



Center for Education Policy

**2002 Annual Report
on the
Progress of Education Reform in Massachusetts
-- Executive Summary --**

Sponsored by the

**Massachusetts Education Reform
Review Commission**

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About the Massachusetts Education Reform Review Commission

The Massachusetts Education Reform Review Commission (MERRC) was established by the state legislature in 1993 to oversee implementation of the Massachusetts Education Reform Act. Its members are committed to providing objective, policy-relevant research and analysis to legislators and other key players in Massachusetts' education reform efforts.

MERRC was created through the Education Reform Act of 1993 (MERA) with the charge to "monitor the extent to which the Commonwealth has carried out its responsibilities under this Act and the extent to which such efforts have brought about educational reform in the Commonwealth." The Commission has a diverse membership, including the chairs of the legislative education committee, representatives of various education groups, higher education, business, parents, and others.

The Commission's primary activity is funding independent research on various education reform related topics. Members of the Commission work together to identify key research topics, develop appropriate research questions, select a vendor, and approve the final report. Over the past years the Commission has published several important reports including, annual reports on the progress of education reform, teacher supply and demand, state capacity to implement education reform, achievement gap analysis among other important studies on components of the MERA.

About the Center for Education Policy

The Center for Education Policy in the School of Education of the University of Massachusetts Amherst was developed to connect the resources of the University to the major education policy issues of the day, with the dual goals of improving public decision-making and enriching scholarly activity. The Center works in an independent and non-partisan way to fulfill the University's land-grant mission of public service and outreach, with a particular focus on state-level issues of importance in Massachusetts and nationally.

Through conferences and seminars, policy studies and research projects, and the dissemination of information throughout the policy community, the Center focuses attention on the important education policy questions facing decision-makers and helps to achieve greater impact and cohesion in the search for effective policies. Policymakers interested in expert assistance, and faculty and graduate students interested in conducting education policy studies, are encouraged to contact the Center for Education Policy.

To view this report in its entirety, log on to our website: www.umass.edu/education/CEP.

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Executive Summary

The Massachusetts Education Reform Act (“MERA”) was approved by the legislature in 1993. The Massachusetts Education Reform Review Commission (MERRC) was established as a part of the legislation in order to monitor MERA’s implementation. Under a research contract with MERRC, the Center for Education Policy of the University of Massachusetts Amherst School of Education has produced this comprehensive report on the progress to date of Education Reform in Massachusetts.

Part I –The Context for Education Reform

Schools and districts. There are 481 districts in the Commonwealth, including 108 non-operating districts¹, 55 regional school districts (not including vocational schools), 43 charter schools, and 30 vocational-technical or agricultural high schools. As of 2001, there were 1,903 public schools, including 1,270 elementary, 282 middle/junior high, 318 secondary, and 33 other schools.

School buildings. The Department of Education does not keep a working inventory of the condition, size, or age of Massachusetts school buildings. In FY2001 there were approximately \$180 million worth of new projects on the state’s waiting list. The legislature approved about \$55 million of new projects in FY2001, which covered approximately 30% of projects on the waiting list. In FY2002, projects on the waiting list rose dramatically, to \$274 million of new projects, while legislative funding dropped to \$20.2 million, or 7% of projects on the waiting list. Overall expenditures on new and existing projects did rise, however, from \$319 million to \$365 million, between FY2001 and FY2002.

Teachers and Administrators. As of 1999, there were 71,413 full-time equivalent (FTE) teachers working in Massachusetts.² The largest group (40.1%) were in generalist positions, including elementary education, middle school, and early childhood. The second largest group was special education (15.2%). In addition, there were 5,200 FTE administrators and 10,054 FTE support staff.

¹ Towns with non-operating school districts either participate in a regional district or pay tuition for their children to attend school in nearby districts.

² The number of individuals working as teachers is larger than the FTE figure, because some teachers work part-time.

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Student/Teacher Ratio.³ Statewide, the average student/teacher ratio was 17.7 in 1999, an improvement from 19.2 when Education Reform was passed in 1993. In terms of district income categories (highest-income to lowest-income districts), all five district types⁴ have decreased their average student/teacher ratios between 1993 and 1999. The highest income districts have the lowest student/teacher ratio, 16.7, while the low-income districts have the highest ratio, 18.25, in 1999. However, the lowest-income and low-income districts have reduced their student/teacher ratios the most since 1993.

