 7: 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:

Phase-In of Additional School Days	Cost
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
Total: 10 additional days	**$288,839,732**

Recommendation 8: 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:

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

Savings

Recommendation 9: 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 there being 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
Total	**$82,165,580**

Recommendation 10: 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:

Savings with Application of	Savings
Year 1: Current list of 13 approved	$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
Total	**$52,240,910**

Recommendation 11: 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. 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. Historically the student-teacher ratio in Maine has been higher, 18.6 in 1999 and 16.3 in 2000. 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:

Reduction in Total Number of Full-Time Teachers	Savings
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
Total	**$744,108,066**

Summary

The preceding pages of this report describe the results from a cost analysis of the 12 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.

Initiatives with Projected Savings	
Recommendations	Savings Projections
1. SAU Consolidation	$82,165,580
2. School Construction	$52,240,910
3. Teacher Ratios	$744,108,066
4. One Collective Bargaining agreement	?
Total Savings	**$878,514,556**
Initiatives with Projected Expenditures	
Recommendations	Costs Projections
1. Pre-K for all 4-year-olds	$195,918,808
2. Increase school time	$288,839,732
3. Increase teachers' salaries annually for 5 Yrs.	$108,263,373
4. Finan. Incentive for Difficult to Hire Subj. 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
Total Costs	**$745,094,503**
Summary	
Savings Projection	$878,514,556
Expenditures Projection	$745,094,503
Net Savings	**$133,420,053**

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.

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Appendix A

(Excerpted from the Maine Learning Results Document)
Guiding Principles

The building blocks for successful and fulfilled adulthood in the 21st century

Designed and Created by
Sarah Simmonds
Maine Department of Education

Each Maine student must leave school as:

1. ***A CLEAR AND EFFECTIVE COMMUNICATOR***

- uses oral, written, visual, artistic, and technological modes of expression;
- reads, listens to and interprets messages from multiple sources; and
- uses English and at least one other language.

2. A SELF-DIRECTED AND LIFE-LONG LEARNER

- creates career and education plans that reflect personal goals, interests and skills, and available resources;
- demonstrates the capacity to undertake independent study; and
- finds and uses information from libraries, electronic data bases, and other resources.

3. A CREATIVE AND PRACTICAL PROBLEM SOLVER

- observes situations objectively to clearly and accurately define problems;
- frames questions and designs data collection and analysis strategies from all disciplines to answer those questions;
- identifies patterns, trends, and relationships that apply to solutions to problems; and
- generates a variety of solutions, builds a case for the best response, and critically evaluates the effectiveness of this response.

4. A RESPONSIBLE AND INVOLVED CITIZEN

- recognizes the power of personal participation to affect the

community and demonstrates participation skills;
* understands the importance of accepting responsibility for personal decisions and actions;
* knows the means of achieving personal and community health and well-being; and
* recognizes and understands the diverse nature of society.

5. A COLLABORATIVE AND QUALITY WORKER

* knows the structure and functions of the labor market;
* assesses individual interests, aptitudes, skills, and values in relation to demands of the workplace; and
* demonstrates reliability, flexibility, and concern for quality.

6. AN INTEGRATIVE AND INFORMED THINKER

* applies knowledge and skills in and across English language arts, visual and performing arts, foreign languages, health and physical education, mathematics, science, social studies, and career preparation; and
* comprehends relationships among different modes of thought and methods associated with the traditional disciplines.

Appendix B

Vignettes of the Future Vision

In order to provide greater understanding of the spectrum of existing and possible classroom settings that can and should be developed better to serve a greater portion of the student body of Maine the following vignettes provide examples of changes in and alternatives to traditional high schools that:

- Integrate traditional, theoretical, and abstract approaches to knowledge with practical, real world applications that deepen understanding and develop relevant skills.
- Connect our schools from grade 5-12 on to online resources that meet the individual learning needs required to meet and exceed the standards of the MLR using schedules that are flexible and overcoming obstacles related to geographic isolation or local financial pressures.
- Create learning sites that step outside of school walls and provide highly engaging, motivating settings for the acquisition of meaningful content.

Linking Career and Technical Education Centers and Traditional High Schools:

Students from a variety of academic backgrounds sit in pairs puzzling over solutions to CAD designs problems in Lewiston Regional Technical Center. It makes no difference whether they are honors students seeking applied pre-engineering experiences or students from local high schools seeking real life contexts for traditional school learning, they are all busy trying to apply advanced mathematical understanding to a two-dimensional problem to produce a three dimensional piece of plastic that will be their solution.

Access to Technology for Advanced and Remedial Instruction:

A senior in a small community in northern Maine sits at her computer at 10:30 on a Wednesday morning. She is just completing the morning session of her online course in physics before she leaves for her local high school for the rest of her academic programming. This online option provides her with access to learning that her local community could not otherwise provide due to limited enrollments. Two hundred miles away in southern Maine another student leaves an ATM room where he has just fin-

ished his morning class in Japanese. The course is offered by an instructor at a central Maine high school. At Lewiston Regional Technical Center a student sits down to a computer terminal to work on developing basic competency in algebra, a course he previously failed. Unlike more traditional classes the program adjusts itself to the student's knowledge base, focusing only on those skills the student does not have. He can take the course before heading to the culinary arts center where he is assisting in the preparation of a luncheon for visiting Department of Education representatives and members from the Museum of Science in Boston.

New Concepts of Secondary Learning:

A high school student collects samples of water from a small pond in California. She takes the samples back to a laboratory where she analyzes the results and sorts through the information. She will demonstrate learning by communicating her understanding of the local industrial impacts on the aquifer. One hundred students in Portland, Maine, collaborate with their teachers to identify community projects they will participate in during the first year of an expeditionary learning project. Their learning projects will connect them to individuals and resources globally.

As we advocate for all students to receive instruction focused on rigorous standards and insist that they demonstrate their proficiency it becomes clear that the opportunities we offer to students must be increasingly flexible to achieve this result. These vignettes challenge our current common assumptions about school structures and suggest that:

- school leaders must reach beyond thinking about individualization of instruction within classrooms to thinking about new contexts for delivery of instruction.
- technology will be an external driver, providing schools with a range of options to offer greater flexibility.
- learning must be more authentic and thus more meaningful. Students of the future, and their parents, will demand a greater hand in designing experiences that have greater personal meaning and are connected to authentic societal issues. Howe and Strauss make note of this trend in their book, *Millennials Rising,* on the generation of students just beginning to graduate from our schools. Wilhelm's research on adolescent males further reminds us that our success with

this group rests on our willingness to structure learning experiences with greater application and more meaningful relationship to life experiences.

- timelines for learning will be more flexible and learning will be connected to resources and individuals throughout the globe.

Each of the examples described above exists in a school in Maine or elsewhere in the United States. Today, being a part of these learning situations makes students a part of exceptional learning experiences. As we strive to assist all students in achieving high standards for learning, our schools will be pressed to rethink our understanding of school structures to make exceptional learning contexts such as these the norm available to all students.

Appendix C

Excerpted from: Education Commission of the States 700 Broadway, Suite 1200, Denver, CO, 80203-3460 www.ecs.org

Scheduling/Length of School Year

Number of Instructional Days/Hours in the School Year

By Jeffrey Tomlinson
Updated July 2004

The minimum number of instructional days refers to the actual number of days that pupils have contact with a teacher. It does not include teacher inservice or professional development days.

