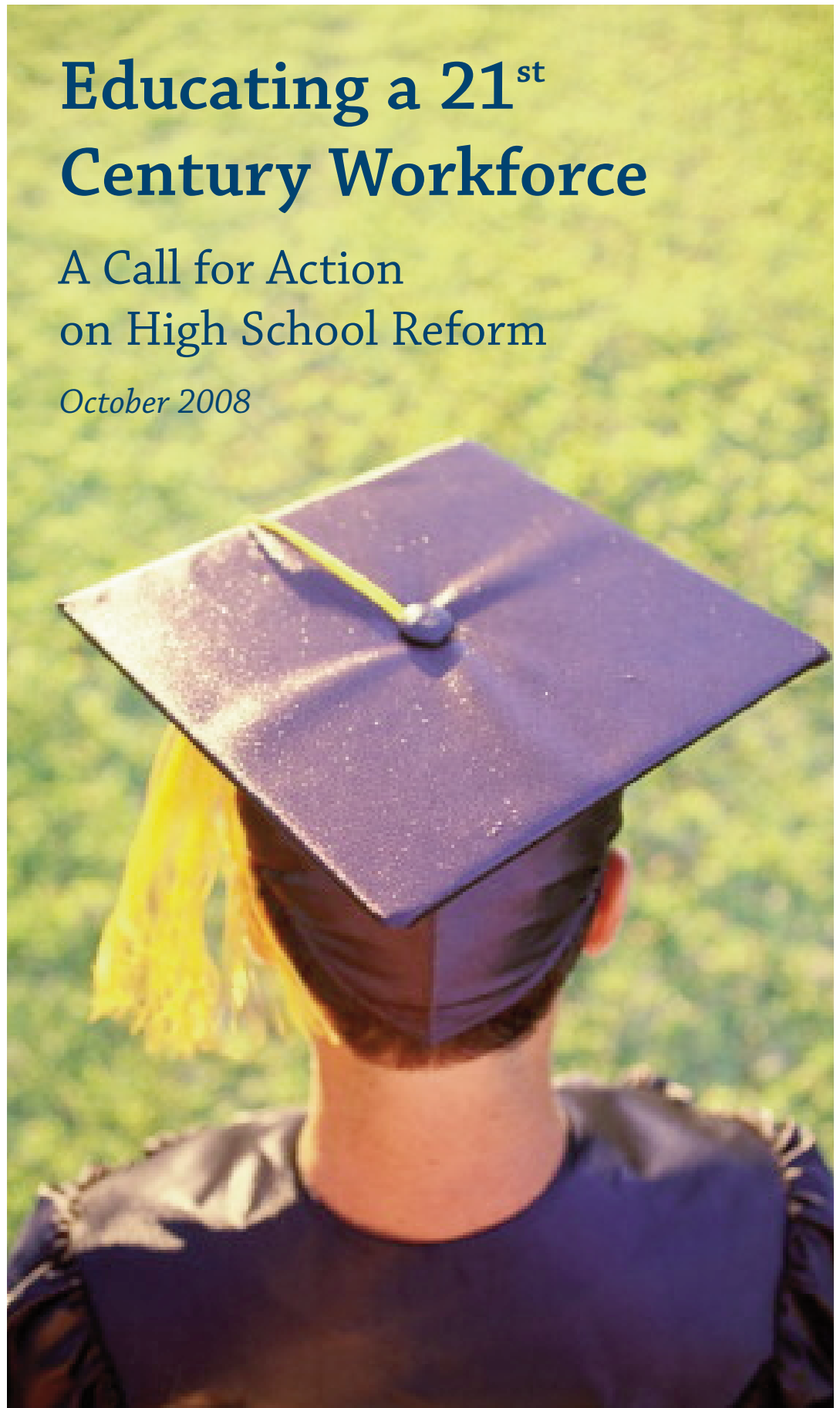


Educating a 21st Century Workforce

A Call for Action
on High School Reform

October 2008



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Preparing students to succeed in a rapidly changing society and economy has been the goal of the Massachusetts Business Alliance for Education (MBAE) since it began advocating for education reform in 1988. In response to employer concerns about the quality of public education and the skills graduates were bringing to the workforce, MBAE developed and promoted the conceptual framework that resulted in the Education Reform Act of 1993. The goal of the Act was to establish measurable standards, accountability for performance, and an equitable funding formula to improve education opportunities for all students in Massachusetts. While considerable progress has been made, many challenges remain to prepare students to succeed in a competitive globalized world. Primary among these challenges is the need for all students to graduate from high school with the academic and applied skills necessary for college and work readiness.

There is a strong and growing body of knowledge about high school re-design, and many models of excellence exist in our state and nation. However, there is little consensus on a practical plan to improve *all* of our state's schools. To hasten progress, MBAE convened employer stakeholders from across the state as members of its Commission on Educating a 21st Century Workforce with the goal of outlining a framework and proposal for action on high school reform. The Commission's purpose was to review what the education and business communities already know about high school reform, and to convert this experience into a set of recommendations for action by both education policy-makers and employers.

The report that follows is a proposed plan of action that the Commission believes is both necessary and achievable. It is the result of careful deliberations informed by existing research, policy proposals, and the varied experiences of Commissioners. The strategies and implementation tactics proposed in this report are designed to achieve results deemed critical by the business community. Our intent is to advance the current discourse on high school reform and to provide a basis for employers and educators to discuss the changes that can and should be made in our communities.

Primary among these challenges is the need for all students to graduate from high school with the academic and applied skills necessary for college and work readiness.

The vitality of our state's economy is inextricably tied to education. Future prosperity for our students and for our communities depends upon our schools preparing all students for college and, ultimately, for careers. The actions needed will require changes in the way we think about education, as well as new kinds of partnerships between the education and business communities. Employers can, and must, play a pivotal role in advocating for, and sustaining, reforms.



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EXECUTIVE SUMMARY

There are ample indications that our current system of education is simply not meeting the challenges of the 21st century.

Massachusetts enjoys a reputation as a national leader in education. While we celebrate our achievements, we must also recognize that the work of maintaining a relevant and exceptional education system is never truly complete. Indeed, the economic and political environments in which our children will live and work are changing dramatically. There are ample indications that our current system of education is simply not meeting the challenges of the 21st century. Many of our students graduate from high school unprepared for college and career, too few pursue the scientific and technical disciplines our knowledge-based economy demands, and an unacceptably high proportion leave high school before graduating, especially in underserved communities.

At this pivotal moment when the Governor of the Commonwealth has issued an Education Action Agenda, our state has the opportunity to serve as a national model for educational excellence. Recognizing the important role that education will play in our state's future prosperity, MBAE's Commission on Educating a 21st Century Workforce has identified three critical challenges that we have to address:

- **Increase Awareness of 21st Century Demands.** Building the resolve necessary for change is the first step toward fighting complacency and increasing understanding that a high school diploma is insufficient in today's economy.
- **Prepare ALL Students for College, Career, and Citizenship.** Regardless of their postsecondary choices, ALL students need the same basic academic and applied skills to be productive citizens in a 21st century society. Our schools must ensure that all students graduate from high school with mastery of these skills.
- **Close the Persistent Achievement Gap.** Our educational system must provide the opportunities to all children, regardless of their geographic location or socio-economic status, to be ready for college, career and citizenship. Our workforce needs, and the future of our society depend upon our ability to close this gap.