Teacher and administrator supply. Data on teacher and administrator supply and demand have not been traditionally collected, although there is widespread concern about supply, quality, and distribution. Forty-one percent of current Massachusetts teachers are age 50 or over, and 43% have 20 or more years of service. About 35,000 teachers (about half of the 1999 FTE total) are likely to retire over the next decade. Seventy percent of Massachusetts public-school principals are over the age of 50, and 40% are planning to retire by 2005. Younger principals also indicate significant dissatisfaction with their positions. The overwhelming responsibilities and time demands of the principalship appear to be more important causes of dissatisfaction than salary.

Teacher salaries. In FY93, the state's average teacher salary was \$38,681. In FY00, it was \$46,580. In inflation-adjusted dollars, this represents an increase of less than 2% over eight years. The highest-income districts had the highest average teacher salary, while the middle-income districts had the lowest, but these gaps have narrowed. The highest-income districts' average salary actually declined slightly between 1993 and 2000, while the other districts' average salaries rose. In 1993, the teachers in the lowest-paying district category earned 87 cents for every dollar paid by the highest-paying group; by 2000, this had risen to 93 cents.

Massachusetts' average teacher salary ranks 11th in the U.S., and average starting salary ranks 10th. Looking at neighboring states, average pay is less than that of Connecticut, New York, and Rhode Island, but more than that of New Hampshire, Vermont, and Maine.

Racial/ethnic and gender composition of educators. As of 2001, Massachusetts teachers were 93% white and principals were 91% white, compared with a statewide student body that is approximately 77% white. Nearly three-quarters of teachers are female. In 2001, slightly more than half of principals (55%) were male, which represents a significant increase in female principals since 1991, when 73% of principals were male.

Students by type of school. As of 2000, about 1.1 million students were enrolled in Massachusetts public or private schools. Of these, about 935,000 attended non-vocational, non-charter public schools. Vocational schools enrolled 25,467, and charter schools enrolled 12,518. The remaining 124,795 attended private schools.

Enrollment trends. Enrollment in most grades grew from 1996 to 2000. However, public school enrollment is lower than it was during the mid-1970s. There were about 1.2 million Massachusetts

³ For trend purposes, we use DOE's pre-2000 formula for student-teacher ratio, which divides the number of students in pre-K through 12th grade by the FTE of teachers.

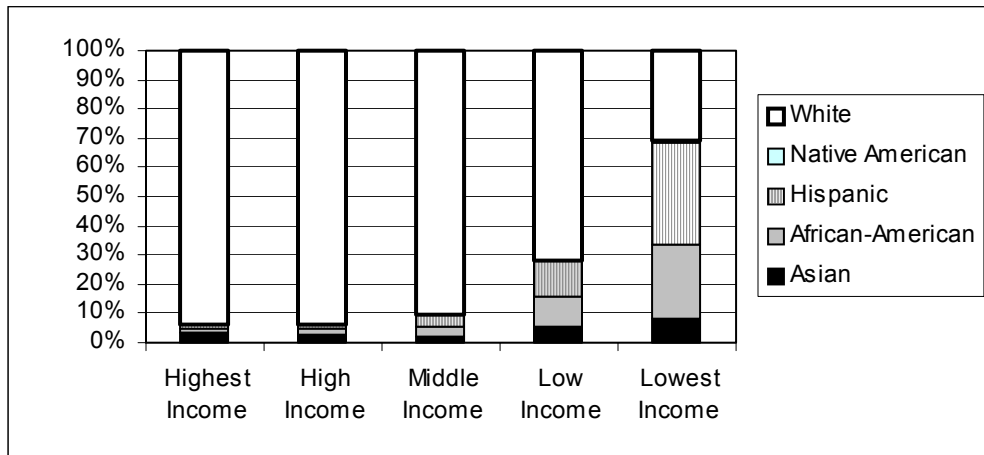
⁴ For this report, we have divided the state's districts into five income categories, according to the percentage of their students who are eligible for free and reduced-price school lunches. See Introduction for more information.

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public school students in 1974, compared with slightly over 1 million in 2000. The largest cohort of students was in fourth grade in 2000 and is now entering the middle school grades. The Board of Education projects that enrollment will decline between 2004 and 2010 to roughly the number of students in the public schools in the late 1990s. Most of the above-average-growth communities are in the northern and western I-495 corridor in the Boston suburbs, plus Springfield, Chelsea, Everett, and the Islands. The below-average-growth communities are clustered on the South Shore and in the central and western parts of the state.