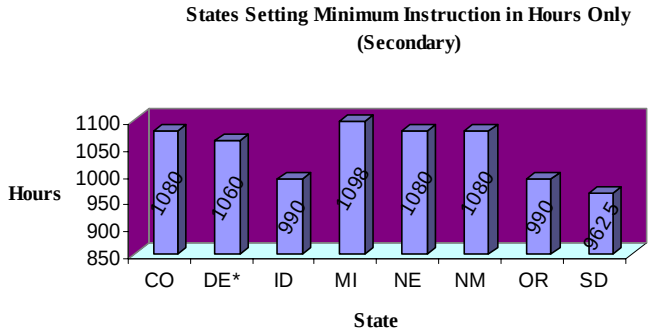
Summary

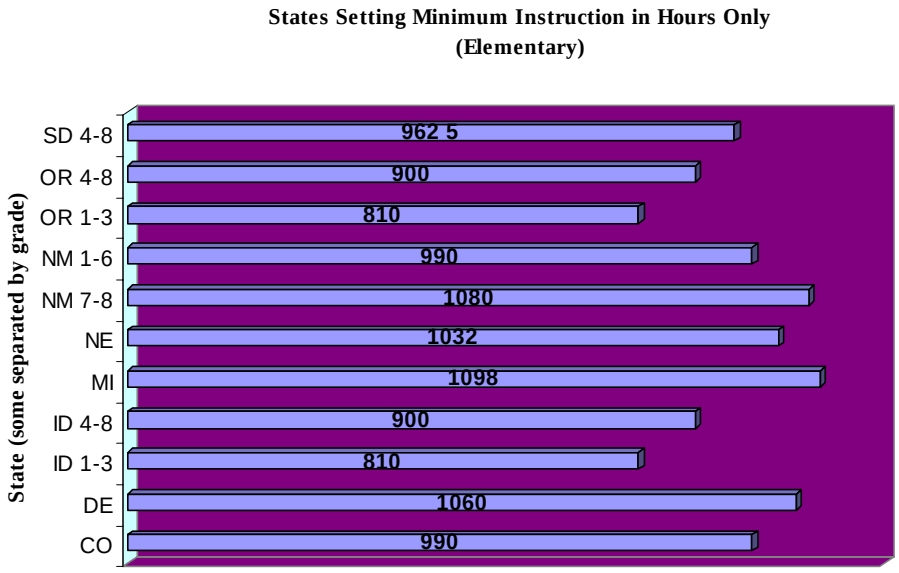
Changes to the minimum instructional days have occurred slowly since 1980, with a total of 14 states having increased the minimum number of school days, 9 states reducing the minimum number of teacher-pupil contact days and a number of states opting to permit districts to measure classroom contact time in either hours or days.

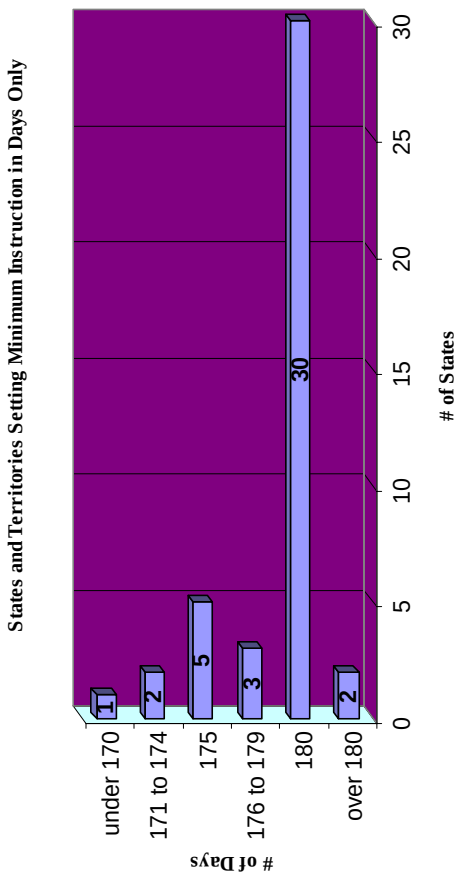
Since the close of state legislative sessions in 2000, three states – South Carolina, Louisiana, and Arizona – have enacted laws to increase the minimum number of instructional days in the school year.

While states vary widely on the minimum number of instructional days, a majority of states (30) set the bar at 180, two mandate 181 days and above, three range from 179 to 176 days, five set it at 175 days, two from 174 to 171 days, and one of the commonwealths has established under 170 days. A total of 8 states (Colorado, Delaware, Idaho, Michigan, Nebraska, New Mexico, Oregon, South Dakota) require a minimum number of instructional hours. Minnesota is the only state without a minimum of either, leaving the decision up to individual school districts.

Only a few states have laws requiring schools to start on a certain date, most often leaving it to the discretion of local education agencies.






States and Territories Setting Minimum Instruction in Days Only
# of Days
under 170
171 to 174
175
176 to 179
180
over 180
1
2
5
3
30
2
0
5
10
15
20
25
30
# of States

Note: LEA option refers to the Local Education Agency (district).

State	Minimum Number of Pupil/ Teacher Contract Days/Hours	Citation	When School Begins
AL	175[1] days	ALA. Code §16.13.231	LEA Option
AK	180 days	ALASKA STAT. §14.03.030	LEA Option
AZ	180 days or equivalent number of minutes in-struction per school year based on a different number of days approved by the district governing board	ARIZ. REV. STAT. §15-341.01	LEA Option
AR	178 days	Arkansas Standards for Accreditation 10.01.1	LEA Option
CA	180 days	CAL. EDUC. CODE §46200(a)	LEA Option
CO	1080 hours—Secondary 990—Elementary 900—Full-day kindergarten 450—Half-day Kindergarten	COLO. REV. STAT. §22-32-109(N)	LEA Option
CT	180 (900 hours)	CONN. GEN. STAT. §10-16	LEA Option
DE	440 hours—Kindergarten 1060 hours—Grades 1-11 1032 hours—Grade 12	DEL. CODE ANN. 14.10 §1049(1)	LEA Option
DC	180 days	D.C. MUN. REGS. Tit. 5, §305.6	LEA Option
FL	180 days	Fla. Stat. 1003.02(1)(g)	LEA Option
GA	180 days	GA. CODE ANN. §20-2-168(C)(1)	LEA Option
HI	180 days[2]	According to Hawaii teachers' contracts, the teacher work year is no more than 190 days, and 10 of those days are non-instructional	LEA Option
ID	450 hours—Kindergarten 810 hours—Grades 1-3 900 hours—Grades 4-8 990 hours—Grades 9-12	IDAHO CODE §33-512	LEA Option
IL	176 days	105 ILCS 5/10-19	LEA Option
IN	180 days	IND. CODE §20-10.1-2-1	LEA Option
IA	180 days	IOWA CODE §279.10(1)	9/1 or later
KS	186 days (465 hours)—Kindergarten 186 days (1116 hours)—Grades 1-11 181 days (1086 hours)—Grade 12	KAN. STAT. ANN. §72-1106	LEA Option

State	Minimum Number of Pupil/ Teacher Contract Days/Hours	Citation	When School Begins
KY	175 days	KY. REV. STAT. ANN. §158.070	LEA Option
LA	177 days (360 minutes/day)	LA. REV. STAT. ANN. §154.1	LEA Option
ME	175 days	ME. REV. STAT. ANN. Tit. 20-A, §4801	LEA Option
MD	180 days (1080 hours)	MD. CODE ANN., EDUC §7-103	LEA Option
MA	180 days[3]	MASS. REGS. CODE tit. 603 §27.03	LEA Option
MI	1098 hours[4]	MICH. STAT. ANN. §380.1284	LEA Option
MN	LEA option as of 1996-97 school year Districts are expected to set school year length necessary for students to meet state and local graduation re-quirements	MINN. STAT. §120A.41	After 9/1
MS	180 days	MISS. CODE ANN. §37-13-63	LEA Option
MO	174 days (1044 hours)[5]	MO. REV. STAT. §160.011	LEA Option
MT	180 days 720 Hours — Grades 1-3 1080 hours— Grades 4-12	MONT. CODE ANN. §20-1-301	LEA Option
NE	400 hours — Kindergarten 1032 hours— Grades 1-8 1080 hours — Secondary	NEB. REV. STAT. §79-101	LEA Option
NV	180 days[6]	NEV. REV. STAT. 388.090	LEA Option
NH	180 days	N.H. REV. §Stat. Ann. 189:1	LEA Option
NJ	180 days	N.J. REV. STAT. §18A:7F-9	LEA Option
NM	450 hours — Half-day Kindergarten 990 hours —Full-day Kindergarten 990 hours — Grades 1-6 1080 hours — Grades 7-12	N.M. STAT. ANN. §22-2-8.1	LEA Option
NY	180 days	N.Y. EDUC LAW §3604.7	LEA Option
NC	180 days minimum (1,000 hours)[7]	N.C. GEN. STAT. §115C-84.2	Note before 8/25
ND	173 days	N.D. CENT. CODE §15.1-06-04	LEA Option
OH	182 days	OHIO REV. CODE ANN. §3313.48	LEA Option
OK	180 days	OKLA. STAT. §70-1-109	LEA Option
OR	405 hours — Kindergarten 810 hours — Grades 1-3 900 hours — Grades 4-8 990 hours — Grades 9-12	OR. ADMIN. R. 581-022-1620	LEA Option