To create a system capable of meeting these challenges, several dimensions of our current system have to be restructured—from the way we think about high school, to our curriculum and system of assessments, to the role of business and community in supporting our schools and our students. Accordingly, the Commission offers a four-pronged strategic approach to achieve results:

STRATEGY 1:

Reform the Fundamental High School Model

It is increasingly clear that our agrarian school schedule is inadequate to meet the needs of a knowledge-based economy. Incremental changes cannot reform a system that has become increasingly obsolete. Today's students need to learn in a supportive environment, flexible enough to meet their unique needs.

- Students are clamoring for more **career counseling and guidance support** early and throughout their educational experience so they can explore their interests and make informed choices.
- Students need **increased instructional time and flexible alternatives to a four-year schedule** so that every student has the opportunity to succeed regardless of his or her academic skill level when he or she enters high school.
- Finally, students need **increased access to dual enrollment programs** to allow them to experience the reality of college and remain constructively engaged throughout their time in high school.

STRATEGY 2:

Align Curriculum with the Demands of College and Career

Regardless of their postsecondary goals, all students need a solid base of math, reading, and applied skills to succeed in today's economy. Therefore, with flexible support systems in place, standards and achievement can be raised to ensure that all students complete a rigorous academic curriculum that is also relevant to students' current interests and future pursuits.

- The first tactic recommended is to **implement the MassCore course of study statewide as the minimum requirement for a diploma.**
- These rigorous academic standards alone are not enough to ensure that students will develop the competencies they need, so it is also necessary to **include skills that are essential in the 21st century across the curriculum.**
- Employers and students alike also emphasize the value of real-world experience as part of education, so it is crucial to **provide opportunities for work-based or service learning activities.**

STRATEGY 3:

Ensure Assessments Measure Relevant Skills and Content Mastery

Our knowledge of how to assess performance has improved greatly over the past fifteen years of education reform. While we maintain a steadfast commitment to requiring students to demonstrate proficiency in basic skills to earn a diploma, we must continually validate that progress is being made to bring students beyond this level.

- Ensuring that students develop the applied, 21st century skills they need requires that we develop **exit assessments that measure college and career readiness.**
- If we are to encourage students to pursue a rigorous course of study with the promise that they will be ready for college work and job training, we should ensure that the content and instruction in these courses will lead to mastery of relevant knowledge and skills through a **statewide end-of-course assessment system.**

STRATEGY 4:

Create a System of Partnerships to Support and Sustain Reforms

To succeed, schools need on-going support from the communities that depend on their success. Employers have an enormous stake in the quality of our education system, and must take responsibility for supporting and sustaining these reforms.

- One approach is to **formalize regional School-Business Partnership Programs.**
- There are also many successful models that can be replicated to **establish long-term and meaningful partnerships between schools and businesses at the local level.**

The promise of public education is to provide all students with the opportunity to succeed in civic and economic life, but for too many students our system of education falls short. The future prosperity of our students and our communities is at risk, unless we guarantee a system of education in which each student who enters high school graduates with the skills necessary to succeed in college and in the workforce. Massachusetts can lead the way toward this new frontier—a true 21st century high school education system.

The Commission's full report follows. It is organized into two main sections. The first (*The Challenge*) describes the challenge facing our state and policy-makers. The second (*Meeting the Challenge*) outlines the Commission's four-pronged strategic action plan and implementation tactics for each strategy, and includes pertinent examples. Although estimating expenses and savings related to these proposals was beyond the scope of the Commission's work, funding is, of course, of great concern as education budgets strain to cover rising costs, so this issue is addressed at the report's conclusion.

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THE CHALLENGE

In 2007, the Massachusetts Department of Elementary and Secondary Education (ESE) announced that 80 percent of the nearly 75,000 students who entered 9th grade in 2002 graduated four years later—ten points ahead of the national average. However, like the performance of the Commonwealth’s students on the National Assessment of Educational Progress (NAEP), where Massachusetts outscored other states despite unacceptably low raw scores, a look at the details behind the data indicates that the Commonwealth still has a problem. Graduation rates may exceed the national average but are still too low at 80 percent. Urban areas in the state lag behind suburban areas, with a graduation rate of only 64 percent, and more than 50 schools report graduation rates below 60 percent.¹

Moreover, the graduation rate is only one part of the challenge of high school reform. A recent study by the Manhattan Institute for Policy Research estimates that, in 2003, only 38 percent of Massachusetts teenagers finished high school with sufficient coursework and basic reading skills to be considered college-ready.² This lack of preparation results in substantial rates of remediation in colleges, with over one in three Massachusetts high school graduates requiring remedial coursework in one or more subjects in their first year in the state’s colleges and universities.³ Because remedial coursework typically cannot be applied to degree requirements, enrollment in these courses can increase the expense and length of time it will take a student to earn a degree. National studies also suggest that a substantial proportion of students requiring remediation will fail to earn a degree.⁴

Students who proceed directly into the workforce find themselves equally unprepared. Massachusetts is not training and retaining enough skilled workers with the talents necessary to sustain our economy and quality of life. MBAE focus groups with Massachusetts employers indicated that those who hire directly from high school were dissatisfied with new graduates’ basic written and verbal communication skills, math and computer skills, problem-solving, and overall demeanor and work ethic. These findings are consistent with a national study, which found that 40 percent of employers report that high school graduates or G.E.D. equivalents were “deficient” in their preparation for entry-level positions.⁵ When workers do not have the skills that employers need, jobs in our communities may go unfilled and the unskilled may remain unemployed, an opportunity cost our state’s citizens and its businesses simply cannot afford in an increasingly competitive and unforgiving global economy.

The business community has been vocal and clear about the need to develop talent that will maintain and increase our state’s competitive edge in global markets. In addition to building strength in the science, technology, engineering and mathematics (STEM) fields, we must also ensure that all of our students have the skills to support the innovation and creative work that will fuel economic growth and prosperity in the future.⁶ These skills, termed “21st century skills,” include global awareness, financial literacy, critical thinking, communication, collaboration, and an ability to engage in life-long learning as well as traditional core academic subject knowledge.⁷

To ensure that all students graduate prepared for college, career, and citizenship, the Commission identified three challenges to overcome:

Massachusetts is not training and retaining enough skilled workers with the talents necessary to sustain our economy and quality of life.

1. Increase Awareness of 21st Century Demands

The impact of education reforms over the past fifteen years has been significant. Student performance on the Massachusetts Comprehensive Assessment System (MCAS) tests has consistently improved, and Massachusetts students score among the highest-performing in the nation on NAEP exams. This success has led to a public perception that education reform is complete when, in fact, it has not met the goal of preparing students for college and career.