Distribution of students by income. As of 2000, one-fifth of the state’s students were enrolled in ten districts⁵ with 50% or more of the students eligible for free or reduced-price meals. Two-fifths were in districts where 25% or less of the students were eligible for free or reduced-price meals, with the remainder in between. Students in charter schools appear somewhat more likely than their peers in regular public schools to be eligible for free or reduced-price lunches, though reporting in this area is somewhat variable.

Distribution of students by race and income. Since 1996, the state’s public school student population has averaged about 77% white, 10% Hispanic, 9% African-American, 4% Asian, and less than 1% Native American. Statewide, however, students of different racial and ethnic groups are unevenly distributed across districts at different income levels. The top three district income categories are overwhelmingly populated by white students (90-95% white), while the lowest-income category consists predominantly of students of color (70%). (It should be noted that, although most students of color are in the lower-income districts, many of the students in such districts are in fact white.)



Students whose first language is not English. In 1993, 100,947 Massachusetts public school students (11.7%) had a language other than English as their first language. This number had grown to 128,555 (13.2%) by 2000.⁶ Students categorized as “limited English proficient” (LEP) are

⁵ Boston, Chelsea, Holyoke, Lawrence, Lowell, New Bedford, Somerville, Springfield, Worcester, and Greater Lawrence Technical.

⁶ Students whose first language is not English (FNLE) are not necessarily classified as Limited English Proficient (LEP), since they may be fluent in English. We have used the data on FNLE students here for trend purposes because historical data on LEP students are not available.

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concentrated in a relatively small number of the state's districts. According to 1998 data, 12 mostly urban districts⁷ had student populations that were more than 10% LEP. All but 12 of the rest of the state's districts have an LEP proportion of 5% or less.

Students receiving special education services. The state average for students on IEPs⁸ is 14.4%. The two lower-income district categories have the highest percentages of students on IEPs (15.2% and 15.0%), and conversely, the two higher-income categories have the lowest percentages (12.3% and 13.6%). The lowest-income districts also have the greatest proportion of students who are in more costly "substantially separate" special education programs (meaning they spend almost all of their school time in a special education classroom).

Part II – Financial Aspects of Education Reform

One of the major strategic goals of MERA was to establish a fair and adequate system of school finance. MERA established a "foundation budget" designed to bring all schools to an "adequate" level of per-pupil spending, regardless of the wealth of their local communities. The Act committed the state legislature to increase funding for seven consecutive years in order to bring all districts to foundation-level funding. The Act also established a required local contribution level for each district.

State spending on education. State funding for education totaled \$3.94 billion in FY01. Additionally, the Department of Education administered approximately \$663 million in federal funding, \$78 million in trust funds, and \$14 million in capital funding. The state spent \$2.95 billion in Chapter 70 support to local schools in FY01, while local communities spent \$4.3 billion. Under MERA's financial provisions, the state has assumed greater responsibility for funding local schools; since 1990, the state's portion of funding has risen from 33% to 40%.

Per-pupil spending trends. When MERA was enacted, per pupil expenditures had actually been dropping for several years, from \$6,490 in FY89 (2001 dollars) to \$6,132 in FY93. As a result, while per-pupil expenditures have risen by 19.8% since FY93, this represents a somewhat smaller, though still significant increase of 13.2% above the FY89 level. Much of the average increase in total per-pupil expenditures is due to increases in special education, which rose 30%, and bilingual education, which rose 26%, between FY89 and FY00. During the same time period, average regular-day expenditures rose by 8% (all figures adjusted for inflation).

The foundation budget formula. The basic approach of the Chapter 70 foundation budget formula was to set the minimum level of spending required for educational adequacy for each school district (the foundation budget), determine what the local community should be required to contribute (the required local contribution), and commit state resources to make up the difference (state aid). The foundation budget is based on per-pupil allowances for each of 19 spending categories, including salaries, benefits, professional development, utilities, maintenance, books and

⁷ Lawrence, Holyoke, Chelsea, Boston, Lowell, Lynn, Somerville, Framingham, Springfield, Salem, Brookline, and Fitchburg.

⁸ Individual Education Plans, required for all special education students.

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supplies, extracurricular activities, and programs for low-income and special needs students.⁹ The foundation budget is calculated and adjusted annually to account for inflation and enrollment changes.

Impact of MERA on school district spending. In FY93, 195 school districts were below their minimum adequate (foundation) level, with 123 being more than 10% below foundation. By FY01, only 5 districts were below foundation, and none of these were more than 10% below. In terms of district income, in FY93 only the two highest-income categories had average spending at or above foundation. By FY01, all five categories averaged above foundation level.