State	Minimum Number of Pupil/ Teacher Contract Days/Hours	Citation	When School Begins
PA	180 days[8] 450 hours— Kindergarten 900 hours — Grades 1-6 990 hours — Grades 7-12	Education PA. Code §11.3	LEA Option
PR	160 days[9]	P.R. LAWS ANN. §77, 79	LEA Option
RI	180 days	R.I. Gen. Laws §16-2-2	LEA Option
SC	180 days	S.C. CODE ANN. §59-1-420	LEA Option
SD	962.5 hours — Grades 4-12[10]	S.D. CODIFIED LAWS §13-26-1	LEA Option[11]
TN	180 days	TENN. CODE ANN. §49-6-3004	LEA Option
TX	180 days	TEX. EDUC. CODE ANN. §25.081	May not begin instruction for students for a school year before the week in which 8/21 falls
UT	180 days 450 hours — Kindergarten 810 hours — Grades 1 990 hours — Grades 2-12	UTAH ADMIN. CODE R277-419-1	LEA Option
VT	175 days	VT. STAT. ANN. EDUCATION 16 §1071	Regional option
VA	180 days 540 hours — Kindergarten 990 hours — Grades 1-12	VA. CODE ANN. §22.1-98	After Labor Day
WA	180 days 450 hours — Kindergarten 1000 hours — Grades 1-12	WASH. REV. CODE §28A.150.220	LEA Option
WV	180 days	W. VA. CODE §18-5-45	8/26 or later
WI	180 days 437 hours—Kindergarten 1050 hours — Grades 1-6 1137 hours — Grades 7-12	WIS. STAT. §121-02	LEA Option
WY	175 days	WYO. STAT. ANN. §21-4-301	LEA Option

Notes:

In 1995, Alabama repealed legislation enacted in 1994, which would have phased in 180 days of instruction and 10 professional development days by the 2004-05 school year.

As reported by Greg Knudsen, Communications Director for the Hawaii Department of Education via e-mail on July 15, 2004. Contact him at Greg_Knudsen@notes.k12 hi.us.

In Massachusetts, effective in the 1997-98 school year, elementary school students must receive a minimum of 900 hours, secondary students 990 hours and kindergarten students 425 hours of "structured learning time."

In Michigan, changes made by the 2003 legislature replaced the 180-day requirement with 1,098 hours of annual instructional time – required to receive full state funding. (Previous state law, statute 380.1284, established that the minimum instructional year in hours for 2003-04 school year was 1,122, with incremental increases in successive years, finally reaching 1,140 in the 2006-07 school year and every successive year. The scheduled increase in days/hours will not go into effect if the percentage growth in the basic foundation allowance in a state fiscal year, as compared to the preceding year, is less than the percentage increase in the average consumer price index.) MICH. COMP. LAWS ANN. § 380.1284.

In Missouri, the length of the school day may vary from 3-7 hours, giving districts the flexibility to schedule release time for inservice training.

The Nevada state superintendent of public instruction may authorize a reduction in the required minimum number of school days per year up to 15 days. The reduction may be allowed only if the new schedule provides for an equivalent or greater number of minutes of instruction than is provided in the 180-day school year.

North Carolina school boards must adopt a school calendar consisting of 220 days. A minimum of 180 are for instruction (with a maximum of 200 instructional days), 10 are annual vacation leave, some are holidays (the same as those designated for state employees), and the remaining days are at the principal's discretion (while working with the school improvement team).

In Pennsylvania, school districts wishing to fulfill minimum instructional requirements using hours instead of days must obtain approval from the Secretary of Education.

The minimum of 160 days comes from a calculation of the minimum requirements of two separate laws. The first, P.R. LAWS ANN. § 77, which states "the school year shall in no case exceed ten months" and "in no case be less than eight

months" and the second P.R. LAWS ANN. § 79 which states "the school month shall consist of twenty days of actual teaching."

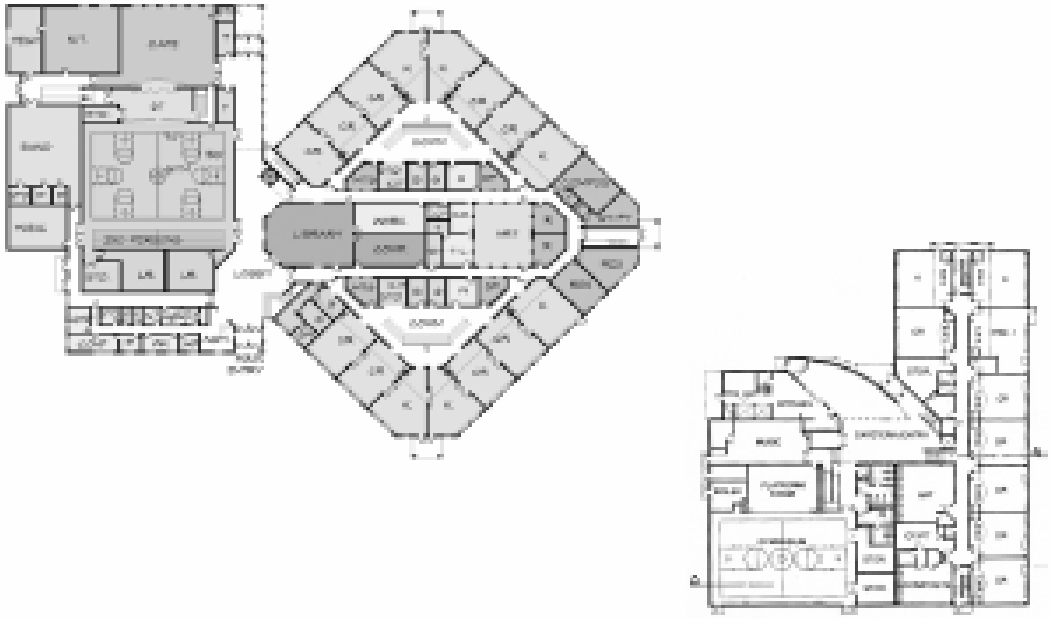
In South Dakota, each local school board sets the number of days in a school term, the length of a school day and the number of school days in a school week. The local school board or governing body establishes the number of hours in the school term for kindergarten programs. The board of education promulgates rules setting the minimum number of hours in the school term for grades 1-3.

In South Dakota, the state board of education sets the minimum number of hours for grades 1-3. Also, if a school board schedules the opening day of classes before Labor Day, voters may file a petition to have the school board decision referred to the voters in the district. The petition must be signed by 5% of the school district's registered voters and the referendum must be approved by a majority of voters. S.D. CODIFIED LAWS § 13-26-9

Jeffrey Tomlinson produced this ECS State Note, *while serving an internship in the ECS Information Clearinghouse*.