- The most recent results of the Program for International Student Assessment (PISA), which assesses the ability of 15-year-old students to *apply* knowledge and skills to real-life contexts, indicate that U.S. students test below other developed nations in mathematics and science.⁸
- The National Center for Public Policy and Higher Education estimates that 49 percent of our state's young adults (aged 25 to 34) attain an associate's degree or higher.⁹ While this rate compares well with top countries, and is surpassed by only Japan and Canada,¹⁰ college enrollment rates are increasing substantially in other advanced market economies.¹¹



These results are unacceptable when we consider that our state and its students compete internationally.

Success today depends on the awareness, understanding and ability to navigate various customs and cultural differences, economic and political climates, work force conditions and expectations, unions and laws, customers and competition—in essence, a global mindset.¹²

This “global mindset” is of growing importance, as approximately 4.5 percent of our state’s workforce is currently employed by foreign-owned enterprises. Massachusetts is ranked eleventh of all U.S. states in the value of its exports per worker, one measure of global linkages and economic activity.¹³

Our first task is to combat complacency about the state of our schools. As state and municipal policy-makers struggle to maintain services in the face of rising costs and declining revenues, the business community can be a powerful voice for ensuring that education receives the attention and primacy it deserves among competing state policy priorities. It is critical that a united business community advocate strongly for making the education we provide the one that our students need, even if it is vastly different from the education system we have had in the past.

2. Prepare ALL Students for College and Career

The economic and political environments in which we live and work are constantly changing, yet the way that education is delivered has changed very little over the last century. The result is a system-wide lack of capacity to prepare all students adequately to meet the challenges of a 21st century economy.¹⁴

The Massachusetts Department of Workforce Development estimates that 56 percent of all new jobs created in the state between 2004 and 2014 will require an associate’s degree or higher.¹⁵ Further, the pace of technological change is expected to accelerate, requiring all workers, whether they proceed directly to college or not, to possess a capacity to learn new skills. A comprehensive agenda for education reform must create systems that address both college *and* career readiness. Research suggests an important convergence between the skills needed for higher education and those required in the workforce,¹⁶ and for most students, the choice is not college *or* career, but college *and* career.

Therefore, all students need (1) exposure to career options to better inform and motivate their future choices as well as (2) opportunities to learn relevant career skills prior to high school graduation. Increasingly, college and workforce readiness means readiness for *future learning and training*, and all of our graduates will need to see themselves as capable lifelong learners in order to succeed in life, citizenship and employment.

3. Close the Persistent Achievement Gap

Education has the potential to disrupt cycles of poverty. A wide body of research has shown significant positive correlations between a person’s skill level and his or her economic benefits.^{17 18} Yet, too many economically disadvantaged students attend under-resourced

schools where they do not acquire the skills and knowledge that are comparable to that of their more affluent peers or that are necessary for postsecondary success. The National Center for Public Policy and Higher Education estimates that young adults from low-income families in Massachusetts are only half as likely to attend college as those from high-income families.¹⁹ The Center also notes that the state’s “gap in college participation rates between whites and non-whites is substantial,” with 39% of young white students enrolled in higher education, compared with 28% of non-white students.²⁰

Present demographic trends make this challenge even more urgent. African American and Hispanic populations are projected to comprise an increasing share of our state’s total population and workforce over the next ten years. Unless our schools are able to substantially close the achievement gap, the education level of our state’s workforce is likely to decline, along with the standard of living of many of our state’s residents.²¹ Our

The business community can be a powerful voice for ensuring that education receives the attention and primacy it deserves among competing state policy priorities.

education system must provide to all students the opportunities that the most advantaged among us experience, so that all students, regardless of their race or ethnic origin, family income or geographic location, are well prepared for college, career and citizenship.

MEETING THE CHALLENGE

Considerable knowledge exists about policies and practices to increase graduation rates and better prepare all students for college and career. The challenge is to use this understanding to effect change that leads to positive results.

Our proposals focus on four key strategies, as well as specific actionable tactics for each. These tactics depend upon on-going collaboration between the business community, educators, and policy-makers. This reflects the underlying reality that the economic environment in which we all live and work is changing exponentially, and our schools cannot be expected to keep pace without constant support from, and interaction with, the communities that depend on their success.

The Commission's principal charge was to investigate high school reform. However, parallel challenges exist at all levels of education. Developing higher levels of competency requires a strong foundation of skills built over successive grade levels, particularly with regard to literacy skills, which are key to success in other content areas. Supporting strategies will be necessary across all grade levels to transform all of our schools into 21st century learning communities. However, the challenge is most acute at the high school level, where students are at the intersection between traditional compulsory education and the demanding postsecondary world of college and career. Therefore, it is extremely urgent to focus our attention here.

STRATEGY 1: Reform the Fundamental High School Model

Adapt Programs So All Children Can Succeed

The current system of educational delivery is a "one-size fits all" model in which all students attend school for the same length of time, regardless of their background or needs. However, we know that students arrive with different levels of basic skills, and for many—especially those with limited English proficiency or from economically disadvantaged backgrounds—the traditional approach is simply not enough. For those who are achieving at high levels, four years may be too long to wait to begin college work.

Furthermore, students typically have limited opportunity to participate in the design, planning, and execution of their learning, which may prevent them from feeling fully invested in their own educational process. As one Commissioner noted, "like it or not, students are acting like consumers," disengaging from schools when they fail to see connections between what is being taught in the classroom and their own personal goals and postsecondary plans.

The changes we urgently need require totally re-thinking how, where and from whom students learn—changes that will not result from merely tinkering with the current system. Although these changes must be made throughout our pre-K to higher education system, important gains can be realized immediately by restructuring high schools. Personalizing education, rather than delivering educational services using an industrial model, would benefit all students, especially those who otherwise might not graduate.

The changes we urgently need require totally re-thinking how, where and from whom students learn.

KEY TACTIC 1:

Strengthen career counseling and guidance support

High school students are frequently expected to make educational decisions that will influence their ability to pursue certain careers, including decisions about high school course of study, educational testing, and application to college. Yet, access to resources that can inform these decisions is sorely lacking. Students who met with Commissioners emphasized that most schools provide only limited information about college and career realities, and it often comes too late in a student's secondary career to make a material difference. An increasing number of states are addressing this need by requiring students to develop individualized learning plans, often in middle school, that will guide their course selection and preparation.²² Resource constraints and substantial demands made on guidance counselors, however, have left most schools with insufficient staff to advise and counsel students. Instead, students report getting information from their parents, internet sites, and peers—often sources of incomplete or incorrect information.

Many of the state's vocational technical schools provide excellent models of career counseling, combining individualized career plans, vocational career advice, and mandatory student advisories, in which students regularly meet with faculty in small group settings to discuss academic and career issues. MBAE focus groups found that students from these programs were more knowledgeable with respect to workplace expectations,²³ as well as their own professional abilities. However, these schools (and their students) represent the exception rather than the rule.