Differences in community resources. On a per-pupil basis, there is a large gap between the average property values of the three highest-income district groups and the two lowest. This is significant because property taxes are the foundation for local support of public schools. The middle and higher income districts all average about 155% of the state average, while the low-income districts average about 82% of state average and the lowest-income districts average about 55% of state average. This wealth disparity has actually increased between FY93 and FY01, as the property values of the highest-income districts have increased faster than the state average while those of the other districts have increased at a slower rate.

Differences in local effort. The foundation formula takes property-value differences into account when determining the level of required effort from local districts. However, the level of taxation necessary to meet required local contributions is not equal. Comparison across district income categories shows that, on average, the level of effort is lowest for the highest-income category and highest for the second-lowest income category. Level of effort has dropped slightly for the highest-income category while increasing for all other categories, with the greatest increases in effort found in the lower income categories.

Local contributions beyond the minimum. As mentioned above, MERA has brought virtually all districts up to foundation funding levels. However, local communities are allowed to pay more than their minimum local contribution, and most have done so. With greater local resources available, the highest-income districts' spending averaged 123% of foundation in FY01, while the lowest-income districts' spending averaged 106% of foundation. With less effort, higher-income communities may be able to increase spending significantly beyond the foundation level, while lower-income districts find it difficult to do so.

Trends in education expenditures. When MERA was enacted, per pupil expenditures had actually been dropping for several years, from \$6,490¹⁰ in FY89 to \$6,132 in FY93. As a result, while per-pupil expenditures have risen to \$7,348, an inflation-adjusted increase of 19.8% since FY93, this represents a somewhat smaller increase of 13.2% above the FY89 level. Much of the average increase in total per-pupil expenditures is due to increases in special education and bilingual education per-pupil costs. Between FY89 and FY00, average special education expenditures rose by 30%, and average bilingual education expenditures rose by 26%. During the same time period, average occupational education expenditures rose by 10% and average regular-day expenditures rose by 8% (all figures adjusted for inflation). As noted earlier, the low-income districts have greater

⁹ See Appendix C for more detailed information on the foundation budget formula.

¹⁰ All figures in this paragraph are in inflation-adjusted 2001 dollars.

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special education costs and are much more likely to report bilingual education expenditures than higher-income districts.

Formula calculations vs. actual spending. The Chapter 70 foundation budget formula calculates per-pupil allowances for each of 19 spending categories. Since the calculated allowances are only guidelines used in calculating the foundation budget, districts are free to allocate funds as they wish, to meet local needs. Districts on average have overspent calculated amounts in some categories, such as teaching, assistants, and special-needs tuitions, and have underspent the calculated amounts in others, such as support staff and extraordinary maintenance. In general, it appears that districts have chosen to put extra resources into teaching-related activities and perhaps under-funded non-instructional areas due to perceived critical needs in other areas. This is not to say that these expenditures are inappropriate, but rather that the actual costs of education reform may differ significantly from the projected cost factors that entered into the original foundation budget design process

Teaching expenditures across district income categories. Teaching is by far the highest calculated expenditure in the funding formula, and reported expenditures exceed the calculated amount. Across the different income groupings, districts' per-pupil teaching expenditures are virtually equal. Despite higher calculated spending targets for the lower-income districts, the higher-income districts exceed their lower targets to a degree that equalizes per-student expenditures in this spending category.

Part III – Standards-Based Reforms

If state funding is one pillar of MERA, then the other major component is standards-based reform. MERA committed the state to a complex, interdependent system of standards, assessment, and accountability, with aspects affecting students, educators, schools, and districts.

MERA's major standards-based elements. The following is a summary of the status of the major standards elements contained within MERA:

Common Core of Learning - As a starting point for standards development, the Board and Department developed the "Common Core of Learning," which consisted of three broad sections: Thinking and Communicating (key learning skills), Gaining and Applying Knowledge (key content), and Working and Contributing (key societal and career skills). The Common Core of Learning is no longer distributed by DOE.

Curriculum Frameworks - MERA authorizes curriculum frameworks in the core subjects (specified as mathematics, science and technology, history and social sciences, English, foreign languages, and the arts). The Frameworks have become the linchpin of MERA implementation, providing a common foundation for such previously separate areas as local curriculum, student assessment, and teacher preparation program approval. Framework committees, including classroom teachers, developed frameworks in seven areas by 1997. All have been revised since.