Appendix D

AN ANALYSIS OF CONSTRUCTION OF SMALL SCHOOLS *VS.* LARGER SCHOOLS



PREPARED BY AN
AD HOC COMMITTEE
OFFICE OF SCHOOL FACILITIES SERVICES

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DALE DOUGHTY, DOE CONSULTANT
DAN CECIL, AIA, HARRIMAN ASSOCIATES
LYNDON KECK, AIA, PDT ARCHITECTS

A BRIEF STUDY OF SQUARE FOOTAGE PER STUDENT & OPERATIONAL COSTS

PRESENTED TO THE
STATE OF MAINE
STATE BOARD OF EDUCATION

JULY 2005

Title page drawing by Mark Brown

INDEX

INTRODUCTION

The Chairperson of the State Board of Education's Construction Committee, Ellie Multer, requested that Scott Brown, Director of the Division of School Facilities, put together a small group to look at the relationship between school enrollments and the efficiency of a building in terms of square feet per student. She further requested that the group consider whether there is a savings associated with the construction of a larger consolidated school as compared to two or more smaller schools.

The Division Director, two architects, and two consultants met and assembled the information contained in this brief report. Paul Johnson, Consultant, researched national data on school sizes and enrollments. He also plotted recently constructed schools in Maine.

Dan Cecil, an architect from Harriman Associates, had recently conducted a study for a school system in which he compared the costs of building and operating a consolidated school compared to building and operating two smaller schools in the same school district.

Lyndon Keck, an architect from the Portland Design Team, plotted school projects that compared student enrollments with square feet per student.

The results of these efforts follow, and they are analyzed in the Executive Summary.

EXECUTIVE SUMMARY

The ad hoc committee came to the following conclusions after reviewing the information presented in this report.

From the Dan Cecil study a consolidated school can serve the same student population and offer the same curriculum with less square footage and thus a reduced cost. This primarily is the result of space duplications in the two-school scenario.

The Dan Cecil study also compared operating costs between the two options. There were significant savings in both operational and personnel costs. When projected over a 40-year life cycle, the savings per student approached $3,500.00.

From the Lyndon Keck study it is evident that as a school grows smaller in terms of enrollment, the square feet per student increases. This translates into a greater cost per student for smaller school units.

The Department of Education data confirms from both the national and a state-wide basis that both the Cecil analysis and the Keck analysis hold true.

With limited State resources available for capital construction, encouraging consolidation in order to build larger schools is in the best interest of the state's expenditure for capital construction projects.

HARRIMAN ASSOCIATES' NARRATIVE

Litchfield, New Hampshire, Elementary Schools Study Goals

The school department wanted to know if there was any difference in construction costs and operations and maintenance costs in building two smaller elementary schools vs. one larger school of the same total student population. The total population involved consisted of 1000 students, grades 1-5, and 40 Pre-kindergarten students. Both options were for new school buildings. The result of the study would direct which option they would take to referendum in March of 2006. The district wanted to bring to the voters

the most cost effective, long-term solution. The building committee responsible for managing the study was chaired by a school board member and consisted of 16 people including additional school board members, two selectmen, a budget committee member, parents, elementary school administrators, teachers and staff, and the Superintendent and Business Manager. The study was conducted over a five-month period.

Space Allocation Workbooks

The school department, elementary school administrators, and the architect created space allocation workbooks for both the two school and the one-school scenarios to determine how large each building would be. The architects conducted a full programming process, interviewing all teachers, staff, and administrators to catalog their educational programs and determine their space requirements. There were several rounds of review of the workbooks with the stakeholders and the building committee to insure that the square footages required were as efficient and comprehensive as possible. The building committee mandated that in either scenario, the students would receive the same level of educational programs with the same student/teacher ratio.

The Two School Scenario

In this scenario, one school would house 640 students grades Pre-K through 3, and the second school would house 400 students, grades 4 and 5. These schools would be on separate sites owned by the school department within the Town.

The One School Scenario

In this scenario, one consolidated school was planned to house all 1040 students, grades Pre-K through 5. In the attached study data, one can see that the single school housed the same number of students in 23,058 square feet less space. The program offerings were identical as mandated by the building committee.

Total Project Cost Savings

On the construction side of the equation, the reduction of square footage resulted in a reduction of total project costs of $3,458,700, assuming $150/square foot. This is money that would have been bonded over 20 years,

greatly increasing the actual savings. If the $/square foot number was higher than $150, then the savings would be correspondingly higher.

Annual Operations Savings

The architects reviewed the school district's actual operations budgets for their existing school in the following categories - oil, power, water, sewer, gas, data, phone, trash pickup, and snow removal. The district is currently spending about $1.84/square foot/ year for these operations costs. For the one school scenario this represents an annual savings of $42,426.

Annual Personnel Savings

To catalog any differences in staffing resulting from consolidating two schools, the school administrators conducted a detailed exercise to verify staff requirements room-by-room and program-by-program in each scenario. They looked at administration, teaching and staff positions and found reductions in each for the one school scenario. The annual personnel savings were $117,456.

Summary of Total Savings for the One School Scenario

These potential savings have to be reviewed in the context of the 40-year life of the school building to fully appreciate their magnitude:

Total Project Cost Savings – The $3,458,700 initial total project cost savings would roughly double in value over the course of the 20-year bond depending on the interest rates.

Annual Operations Savings – Assuming that these annual savings would remain constant over the 40-year life cycle of the school, the total savings would be approximately $1,697,000. It is likely, however, that these operations savings would increase every year due to inflation, resulting in even greater overall savings.

Annual Personnel Savings – Likewise at current salary and bonus levels, the personnel savings over the 40-year life cycle of the school would be approximately $4,698,200. It is also likely that these personnel savings would increase every

year due to inflation, resulting in even greater overall savings.

Cost/Student Savings

Another benchmark used to compare school construction projects is the cost per student. In this study the district would save $3,479/student in the first year by going to a one-school scenario.

Area Reduction/Student

The single school option saves the school district 22.1 square feet/student. This is reflected in the operations costs above.

Summary of Where the Area Reductions Occurred

In the attached chart, the architects cataloged the actual differences in the space allocation workbooks for the two schools vs. one-school scenarios. There were no savings in the number of regular and Pre-K, art and music classrooms because the mandated student/teacher ratios applied to all schemes. Either way you need a total of 50 classrooms plus 2 art and 2 music rooms for 1040 students. There were minor reductions in the special education and library spaces required.

The big savings came in the 'core spaces' of the gymnasiums, administrative spaces, cafeterias, kitchens, and custodial spaces. The two-school scenario requires two gyms and the one school scenario requires only one gym for the same number of students. There are similar reductions in the other core spaces. A kitchen, for example, has to be a certain size to serve 400 students but it can handle many more meals per day before needing to add additional equipment and square footage. The area of the 1040 student kitchen grew by only 143% over the area of the 400-student kitchen, although the student population grew by 260%.

Conclusion

The space allocation workbooks for the three buildings were assembled objectively in an actual programming process leading to a referendum. Likewise, the operations and personnel costs were based on the school department's actual numbers. Therefore, it is likely that these types of area and cost reductions would be repli-

cated in any school consolidation project with a constant number of students involved for both the one and the two school options.

Litchfield, New Hampshire, Elementary School Comparison
Project No. 04147
May 17, 2005 - Rev. June 16, 2005

A. Two School Scenario
New Pre K - Grade 3:
(600 students + 40 pre K) 88,942 sf
New grades 4-5
(400 students) 66,780 sf

Total 155,722 sf

B. One School Scenario
New Pre K - Grade 5:
(1000 students + 40 pre K) 132,664 sf
Difference 23,058 sf
net reduction from building one consolidated school

C. Total project cost savings: 23,058 sf x $150/sf = $3,458,700

D. Annual operations savings: 23,058 sf x $1.84/sf/yr = $42,426.72

(Oil, power, water, sewer, gas, data, phone, trash pickup, snow removal)

E. Personnel savings - Annual salaries and benefits
2 schools $1,926,912.90
1 school 1,809,456.79
$ 117,456.11 net savings in personnel ts

F. Therefore, the approximate net savings for one consolidated school for the first year is:

G. Total project budget $ 3,458,700.00
Operations savings/year 42,427.00
Personnel savings/year 117,456.00
Total $ 3,618,583.00

Note that the operations and personnel savings would continue every year for the 40-year life of the building.