All high schools can benefit from the technical school model by formalizing a career readiness component to provide guidance for their students, supported by at least one career development specialist in the building at all schools. These specialists should have industry experience as well as broad knowledge about career opportunities and corresponding skills and educational requirements. The impact of this resource should be measured statewide using relevant metrics, such as the number of work-based learning plans completed, internship placements, and job shadowing opportunities. An additional benefit is that these specialists could serve as liaisons for school-business partnerships, providing much-needed direction to local businesses and volunteers and ensuring that programs are coordinated to contribute to key strategic initiatives at each school. While it would be advantageous to expand these programs to all middle schools, those districts with themed choices for high school enrollment (e.g., Boston), **must** ensure that middle school students have exposure to career options before selecting their high school and course of study.

All high schools can benefit from the technical school model by formalizing career readiness guidance for their students.

Guidance and support services should also be targeted to reduce the state's dropout rate, as it is well-documented that the economic and social consequences of dropping out of school are severe, both for the individual student and for society as a whole.²⁴ The Alliance for Excellent Education estimates that Massachusetts dropouts who should have graduated in 2008 alone will cost the state's economy more than \$4.3 billion in foregone income over their lifetimes.²⁵ Yet, students at risk of dropping out show warning signs as early as 4th grade, including poor attendance, failing grades, low test scores, and insufficient credit attainment. Systems that track students using these indicators, and periodically review data to identify new indicators, have helped schools identify at-risk students and target critical intervention resources more effectively.²⁶ Providing intervention services for students identified as unlikely to graduate would be an effective investment both in workforce talent and in state funds that would reduce future costs.

Student Voices

Commissioners had the opportunity to meet with Boston Public Schools students representing their high school on the Boston Student Advisory Council. In a discussion about what they see as necessary to prepare for college and career, students provided the following observations:

- **Students need more information about college early in their high school careers.** Students considering college wonder “how am I going to get there, where can I go, what is the cost, and how do I pay?” They want to start learning about college, “not as seniors, [but] by sophomore year” at the latest. Information about scholarships and college access were particularly difficult for students to find and to understand.
- **Students need more support from guidance and career counselors.** Most students said that they do not get enough time and attention from guidance counselors or other adults in their schools to develop their college and career plans. Students need more help to find jobs and internships. They also favor effective advisory programs in which students meet in small groups with adults at the school. As one young person put it, “we need more than one person to rely on” for advice about college and career.
- **Businesspeople can provide practical insights into the world of work.** Students are seeking exposure to career options and want businesspeople to help them learn what specific jobs are like as well as how to get there.
- **Finally, students said that they valued meaningful, well-planned internships and work experiences.** To prevent disappointing experiences for both employers and interns, students must have realistic expectations about what they are qualified to do in the workplace, and businesses should provide mentoring support as part of any work-based learning opportunity.

KEY TACTIC 2:

Incorporate flexible alternatives to a four-year schedule and increase instructional time

Across the Commonwealth, “the most commonly reported obstacle to improved student achievement was the lack of time.”²⁷ Many high performing urban schools have found ways to increase time through incremental adjustments, such as extending the school day or adding weekend and summer school programs to help bring all students to proficiency.

High schools should continue to increase instructional time for students; they should also become more active in the state’s Expanded Learning Time (ELT) initiative, which is designed to lengthen the amount of instructional time available to students across the Commonwealth (either day-by-day or by lengthening the school year). An expanded learning curriculum must include opportunities for students to apply their academic lessons in an engaging context, as well as opportunities to pursue coursework that prepares them for specific careers in which they are interested. Additional time does not necessarily need to be added onto the beginning or end of the traditional school day, but could include evening or weekend special sessions or classes.

For students who arrive in high school substantially behind or who are at-risk of dropping out, however, more dramatic changes will be necessary to ensure that they remain fully engaged. As one Commissioner noted, “spending four years in high school in four discrete units—freshman, sophomore, junior, and senior—is sacrosanct but not meaningful,” and may in fact not be realistic for all students. When students are unable to conform to this standard “high school process,” they are at an increased risk of dropping out or earning a diploma without acquiring fundamental capabilities.

An alternative approach for these students would be to identify outcomes or graduation requirements for all students, and allow at-risk students or those who are substantially behind (or ahead) to develop a personalized education plan, mapping out their own plan for achieving those objectives. These plans could be implemented in a manner similar to the individualized education plan model that has been adopted in the special education context. Activities for which students can earn credit might include independent study, directed or focused foreign travel, certain work experience, and structured internships. Creative thinking about what constitutes learning is needed, and schools should consider awarding credit for a variety of learning opportunities that captivate and engage students while teaching them essential competencies.

KEY TACTIC 3:

Increase dual enrollment program opportunities

Dual enrollment programs allow students to earn college credit or even complete an Associate's degree while in high school. For students who need fewer than four years to achieve proficiency, these programs can keep students challenged and engaged. With five universities, six comprehensive state colleges, three specialized state colleges, and fifteen community colleges, Massachusetts has a robust public higher education system that can be leveraged to provide high school students with exposure to college-level courses and a head-start toward completing a degree. These programs have the potential to:

- Expose students to the expectations of higher education so they can apply themselves effectively and make informed decisions in high school.
- Help make college more affordable and accessible to students with limited financial resources by decreasing the time and cost necessary to earn a degree.²⁸
- Start high school students on a path to college, especially those who do not consider themselves college eligible or who might aspire to earn a degree but are not sure how to get there.
- Provide alternative options to reengage struggling students and returning dropouts.

Spending four years in high school in four discrete units is sacrosanct but not meaningful, and may in fact not be realistic for all students.

Dual enrollment opportunities, which have been restricted in the past because of limited funds, should be expanded. Any new or re-designed systems must ensure that all students have equal access to these opportunities by addressing transportation, textbook costs, and related issues. In addition, high schools should partner with local community colleges to provide distance learning opportunities using technology, on-site instruction through the location of a satellite campus at the school site, or similar course options for students. These measures would ensure meaningful access for students with limited financial resources and those without home computers or the means to travel to local community colleges. Since few schools are able to invest in specialized technical equipment, this is an opportunity for local businesses to provide support through the use of their conferencing facilities.

These tactics suggest some ways to re-examine the current high school model. There must also be a commitment to review successful practices on an on-going basis and to develop innovative approaches to meeting the needs of students and the greater community.

STRATEGY 2:

Align Curriculum with the Demands of College and Career

Ensure Consistent Rigor and Relevance for All Students

The cornerstone of effective educational practice is a relevant curriculum that engages students as active participants in their own learning. Preparing all students for college and

career requires providing the same opportunities and courses to everyone. Research by ACT suggests that workforce entrants require similar levels of proficiency in reading and mathematics as do first year college students if they are to achieve self-supporting wages.²⁹

While the academic rigor of a student's high school course of study is the single best predictor of whether the student will successfully attain a college degree,³⁰ it is also critical that curriculum and instruction keep students fully engaged and motivated to succeed. In a national study, nearly half of recent high school dropouts said that a major factor in their decision was that their classes were not interesting.³¹ Providing a rigorous and relevant high school curriculum for all students imposes demands on school systems that they may not be equipped to meet. Business can and should support this effort in innovative ways.