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Student Assessment System - MERA requires the Board to adopt a student assessment system “designed both to measure outcomes and results regarding student performance, and to improve the effectiveness of curriculum and instruction.” The law also requires “comprehensive diagnostic assessment of individual students” to be conducted “at least in the fourth, eighth, and tenth grades.” MERA specifies that the assessment system should 1) employ a variety of assessment instruments, 2) be criterion-referenced¹¹, and 3) as much as practicable, include consideration of work samples, projects and portfolios. The Massachusetts Comprehensive Assessment System, or MCAS, has been developed and administered, with four performance levels (advanced, proficient, needs improvement and warning/failing), in four Framework areas (English, math, science, and history). MCAS uses a variety of types of questions, including multiple-choice questions, short-answer questions, open-response questions, and writing prompts.

Competency Determination - MERA establishes a minimum performance level on core academic subjects to be required for graduation from high school. The competency determination (state graduation requirement) was originally envisioned to require a “proficient” score in four core content areas. The Board of Education reduced this to a “needs improvement” level in two content areas, English language arts and mathematics, in 1999. This level of performance is scheduled to be a graduation requirement beginning with the Class of 2003.

Certificate of Advanced Mastery - MERA establishes a certificate of advanced mastery (CAM) to recognize academic achievement comparable to advanced students in other countries. Criteria for the CAM awards were approved by the Board in 2000. The CAM is given to students for outstanding performance on assessment tests in addition to success in competitions and student publications. 860 students received CAMs in 2000, and an additional 1,859 did so in 2001. Recipients who enroll in a Massachusetts public college or university receive a merit-based four-year tuition waiver from the Board of Education.

Certificate of Occupational Proficiency - MERA establishes a certificate of occupational proficiency (COP) to recognize comprehensive education and training in a particular trade or professional area comparable to advanced students in other countries. Proposed standards have been developed by committees of educators, practitioners and representatives of business and industry, in eight occupational areas. The Department of Education will use these to develop occupational assessments for the COP. Nine years after MERA’s passage, no students have received COPs.

Integrated Academic and Vocational Standards - MERA directs the Board to set standards that integrate academic and vocational education. Other than the requirement that all vocational students pass the competency determination in English language arts and mathematics, academic and vocational education efforts have proceeded largely separately, with most emphasis placed on academic performance in MCAS-assessed areas.

School and District Accountability - MERA gives the Board of Education the authority to declare a school or district chronically under-performing, requires that accountability determinations be based on the state student assessment, and allows the state to intervene in schools or districts found to be chronically under-performing. Ideally, this “adult accountability system” would be developed prior

¹¹ A criterion-referenced assessment is one in which student performance is evaluated against an absolute standard, in contrast to a norm-referenced assessment, which ranks students’ performances in comparison to each other.

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to holding children accountable. In practice, however, adult accountability has lagged behind. To date, 8 schools and no districts have been declared academically under-performing.

Educator Certification Standards - Under MERA, lifetime certification was replaced by two stages of certification—initial and professional—and by required renewal of the highest stage every five years based on completing professional development. In addition to holding a bachelor’s degree in arts or sciences, completing a state-approved program, and being of “sound moral character,” candidates now must also pass the Massachusetts Tests for Educator Licensure—a general communication and literacy skills test plus the appropriate subject matter test for each license sought. Although these are licensure tests, over half of the teacher preparation institutions have begun to require their candidates to pass one or more of these tests prior to either entry, student teaching, or exit from their programs.

External evaluations of Massachusetts’ standards and assessments. Achieve, Inc., an independent, bipartisan, standards-research organization has evaluated the state’s K-12 standards and 10th-grade MCAS tests in English language arts and mathematics. Findings included the following (quoted from the 2001 report):

- Overall, Massachusetts’ standards and high school tests are of high quality and are aligned, providing a solid foundation on which to build state education policy... This sets Massachusetts apart from the other nine state standards and assessment programs that Achieve has reviewed¹²—it is the only state that has both strong standards and strong assessments.
- The grade 10 tests are rigorous yet reasonable—and are, in fact, the most challenging of the exit-level tests Achieve has reviewed.
- Achieve believes [the English language arts standards] are among the best standards in the nation and uses them as ‘exemplary standards’ against which other states’ standards are compared. The mathematics standards generally are well organized, jargon-free, clear and precise.
- The mathematics standards should require more rigor and depth, attention to and emphasis on mathematical reasoning, and a sharper focus on essential content at each grade level... The English language arts test needs more treatment of nonfiction.