G. Cost/student savings:
$3,618,583/1040 students = $ 3,479 per student

H. Area reduction/student:
Two school scenario:
155,722 sf / 1040 students = 149.7 sf/student

One consolidated school scenario:
132,664 sf / 1040 students = 127.6 sf/student
Difference 22.1 sf/student

Litchfield, New Hampshire, Elementary School Comparison

Project No. 04147

May 17, 2005

Typical Rooms	Two Schools		One School	Reduction for One School	
	400 students	640 students	1040 students		
Regular class-rooms	18 x 900	30 x 900	48 x 900	0	
Pre-K	n/a	2 x 1,000	2 x 1,000	0	
Art	1 x 1,050	1 x 1,050	2 x 1,050	0	
Music	1 x 1,000	1 x 1,000	2 x 1,000	0	
Library	1 x 2,850	1 x 3,450	1 x 5,950	-350	
Special education	1 x 4,395	1 x 5,625	1 x 9,665	-355	
Gym/PE/storage	1 x 8,845	1 x 9,120	1 x 10,950	-7,015	
Admin/Guidance Nurse/Faculty	1 x 5,535	1 x 5,785	1 x 7,325	-3,995	
Cafeteria	1 x 3,000	1 x 3,200	1 x 4,860	-1,340	
Kitchen	1 x 1,650	1 x 1,800	1 x 2,370	-1,080	
Custodial/storage	1 x 2,325	1 x 2,400	1 x 2,450	-2,275	
				-16,410	sf
				(1.4)	
				-22,974	sf

PORTLAND DESIGN TEAM NARRATIVE

Small Schools vs. Large Schools Square Footage Analysis:

PDT Architects has designed over twenty-three elementary schools in the last eighteen years in the State of Maine. School sizes have ranged from 150 students to 950 students. These schools have included traditional K-6, K-5, K-2 and K-3 primary schools, as well as 3-5 and 4-5 intermediate elementary schools.

PDT has noticed a consistent pattern over the years showing that smaller schools require more square feet per student than larger schools. This intuitively makes sense because as school populations get smaller, many areas of the school do not get proportionately smaller in keeping with the reduced population. Obvious examples are hallway widths and handicap toilets that have minimum width requirements as mandated by building codes. Kitchens, boiler rooms, principal's offices, resource rooms and Special Education rooms do not fall on the same direct proportional sliding scale as the number of classrooms a building might have based on differing school populations.

This study focused on three school studies that have been prepared over the last fifteen years for clients that specifically compared building programs for small schools versus larger consolidated schools.

The first of those studies was a study prepared for the Scarborough Primary School that addressed K-3 populations and was done in 1990.

The second study was a study for K-5 elementary schools for Old Town, Maine in 2001. This study compared two elementary schools at 275 students each versus one consolidated school at 550 students.

The third study was done for the Augusta School Department in 2005.
It looked at comparing three elementary schools, each at 363 students, versus four elementary schools with populations that range between 245 students to 460 students.

Finding #1:
(see Table One)
The Scarborough Primary School Study found that building a single consolidated school for 630 students resulted in a building that had 25 s f. per student less than if three smaller schools were built.

The Old Town Study found that building one consolidated school of 550 students versus two schools at 275 resulted in a savings of 15.5 s f. per student.

The Augusta Elementary School Study found that building three schools, each at 363 students, resulted in a savings of 12 s f. per student versus smaller schools with a population of between 245 and 313 students.

Finding #2:

(see Table Two)

PDT took the data from the three independent school studies mentioned above and added two additional schools, one for a 950 pupil K-3 primary school which was built at 94 s f. per student and another for a 200 pupil K-1 primary school which required 175 s.f. per student. This resulted in a study "population" involving fourteen schools with a broad range of populations from 200 students to 950 students. These schools were plotted as number of students against s f. per student. Schools with 250 students require approximately 140 s.f. per student and schools with 200 or fewer students require more than 150 s f. per student.

The major conclusion from this plotting shows that efficiency, in terms of square feet per student, falls off dramatically at about 250 students. It clearly shows that a school with 500 or more students can have individual spaces that meet minimum space requirements and still be built within 125 s f. per student.

Conclusion:

This study only looked at elementary schools.

Both Table One and Table Two resulted in data that shows that larger schools require less square footage per student than smaller schools.

It appears that schools with population of 450-500 are the point at which smaller schools require more space per student.

Elementary schools smaller than 250 students require dramatically more space per student with 200 pupil schools needing 150 s.f. or more.

TABLE ONE
Small vs. Large School

1 Old Town Study

School Name		# Students	SF/Student	Average SF/Student	Additional Required SF	
One Consolidated School	K-5	550	125 sf	125 sf		
Two Schools	K-2	275	131 sf	140.5 sf	15.5	
	3-5	275	150 sf			

2 Scarborough Primary Schools

Three Schools						
SPB	K-2	270	128 sf	150 sf	25	
SPH	K-2	180	150 sf			
S8C	K-2	180	172 sf			
One School	K-2	630	125 sf			

3 Augusta Elementary Schools

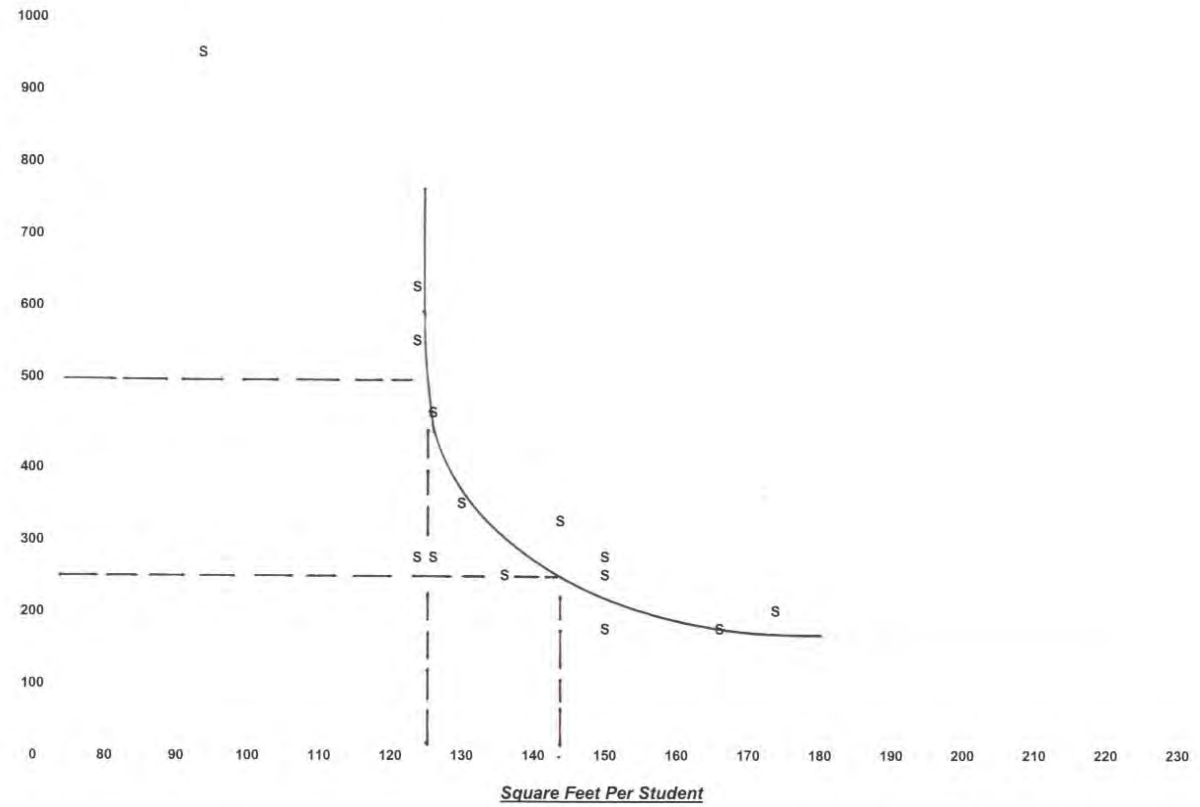
Farrington	K-6	460	125 sf	125 sf		
Gilbert	K-6	313	144 sf	142 sf		12
Hussey	K-6	245	135 sf			
Lincoln	K-6	251	147 sf			
Three Schools @ 363	K-5	363	130 sf	130 sf		

TABLE 2

PDT Architects
June 16 2005

School Size Plotted Against Population

14 PDT ELEMENTARY SCHOOLS



DEPARTMENT OF EDUCATION NARRATIVE

How Recently Built Maine Schools Compare in Number of Students Per School and Square Feet Per Student With Recently Built Schools Nationwide.