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Resources are available across eight academic disciplines, from science to English to mathematics. Teachers gain access to these online resources quickly and without any passwords or software downloads. Many incorporate 21st century skills and digital sources to help teachers incorporate applied learning across the curriculum.

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KEY TACTIC 1:

Make MassCore the Statewide Minimum Requirement for a Diploma

In November 2007, the Massachusetts Board of Elementary and Secondary Education approved a recommended minimum curriculum (MassCore) that should be completed before high school graduation. MassCore is aligned with entrance requirements for the state's public colleges and universities and consists of four years of English and mathematics, three years of laboratory-based science, three years of history and social science, two years of the same foreign language, one year of an arts program, and five additional academic courses that may include business education, health, and/or technology. MassCore also includes additional learning opportunities, including Advanced Placement (AP) classes, dual enrollment, a senior project, online courses for high school or college credit, and service or work-based learning.

Because each Massachusetts school committee sets its own graduation requirements, not all communities require the same levels of rigor of their students, a factor that contributes to the overall achievement gap. A preliminary survey conducted by the Massachusetts Department

of Elementary and Secondary Education suggests that nearly 80 percent of students from suburban high schools completed coursework consistent with MassCore requirements in 2006, but fewer than 46 percent of students from urban high schools completed this coursework.³²

A statewide graduation requirement would ensure that expectations and course offerings are consistent for all students regardless of which school they attend. If we are serious about closing the achievement gap, this is an essential step to ensuring that all schools and districts provide the supports needed for high achievement and that expectations are not lowered for struggling students. Only with consistent standards and equal opportunities can we ensure that ALL graduates are prepared for the demands of college and career.

The Massachusetts State Scholars Initiative

The Massachusetts State Scholars Initiative builds school-business partnerships to promote a rigorous course of study for all students. It is part of a national program based on research indicating a strong link between the academic rigor of a student's high school courses and postsecondary degree completion.¹ Business volunteers deliver a focused message about their own experience and the realities of the workplace to middle and high school students, emphasizing that what students do in high school has an impact on their future options and success.

To graduate as a Massachusetts State Scholar, students must complete a course of study that includes:

- 4 years of English
- 4 years of Mathematics, including Algebra I and II, and Geometry
- 3 years of a lab science, including Biology, Chemistry, and Physics
- 3.5 years of Social Studies, chosen from U.S. History, World History, World Geography, Economics, and Government
- 2 years of the same foreign language, other than English

At the recommendation of educators and business partners who piloted the program during the 2006-2008 academic years, Massachusetts also requires:

Attendance in good standing

Work-based or service learning experience

- Cumulative Grade Point Average (GPA) of 3.0 at graduation

- Directed by a partnership of the Massachusetts Business Alliance for Education, the Massachusetts Department of Elementary and Secondary Education, and the Massachusetts Secondary School Administrators Association, the pilot program was implemented at five schools chosen to represent technical and traditional high schools in urban and suburban districts serving both high achieving and at-risk students.

Students, teachers and business volunteers give the voluntary program high marks. Assabet Valley Regional Technical High School in Marlborough, where 44 percent of the class of 2011 has committed to this course of study, attributes higher grades and an increase in the number of students enrolling in honors courses to this program. At Chicopee High School and Chicopee Comprehensive High School, participation has expanded from 19 to 32 percent and 9 to 35 percent, respectively, as more students and parents understand the value of pursuing rigorous coursework to prepare for postsecondary success.

¹ Adelman, Clifford. (2006). *The toolbox revisited: paths to degree completion from high school through college*. U.S. Department of Education. Retrieved from <http://www.ed.gov/rschstat/research/pubs/toolboxrevisit/toolbox.pdf>

Reinforce the connection between what students learn in the classroom and the real-world skills that they will need once they graduate.

KEY TACTIC 2:
Include 21st Century Skills Across the Curriculum.

High school is a time “when young adults begin to mix educational experiences with their growing independence in families and communities, and with their early attachment to the world of work.”³³ While MassCore would ensure that every student graduates with sufficient coursework to be considered college-ready, a 21st century education requires more than mastery of core subjects. In an increasingly global economic and political environment, students must also master a set of skills that spans disciplinary boundaries. These include³⁴:

- *21st century themes:* Global awareness, financial, economic, business and entrepreneurial literacy, civic literacy, and health literacy;
- *Broader skills of learning and innovation:* Creativity and innovation, critical thinking and problem-solving, communication and collaboration.
- *Information, media, and technology skills*
- *Life and career skills:* Flexibility and adaptability, innovation and self-direction, social and cross-cultural skills, productivity and accountability, and leadership and responsibility.

These skills, outlined in greater detail in Appendix A, are essential to meaningful participation in our communities and workplaces and, therefore, must be part of a 21st century education if our students are to be competitive globally. They should not be viewed as “add-ons,” but rather should be incorporated across the curriculum in such a way that students learn and apply these skills in the course of core subject learning. This approach to academic instruction has the potential to reinforce the connection between what students learn in the classroom and the real-world skills that they will need once they graduate. A study of career academies, which combine academic instruction with career/technical education and work-based learning opportunities, found that these programs improved labor market outcomes, particularly among young men of color, without compromising postsecondary participation.³⁵ Acquiring these skills will benefit all students, whether they pursue employment or higher education immediately after high school.

KEY TACTIC 3:
Provide elective credit for work-based or service learning

Another important way to increase students’ exposure to the world of work is through work-based or service learning activities. Boston high school students who met with Commissioners indicated that they both need and value opportunities for meaningful internships and work experience that allow them to apply their skills to real-world challenges as well as to develop new skills. Providing elective credit to students for these activities could encourage greater participation among our students.

For their part, businesses can provide meaningful opportunities and work with students to ensure that they have realistic expectations about what they are qualified to do in the workplace. The pressure to increase the number of internships and service-learning opportunities where limited mentoring support is available can lead to disappointing experiences for both business and intern. The use of “work-based learning plans” can greatly aid businesses in the process of setting expectations with interns, establishing goals, and evaluating progress.



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Work-Based Learning Plans

The Massachusetts Work-Based Learning Plan is a customizable rubric-based diagnostic, goal-setting and assessment tool to enhance workplace and service learning activities for students. When used effectively, this tool can help students understand the connection between academic skills and applied learning, as well as develop realistic expectations about what they are qualified to do in the workplace.

Work-Based Learning Plans focus on two types of skills: foundation skills and individual skills. Foundation skills are common to all plans and consist of **work ethic and professionalism** and **communication and interpersonal skills**—precisely the skills many employers find lacking in the workforce. Individual skills are customized for each student and can include any skill related to the student's career goals, academic needs, or job requirements, as well as employer priorities. Examples include reading and writing, equipment operation, project management, research and analysis, and other relevant applied skills.

At the start of a workplace learning experience, students and their employers develop an individualized Work-Based Learning Plan. Using a five-point scale, employers rate students' skills at the beginning of the experience, and at least once more during the experience, or periodically, as appropriate, to indicate improvement and identify areas for future development.

The Massachusetts Work-Based Learning Plan (WBLP) is designed to make work experiences a success for both the employer and student. The WBLP and the conversations it opens up help to:

- Clearly communicate job expectations;
- Facilitate job productivity;
- Clarify how the job/ internship can be a learning opportunity; and
- Assess employability skill gain

It is a good plan format that forces you to think about the progress your intern has made against specific tasks and skills and behaviors that are relevant to their work and performance. —Employer at IT Company

In 2007, the Massachusetts Department of Elementary and Secondary Education reported that over 12,762 students completed Work-Based Learning Plans on the job as part of its Connecting Activities school-to-career initiative. For more information, visit <http://www.doe.mass.edu/connect/>.

STRATEGY 3:

Ensure that Assessments Measure Relevant Skills and Mastery of Core Content

Validate Progress in the Right Direction

Establishing standards for student learning has been a key feature of education reform. The business community continues to advocate for high standards, measurement of achievement, and accountability for results. Our state's system of academic standards and assessments ensures that all students in all districts have the chance to develop and demonstrate the basic competencies required for graduation. There are currently few assessments, however, that evaluate the skills and knowledge essential for success in college and career. An exception is the Certificate of Occupational Proficiency awarded to students in vocational technical high schools. Because these assessments have "the power to dictate what gets taught in the classroom," they must be well-aligned with the demands of postsecondary education and work.³⁶

As we raise expectations of proficiency for all students, it is important that we continually evaluate our assessment system to determine whether our standards are the right ones, assessments are reliable and valid, and that targets are ambitious, yet fair and achievable. The MCAS will continue to inform us about students' basic skills, yet readiness for college and career must be demonstrated with a higher standard of performance. The MCAS test has not yet met the needs of business and higher education communities in this regard.

KEY TACTIC 1:

Ensure that Exit Requirements Measure College and Career Readiness

Effective performance metrics convey information about important underlying outcomes. The MCAS test currently "provides limited information related to postsecondary readiness" with respect to writing, computation, algebra and math reasoning,³⁷ and a score of "proficient" on the MCAS only reflects mastery of eighth grade material. As a result, MCAS results are rarely considered in employment and college admissions decisions, and many students fail to see the real-world significance of the test beyond its importance as a high school exit requirement.

A more effective measurement and accountability tool is needed to directly test skills that we know relate to college and career readiness. In addition to core subject matter, 21st century skills such as critical thinking, collaboration, and adaptability are significant skills necessary for success in college and career and must be assessed to hold both schools and students accountable for teaching and learning, respectively. Behaviorally-based applied skills are increasingly important to student success in modern workplaces. These can be better assessed with rubrics-based systems than traditional standardized testing. The "work-based learning plans" described previously provide an excellent example of a rubrics-based diagnostic, goal-setting and assessment tool. Because such rubrics have yet

to be developed and brought to scale, however, educators and others too often rely on the readily available traditional tests. Rubric-based assessments would help students become more active participants in their educational experience, as well as learn the important skill of giving and accepting feedback. Students may also emerge from this process with realistic expectations about what they are qualified to do in the workplace.

Assessments have the power to dictate what gets taught in the classroom so these must be well-aligned with the demands of postsecondary education and work.

KEY TACTIC 2:

Implement a Statewide System of End-of-Course Assessments

Mastery of content in a rigorous course of studies is the single best predictor of success in college, but Massachusetts does not have a system to validate the academic rigor of course offerings. To ensure that all students have access to the same core content regardless of where they attend school will require Massachusetts to develop and distribute statewide standards for key courses and end-of-course assessments to validate student learning. For example, while the MassCore curriculum is an important requirement, completing coursework does not guarantee mastery of content. End-of-course assessments, such as the Algebra II exam that Massachusetts has worked with eight other states to develop, can assess whether students have mastered a subject, and further, whether different school systems cover the same course content equitably and rigorously.

By 2015, fourteen states expect to use end-of-course assessments, up from two in 2002.³⁸ Among the reasons given for adopting end-of-course assessments are improving overall accountability, increasing academic rigor, and aligning state standards and curriculum. Some states are also considering how to use these assessments to determine college and career readiness. Massachusetts is engaged in this process. To earn a high school diploma, students will be required to pass an end-of-course science or technology exam beginning in 2010, and an end-of-course (or end-of-series) U.S. history exam beginning in 2012.³⁹ These requirements are in addition to the 10th grade MCAS comprehensive exam. The impact of these assessments must be closely monitored to assure that the intended result—equitable and rigorous courses across school systems and validating student mastery of content—is achieved.

STRATEGY 4:

Create a System of Education-Business Partnerships

Support and Sustain Reforms

Our economy will suffer greatly if our education system does not prepare all students for college and career. Employers, who have a great stake in this endeavor, can and must play a pivotal role in advocating for, and sustaining, much-needed reforms. Many businesses across the state are already actively involved with local schools providing financial support, volunteers, and direct classroom services. However, in an era of limited resources and local financial pressures, leaders of most schools frequently find it difficult to develop and sustain corporate support over the long-term. New ideas and relationships are needed.

Our economy will suffer greatly if our education system does not prepare all students for college and career.



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IBM School Partnerships

For over 30 years, IBM has partnered with Boston Latin Academy (BLA) to help middle and high school aged students learn about career possibilities in science, technology, engineering and mathematics (STEM). Through its partnership with BLA, one of many worldwide education programs sponsored by IBM, the company hosts a variety of career development events and enrichment activities that help students prepare for careers in STEM fields. These include:

- **An annual Mock Interview and Career Workshop with the entire junior class.** Organized with the Boston Private Industry Council, IBM volunteers work with students over the course of two mornings to experience what it's like to participate in a professional job interview. Through the interactive career workshop, students learn how to prepare for interviews and handle difficult questions. Students may also apply to participate in IBM's annual Job Shadow Day, where fifteen 11th graders spend a half-day at IBM working in small groups and interacting with an IBM employee, who explains the work he or she does and describes his or her career progression.
- **Career Explorations through EXploring Interests in Technology and Engineering (EX.I.T.E.).** EX.I.T.E. is a week-long summer program for selected 7th grade girls hosted at IBM in Cambridge. Through a series of hands-on, interactive activities, girls explore a variety of STEM careers and interact with successful women in technical careers. Following the program, each participant is matched with a female IBM mentor who corresponds with the student for an academic year through IBM's mentoring program, MentorPlace.

IBM demonstrates that corporations can play a vital role in encouraging students to pursue careers in science, technology, engineering and mathematics. Through programs such as these, IBM employees help students think about their future careers and better understand how the decisions they make, including class selection and activities choices, will influence their options later in life.

KEY TACTIC 1:

Formalize Regional School-Business Partnerships

Business leaders can provide a vital connection between our schools and the dynamic global environment in which our graduates must compete. The fact that many *individual* businesses are actively involved with *individual* local schools does not substitute for a system-wide structure for business participation. The fragmentation that currently characterizes the school-business partnership landscape is further compounded by school administrators' lack of time to manage volunteers, which ultimately limits the extent to which business programs can align with either school-wide or statewide initiatives.