The first three charts, one each for elementary, middle, and high schools, show recently built Maine schools with information on the schools' enrollments and square footage per student. The charts also plot the same information using the median for small and large schools recently built nationwide. The national information comes from the February 2004 issue of "School Planning & Management" and is based on the construction of 281 elementary, 111 middle, and 101 high schools.

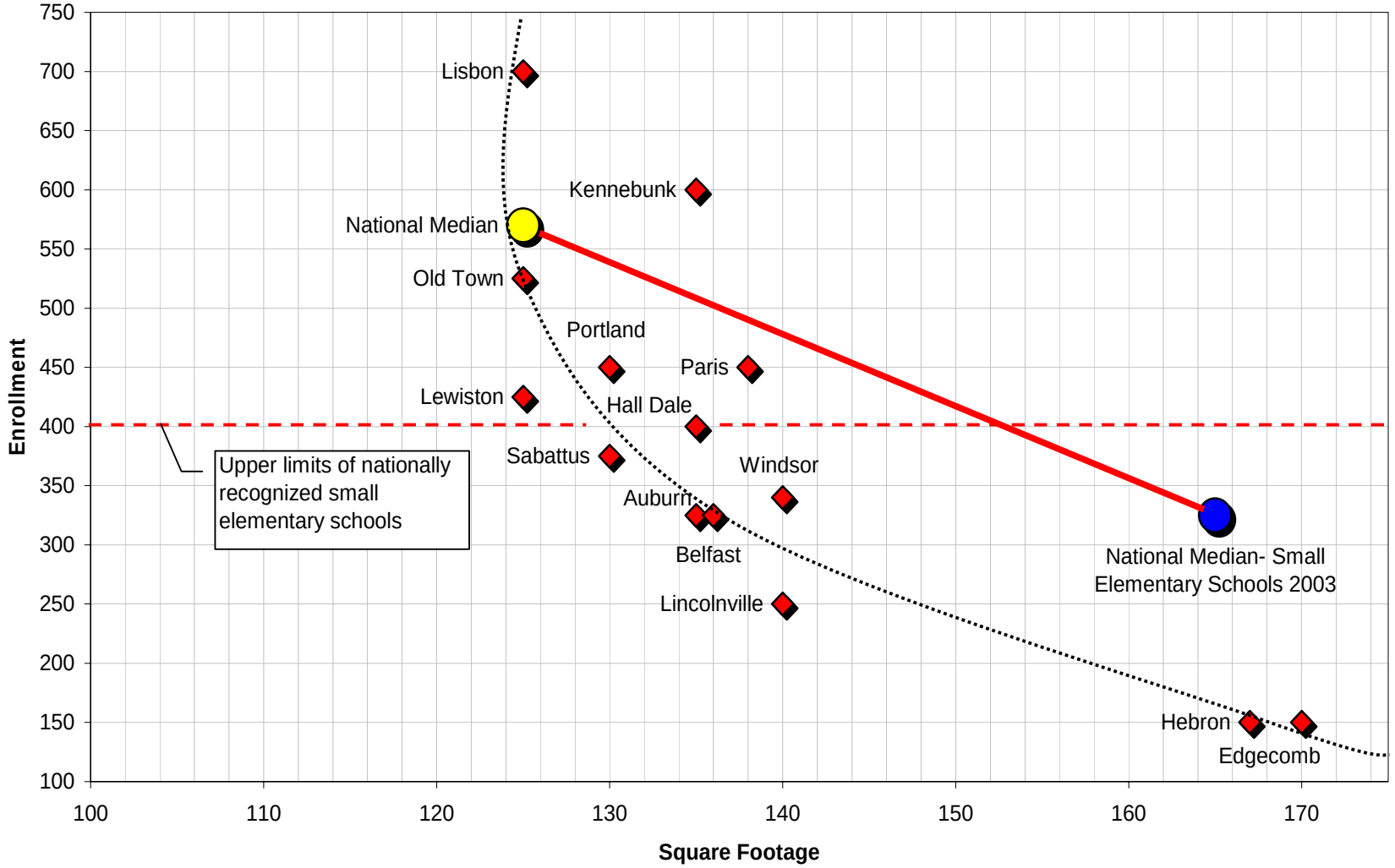
The national information shows that in all three levels smaller schools use more square footage per pupil than larger schools, and the smaller the school the more dramatic the difference.

The Maine information also shows that smaller schools use more square footage than larger schools and that Maine's new schools in general use less square footage per student than their national counterparts. This is surprising because Maine builds smaller schools than the national average so one would assume that their square feet per student would be above national average; but it's not.

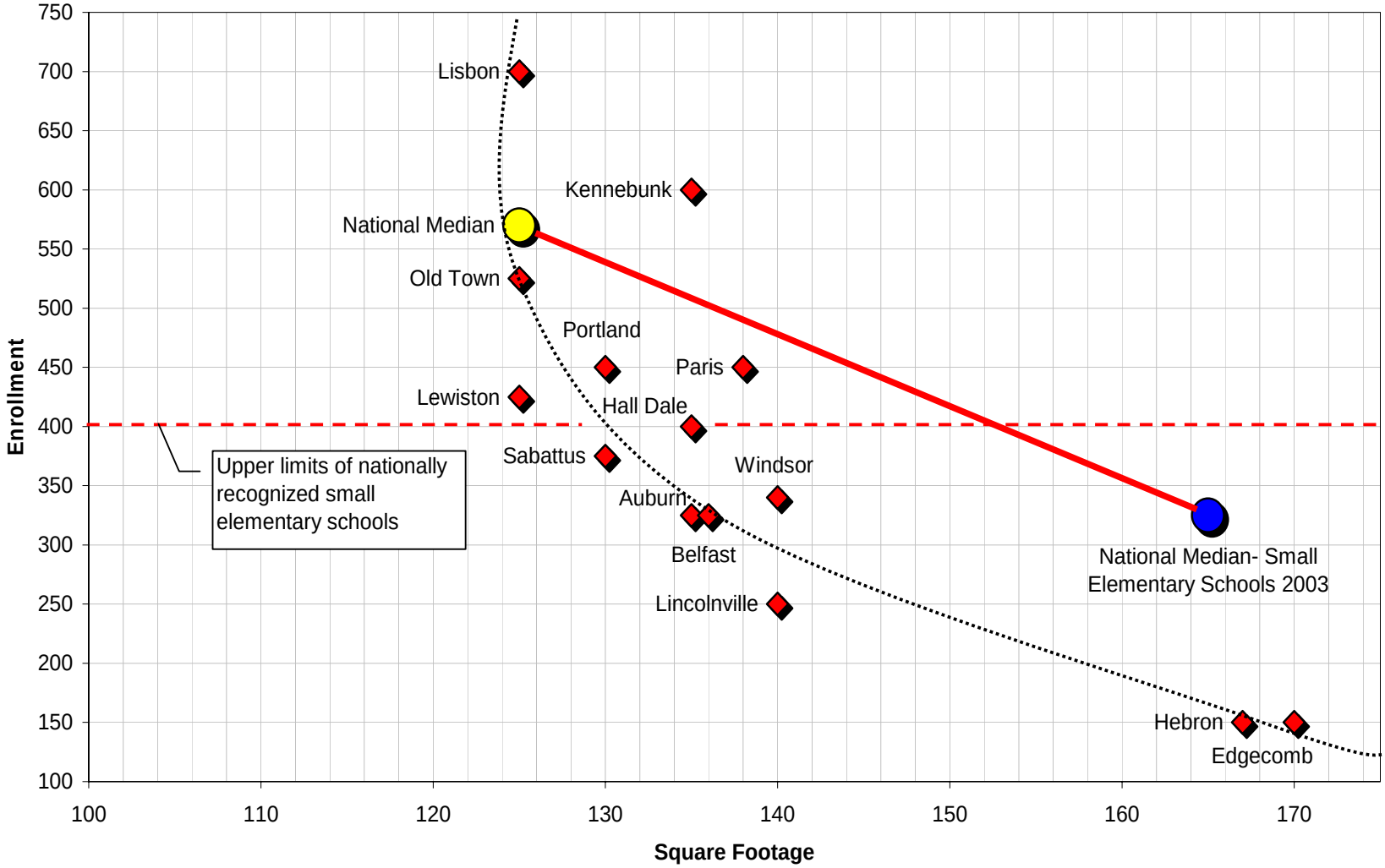
The high school chart is not as strong as the elementary and middle school charts because Maine has not built many high schools in the last few years, and therefore, does not have as much current data as the elementary and middle school charts.