Bringing together employers and education leaders regionally to address specific local needs could maximize the benefit of existing business involvement as well as encourage new participation. Such initiatives would build on the success of similar efforts to unite corporate and community leaders and can focus on targeted priorities in each region to direct business involvement more effectively towards common objectives.

As part of this partnership, employers must clearly articulate the 21st century knowledge and skills that they require from the labor force to compete effectively. Similarly, schools must work with employers to identify ways that business leaders can support development of these skills in their students.

Business leaders can provide a vital connection between our schools and the dynamic global environment in which our graduates must compete.

Equally as important is encouraging employers to work directly with students and teachers, not only to help students understand the relevance of academic work for future career options and goals, but also to expose teachers to new and changing business realities. Incentives to encourage participation could include public recognition and/or awards for significantly high thresholds of contribution. Crediting businesses that provide high quality internships in the scoring process for state contract bids could serve as another incentive. Incentive programs should also be tailored for small businesses to encourage their involvement, especially in regions where small- to medium-sized businesses make up a large proportion of employers.

Berkshire Compact for Higher Education

"The road to success for Berkshire County travels through our educational institutions." —The Berkshire Compact for Higher Education

The Berkshire Compact for Higher Education is a regional strategy-development structure that can serve as a model for other regional school-business partnerships across Massachusetts. The Compact was established in 2005, under the leadership of the Massachusetts College of Liberal Arts, to ensure that residents of Berkshire County develop the skills necessary for success in the 21st century. The group—comprised of leaders from key employment sectors, K-12 public and higher education, elected officials, and community leaders—has an ambitious mission, namely that "every resident of Berkshire County should attain at least 16 years of education and training."

Through focus groups with employers, educators, and service agencies, as well as a survey of residents, the Compact outlined a set of region-specific goals and strategies to improve education and support the growth of a knowledge-based economy in the county. The Compact has four goals:

- To raise the aspirations of residents to make 16 years of education the accepted educational norm.
- To improve access to education, training, and lifelong learning.
- To make Berkshire County residents among the most technologically educated population in New England.
- To develop a new "social contract" among employers, employees, and educational institutions that encourages and promotes learning, earning, and civic engagement.

Key strategies identified by the Compact include, but are not limited to: marketing campaigns to raise public awareness and aspirations; the implementation of the "Berkshire Passport," a collection of activities promoting college awareness as early as 3rd grade; "Berkshire County goes to College Day," a county-wide college visitation program for elementary grades; investments in scholarship programs and programs that serve the adult learner through centralized; and accessible course locations and accelerated academic program delivery.

For more information about the Berkshire Compact, or to view the Compact's full report, visit <http://compact.mcla.edu/>.

KEY TACTIC 2:

Establish long-term and meaningful partnerships between schools and businesses at the local level

Businesses currently engaged in supporting local schools should continue these activities while actively working to form long-term strategic partnerships. These partnerships can take multiple forms, depending on the needs of the school and the business partner. However, to be sustainable, partnerships *must be based on mutual benefit, obligation, and trust*. For example,

businesses can provide expertise, knowledge, and critical resources to schools. In return, schools could open doors during non-school hours to provide workforce training programs, some of which can be open to high school students. These types of programs utilize otherwise unused building capacity while generating revenue for core high school programs and contributing to regional workforce development activities.

Worcester Technical High School and Entrustment

Worcester Technical High School (WTHS) provides a model for structuring corporate support for education. A state-of-the-art technical school, WTHS is pioneering the use of “entrustment” agreements to ensure that its students have access to leading-edge technology. Their innovative approach has garnered the attention of many regional, national, and international organizations and companies.

Unique to this school, entrustments are mutually beneficial agreements between the school and private business sponsors documented in a legally binding contract. Sponsors provide the school with new equipment, tools, and supplies through conditional or limited gifts, referred to as entrustments, and commit to updating the equipment with new technology as it becomes available. In exchange, the school allows the use of its facilities, equipment, and technology by the sponsor, at times convenient to the school, for the purposes of training, demonstration, and/or product education for customers, trainees, and others. Entrustors increase their sales by showcasing their products, equipment, and solutions to WTHS and gain a trained workforce familiar with its products. The program is administered by a 501(c)(3) organization, Skyline Technical Fund, which provides on-going technical and fundraising support to the school.

As an example of how entrustment leases can work, three international companies—Cisco, Dell, and SMART—partnered with Coghlin Network Services & Valley Communications to provide a complete installation, training and maintenance package of over 100 digital classrooms. Classrooms feature projectors, DVD recorders/players, ceiling speakers, Smartboards, fiber networking, laptops, VoIP, classroom computers and computer labs and projectors, DVD recorders/players, ceiling speakers, Smartboards, fiber networking, laptops, VoIP, classroom computers and computer labs and provide opportunities for one-on-one learning through technology. As a result, WTHS now has Cisco, Adobe, Microsoft and Autodesk certified academies and is a Smartboard training center for New England. These entrustors now bring their clients and customers to WTHS to see their products in action, run training sessions and demonstrations, and provide state-of-the art lectures and workshops to their staff, students and WTHS personnel.

COSTS AND CONSEQUENCES

Cost is a major obstacle to innovation in many government programs, and education is no exception. With the price of most public services exceeding revenues allocated to meet needs, the availability of funding will be a factor in implementation of the recommendations in this report.

The Commission was charged with developing a blueprint for action by employers to improve the college and career readiness of Massachusetts youth. Our purpose is to share the strategies and tactics identified here as a basis for decisions and action by all stakeholders and to accelerate progress on necessary reforms. In some cases, our recommendations will have a

significant cost attached. In others, an operational change is required that can be accomplished with little or no impact on existing budgets. In many, expenditures can be fully or partially offset by associated savings. In all cases, the opportunity costs of inaction are staggering. Researchers at the Center for Labor Market Studies at Northeastern University estimate that a single high school dropout will cost the state nearly \$145,000 in additional transfer payments and lost tax revenue over his or her lifetime when compared to a high school graduate, concluding that increasing graduation rates could improve “the fiscal position of state and local governments.”⁴⁰ Graduating students without the skills for success in postsecondary education or the workforce also imposes economic consequences on our state and communities. These include remediation costs at state and community colleges, foregone income and tax revenue, and transfer payments. Massachusetts cannot afford to absorb this expense, multiplied annually, and remain economically competitive.

As part of the Governor’s Education Action Agenda, a Readiness Finance Commission was appointed in June 2008 to review the Commonwealth’s spending on education and to project costs; recommend systemic savings and efficiencies; identify potential sources of new revenue; and outline options for comprehensive re-design of the state’s education finance system to support a 21st century education structure. The information developed through this process, with the involvement of MBAE Board and Advisory Council members, will be valuable in prioritizing the proposals made in this report and will guide future deliberations. To be effective, action taken to reform high schools so students can achieve and succeed must also be sustainable. If we are serious about reforming high schools, we must develop the political will to pay for these reforms.

CONCLUSION

In today’s dynamic and unforgiving economy, *all* Massachusetts students must graduate from high school with the academic and applied skills necessary for success in college and career. Economic and political changes have rendered the current “one-size fits all” model—where education is delivered primarily in classroom settings with limited opportunities for applied learning across disciplines—inadequate to prepare *all* students for success. The results are unacceptably low graduation rates, substantial remediation rates in college, and limited opportunities for many graduates to find jobs at wages sufficient to support a family.

Massachusetts needs a multidimensional strategy that effectively replaces our current outdated approach to education with one that can sustain our knowledge-based economy.

Reforms must ensure that our education system: (1) tailors education services to the unique needs of the student, providing necessary supports for success, (2) engages our students in rigorous studies while teaching them relevant skills for postsecondary academic, economic, and civic participation, (3) monitors progress using relevant assessment tools, and (4) provides long-term, community-based support so that our schools have the direction and resources they need. Each of these reforms can help all Massachusetts students prepare for the challenges that await them after graduation.

Massachusetts needs a multidimensional strategy that effectively replaces our current outdated approach to education with one that can sustain our knowledge-based economy.

The first step will be to change the way that we think about high school. Students learn best in supportive, flexible environments with access to focused career counseling and guidance support; increased instructional time and alternatives to a four-year schedule; and access to early college experiences. It is up to us to ensure that our educational institutions provide these supports.

With these systems of support in place, standards can be raised to guarantee that the education we provide is the one that students need. To succeed, students need the opportunity to learn relevant skills in engaging settings similar to those in which they will live and work. We must require the rigorous MassCore curriculum for graduation statewide; infuse 21st century skills and themes across the curriculum; and expand work-based and service learning if our students are to be adequately engaged while they are in high school and prepared for postsecondary life when they leave.

To monitor progress, our state's assessment system must measure skills that indicate readiness for college and career. It is no longer sufficient to exclusively rely upon state exit exams that only measure basic skills. New assessments that evaluate critical thinking and applied skills—which are increasingly important in modern workplaces—as well as those that validate the rigor of course offerings are necessary to ensure that all students have the opportunity to master the requisite skills for success.

Finally, we must develop new and innovative ways to support and sustain our schools for the long-term. To continually improve, schools need on-going support from the communities that depend on their excellence. Business and community groups must form long-term meaningful partnerships with schools and focus initiatives on key priorities for the region.

Failure to keep pace with a changing world places our students' futures and our state's prospects for prosperity at risk. The time has come to move beyond agreement about the *need* for change to actively transforming our schools into the 21st century learning centers that our students deserve and our communities need. In doing so, Massachusetts can once again lead the way in education reform, with a 21st century education system that will serve as a source of competitive advantage for our state, its students, and its employers. Our goal must be a high quality public education that equips all Massachusetts students with the knowledge and skills they need for successful life, citizenship and employment in a globalized world.

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Appendix A—21st Century Skills

The phrase “21st Century Skills” is commonly used to refer to the applied skills that are increasingly important in a global, technological society and workplace. These do not replace, but rather complement, a strong academic foundation.

In employer focus groups MBAE held across Massachusetts, employers expressed dissatisfaction with new workforce entrants’ applied skills, particularly communication skills, basic math and computer skills, problem-solving skills, and “soft skills” such as overall demeanor and work ethic.¹ Over 400 employers cited similar concerns about the preparation of workforce entrants in a national survey conducted by the Partnership for 21st Century Skills.² This correlation underscores the importance of 21st century skills to the business community, and the urgent need to better prepare students for postsecondary realities.

A 21st century education involves integrating these skills into curriculum and instruction in every classroom. These skills must be incorporated across disciplines through articulation in all curriculum frameworks as measurable and high standards (as is the case for the state’s Vocational Technical Education Frameworks³ and Certificate of Occupational Proficiency); featured in rubric-based assessments that measure competency (such as the Connecting Activities Work-Based Learning Plan⁴); and evaluated by an effective accountability system.

The Partnership for 21st Century Skills has brought together business and education leaders to outline the skills and content-knowledge that today’s students should master to succeed. These “21st century outcomes” include:⁵

- **Core Subjects and 21st Century Themes.** Mastery of core subjects and 21st century themes is essential for students in the 21st century. Core subjects include: English, reading or language arts; world languages; arts; mathematics; economics; science; geography; history; and government and civics. In addition to these subjects, schools must move beyond a focus on basic competency in core subjects to promoting understanding of academic content at much higher levels by weaving 21st century interdisciplinary themes into core subjects. These include: global awareness; financial, economic, business and entrepreneurial literacy; civic literacy; and health and wellness awareness.
- **Learning and Innovation Skills.** Learning and innovation skills increasingly are being recognized as the skills that separate students who are prepared for increasingly complex life and work environments in the 21st century, and those who are not. A focus on creativity, critical thinking, communication and collaboration is essential to prepare students for the future.
- **Information, Media, and Technology Skills.** People in the 21st century live in a technology and media-suffused environment, marked by access to an abundance of information, rapid changes in technology tools, and the ability to collaborate and make individual contributions on an unprecedented scale. To be effective in the 21st century, citizens and workers must be able to exhibit a range of functional and critical thinking skills related to information, media and technology.
- **Life Skills.** The ability to navigate the complex life and work environments in the globally competitive information age requires students to pay rigorous attention to developing adequate life and career skills. These skills include: flexibility and adaptability; initiative and self-direction; social and cross-cultural skills; productivity and accountability; leadership and responsibility.

Massachusetts is one of nine 21st Century Skills Leadership States. For more information, visit: <http://www.21stcenturyskills.org>.

A simple question to ask is, 'How has the world of a child changed in the last 150 years?' And the answer is 'It's hard to imagine any way in which it hasn't changed.' Children know more about what's going on in the world today than their teachers, often because of the media environment they grow up in. They're immersed in a media environment that was unheard of 150 years ago, and yet if you look at school today versus 100 years ago, they are more similar than dissimilar.⁶

—Peter Senge, Director, Center for Organizational Learning, MIT
In *Learning for the 21st Century*, Partnership for 21st Century Skills

- ¹ Massachusetts Business Alliance for Education. 2006. Preparing for the future: employer perspectives on work readiness skills. Retrieved from <http://mbae.org/uploads/01122006111154MBAEReport-WorkSkills.pdf>
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Linda M. Noonan, Executive Director
Massachusetts Business Alliance for Education

About the Massachusetts Business Alliance for Education The Massachusetts Business Alliance for Education is committed to a high quality public education system that will prepare all students to engage successfully in a global economy and society. We bring together business and education leaders to promote education policies and practices based on measurable standards of achievement, accountability for performance, and equitable educational opportunities for all students. Our work is made possible by support from Abt Associates, AT&T Foundation, Braver, Citizens Bank, Comcast, The Irene E. and George A. Davis Foundation, Eastern Bank Charitable Foundation, EMC Corporation, IBM, Intel, The Nellie Mae Education Foundation, Pearson, Shields Healthcare Group, Slowey/McManus, TD Banknorth and Verizon.

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