The fourth chart entitled "Does School Size Matter?" identifies high, middle, and elementary schools and their size in terms of school population and square footage based upon national medians. This again reinforces the point that as school populations decrease, the square footage per student increases; thus the cost per student also increases.

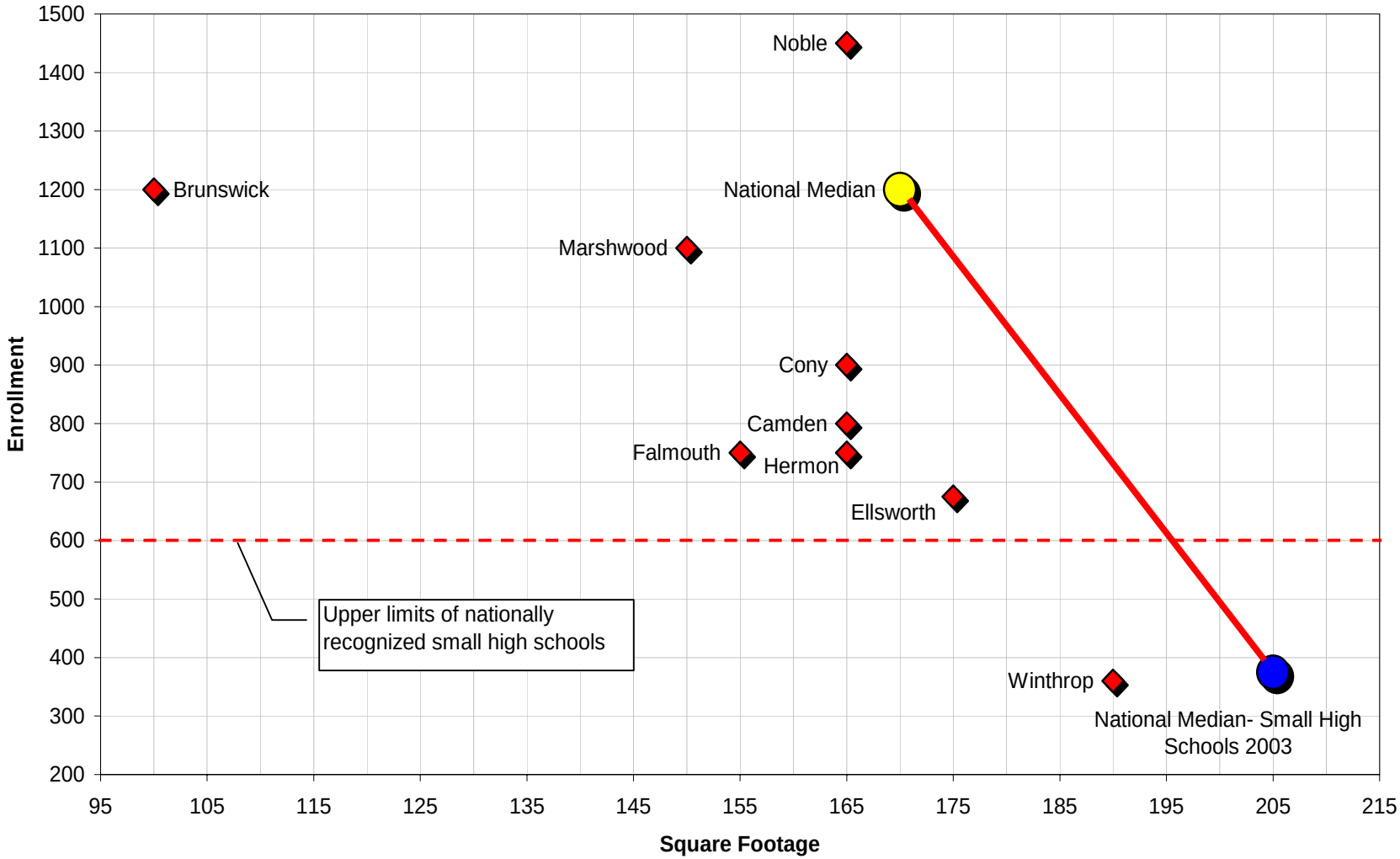
Elementary Enrollments & Square Footage
New Construction 2000-2004



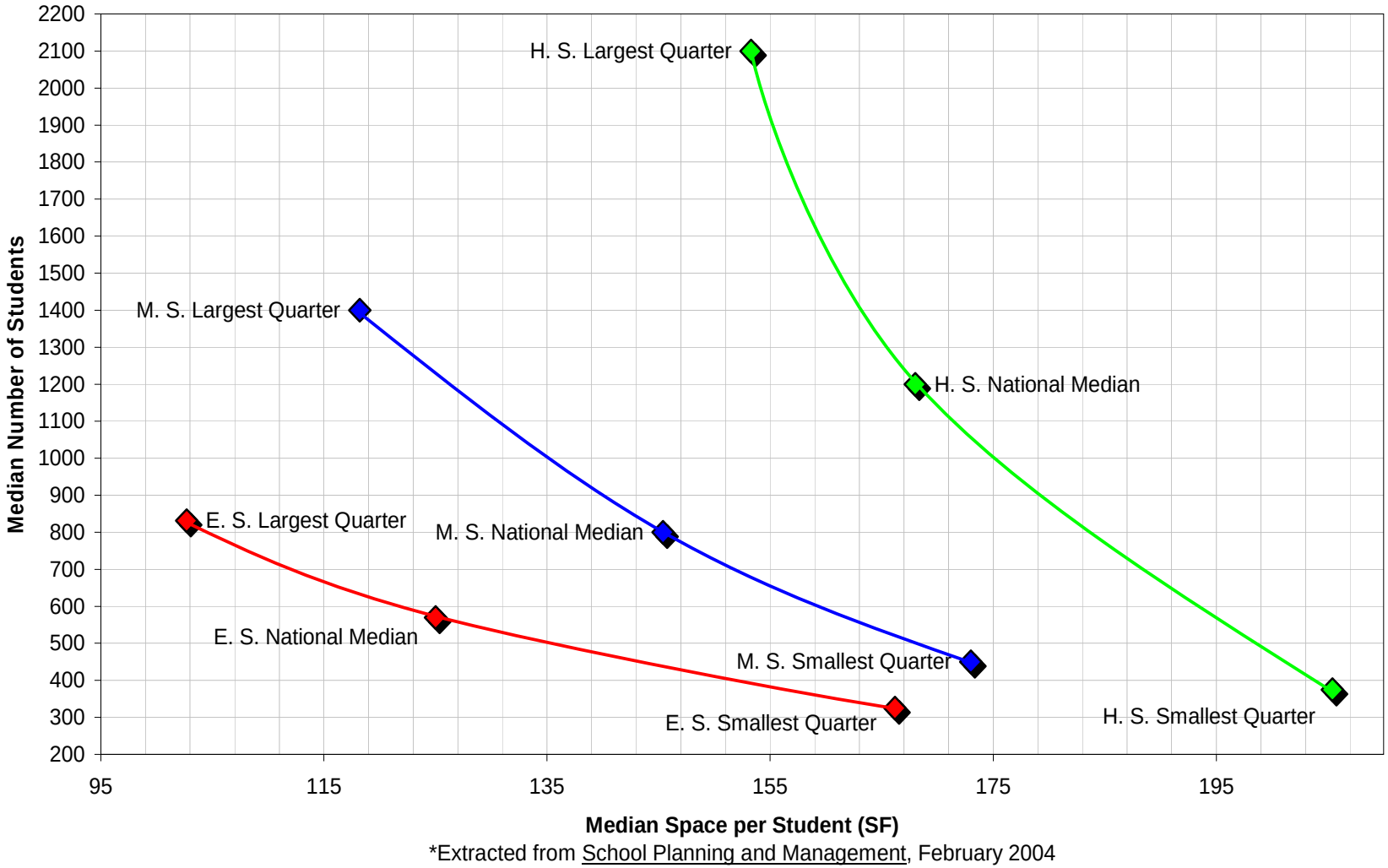
Elementary Enrollments & Square Footage
New Construction 2000-2004



High School Enrollments & Square Footage
New Construction 1996-2004



Does School Size Matter?
National Analysis*



*Extracted from School Planning and Management, February 2004

Appendix E

Excerpted from http://www.mff.org/tap

Research Support for the Teacher Advancement Program (TAP) of the Milken Family Foundation

TAP Principle #1: Multiple Career Paths

- In the management field, Barrier (1996) finds a positive relationship between employee's motivation and their ability to advance within their career. The consensus in this research is that employees who have opportunities for career advancement are motivated to improve the quality of their work.
- A review of educational research on career ladder programs suggests that career advancement programs must choose fiscal and work opportunity incentives to create a total package that appeals to teachers; further, career paths should focus on job enlargement with opportunities such as long term professional growth, teacher involvement in school decisions, involvement of senior teachers in induction of new teachers and the development of relatively permanent promotions to encourage career planning by teachers (Murphy and Hart, 1986).
- Further, research indicates that a successful career path program must have the following characteristics (Hawley, 1985):
  - The economic rewards for high performance must be significant;
  - Teachers should continuously demonstrate high performance in order to retain their advanced level of status and pay;
  - The standards by which teachers are measured should be clear;
  - Assessment must be viewed by the teachers as being fair;
  - Evaluation and feedback should be frequent;
  - Differences in compensation should lead to differences in roles and responsibilities; and
  - Teachers should be involved in the design and implementation of the plan.
- Work by Elmore (2000) on the concept of distributed leadership suggests that successful leadership is characterized by collective responsibility and sharing of knowledge and roles.
  - A challenge of this paradigm shift is how to construct an orderly system for people to conduct their business that incorporates a new way of thinking about and doing their job.
  - Further, these activities need to be put into a context and structure that leads to large-scale reform, rather than reinforcing what currently exists.

- These challenges guided us to develop a school structure that creates a change in how individuals within the school interact. And with this paradigm shift are incentives, both financial and in terms of professional support, that encourage a change in the traditional context of schooling.

Appendix F

Excerpted Maine Compact for Higher Education *Greater Expectations, College as a Right and Responsibility for all Maine People. College for ME. May 2004*.

Executive Summary:

Fifty years ago, about one-half of the jobs in Maine were in the manufacturing sector. A Maine resident with a high school diploma could earn a decent living at a paper mill or a textile factory. Good on-the-job training was often available. No college was needed. But, those jobs have all but disappeared.

The new jobs of the Knowledge Economy—office jobs, education and health care jobs and technology jobs—require problem-solving and interpersonal skills. What manufacturing jobs remain will likely be in "high-performance" workplaces where the latest technology takes care of rote, manual tasks, and frontline workers are responsible for making critical decisions on the shop floor. These jobs increasingly require college degrees.

Yet six of every 10 Maine ninth-graders will veer off the road to college—and off the road to the American Dream. With every child who fails to earn a college degree, another bit of Maine's economic future is lost. And that's not all. People who graduate from college not only get better jobs, earn more money, and pay more taxes than those with high school diplomas. They're also more likely to vote, more likely to do volunteer work, more likely to serve on civic boards, and better prepared to understand the increasingly complex fiscal, educational and environmental questions facing local communities from Jackman to York.

For a half century, America has viewed completing high school as the minimum education accomplishment. Today, Maine faces the opportunity—and the imperative—to raise this bar. Maine's future requires that we make college attainment as ubiquitous as high school attainment is today. The Compact's Action Plan includes five strategies to begin moving Maine toward that goal:

1. Create *Maine's Promise Scholarship Program* to ensure that no Maine student is denied a college education for financial reasons.

The **Maine's Promise Scholarship Program** will eliminate *all* unmet need and *all* student loans for students from low-income households who go to college in Maine. Under this initiative, eligible students will still receive any available form of public and private merit-based and need-based financial aid (including tuition waivers, grants,

scholarships, and Federal Work-Study). The **Maine's Promise Scholarship Program** will fully cover any educational costs that remain after accounting for these other sources of student aid. And the scholarship program will be available to fill this "gap" for four consecutive years as long as students continue to meet the eligibility requirements.

2. Create the *Maine Early College Initiative* to encourage students to continue their education beyond high school.

The **Maine Early College Initiative** will enable every Maine high school to develop a program offering students a spectrum of early college experiences. These early college experiences may range from Advanced Placement (AP) classes to single courses at a local community college or university to opportunities to graduate from high school with significant college credit—in some cases, a full year of credit or even an associate degree.

3. Introduce the *Maine College Transition Initiative* to help adults earn degrees.

The **Maine College Transition Initiative** will establish high-quality, cost-effective, and accessible pathways to postsecondary education for adults. The initiative is designed to ensure that adults who are committed to earning a college degree, but have not completed high school or are academically under prepared for college work, get the support they need to earn high school diplomas and succeed in college. The **Maine College Transition Initiative** will help adults who are studying to earn high school diplomas to transition to college. It will provide preparatory support to adults who have a high school diploma but are not academically prepared to take college courses. And it will provide counseling, mentoring and support services to enable these adults to successfully transition to college and earn degrees.

4. Establish the *College for ME Employer Initiative* to help employers support the education of their workforce.

The **College for ME Employer Initiative** will provide Maine's public and private employers with technical assistance, training and statewide recognition for forward-looking workforce education policies. The Compact will also advocate a simple state tax credit that reimburses employers for 50% of what they pay to help employees pursue college degree programs. The **College for ME Employer Initiative** will provide Maine employers with information, training and tech-

nical assistance delivered regionally and on site. This technical assistance could include help conducting audits of existing practices, setting five-year goals, increasing employee participation in tuition assistance programs and connecting increased educational attainment to workplace advancement.

5. Launch a comprehensive *College for ME Campaign* to change public perceptions of higher education and behaviors toward going to college.

The **College for ME Campaign** will use various media and partnerships to raise awareness of college opportunities, to change prevailing attitudes about the value of college education and ultimately to increase the number of Maine people earning college degrees. **College for ME** messages will reach across Maine through television, radio, newspaper, and the Internet. **College for ME** will be visible in schools, communities, and businesses throughout the state. In time, **College for ME** will create a shared vision of college as the **Right and Responsibility** of all Maine residents.

To obtain copies of this report please contact the State Board of Education Office at:

23 State House Station

Augusta, Maine 04333-0023

Tel: 207-624-6616

OR

Download a copy of the report on our website at:

www.maine.gov/education/sb/homepage.htm