In its annual, state-by-state report card on education reform, *Quality Counts*, Education Week gives letter grades to the 50 states in several areas, based upon a variety of criteria. In the area of standards and accountability, Massachusetts received a “B+” rating in 2001 and an “A-” rating in 2002. Three states received “A” ratings in 2002 (Kentucky, Maryland, and New York), with three others receiving “A-” ratings (Florida, Illinois, and Louisiana).

DOE appointed a technical advisory committee in Spring 2001 to review information and procedures used by the contractor that developed the Massachusetts Tests for Educator Licensure. The committee reported: “In our professional opinion, the Massachusetts teacher licensure testing program is a strong, sustainable, psychometrically sound, and essential component of [Massachusetts’] reform effort.”

The Massachusetts Comprehensive Assessment System (MCAS). MCAS assesses students’ learning against common standards that are specified in the Massachusetts Curriculum Frameworks. MCAS was first administered to students in the 4th, 8th and 10th grade in the spring of 1998, when

¹² As of 2001, Achieve had analyzed the policies and expectations of 10 states and was working with seven others.

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students in these grades took English language arts and mathematics tests. Since that time, additional grades and content areas have been added, as the table below indicates.

2001 MCAS TESTS ADMINISTERED BY GRADE LEVEL							
Content Area	Grade Level						
	3	4	5	6	7	8	10
Reading	▲						
English Language Arts		▲			▲	▲	▲
Mathematics		▲		▲		▲	▲
Science and Technology/Engineering			▲			▲	
History and Social Science			▲			▲	▲

Students in the 10th grade who do not pass the MCAS have five opportunities to re-take it. Students who fail the MCAS in the spring are able to take a “focused retest” version in the fall. The focused retest maintains the same 220-level achievement standard as the original test, but it strips out the higher-level questions required for proficient and advanced standing and replaces them with additional competency-level questions. The first retest was administered in the fall of 2001. Ideally, students failing the full test would be able to take the focused re-tests each time. However to date this has not occurred—students who still need to pass the MCAS after the fall retest are given an opportunity to take the full (not focused) test in the spring with the 10th graders.

Students who take the re-test a fifth time will not receive their scores, and thus know their graduation status, until after graduation day if the current trend in reporting scores persists. (To date, scores for the spring test administration have not been reported until the following fall.) This potentially will make it difficult for 12th-grade spring retest-takers to make plans regarding higher education and employment. In addition, as of the publication of this report, no programs, policies, or resources have been finalized for students who have not passed MCAS by the end of their 12th grade year.

The accountability system. MERA requires that accountability determinations be based on the results of the state student assessment. Largely because MCAS was not administered until 1998, the Board of Education did not approve student achievement-based accountability regulations until late in 1999. In addition, several state-level organizations have claimed accountability roles, producing overlapping mandates and inter-agency conflict.

As of December 2000, accountability functions are overseen by the Education Management Audit Council (EMAC), a governor-appointed board, separate from DOE, which oversees the Office of Educational Quality and Accountability (EQA). Still in its infancy, the EMAC board and its EQA office are phasing in their responsibilities. EMAC has developed draft indicators for auditing and inspecting school districts. The EQA piloted an audit in two school districts in fiscal year 2001. Future plans are for a three-tiered analysis of districts, including detailed analysis of 60 districts per year. In fiscal year 2002, the EMAC/EQA budget was cut from \$3.5 million to \$2.5 million by the legislature, diminishing the ability for EMAC and EQA to implement the state’s adult accountability plan beyond the FY2001 school-district audit pilots.

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Exemplary schools. Another aspect of the school accountability system in Massachusetts is the identification of exemplary schools, identified by the DOE Targeted Assistance Office as Compass Schools. In Spring 2002, 175 schools were invited to apply based on significant improvement in student performance on MCAS tests in English language arts and mathematics. Eighteen finalist candidates were selected for visits by a review panel, and 15 were selected: 6 high schools, 2 middle schools, and 7 elementary schools.

Part IV – Student Achievement and Gaps

Overall MCAS results. MCAS results in 2002 in every subject area are higher than they were in 1998, when the tests were first administered. The greatest gains have been in grade 10, where the percentage of 10th-grade students scoring in the Failure category (a scaled score below 220) has decreased from 28% to 14% in English Language Arts and from 52% to 25% in Mathematics. In the Advanced and Proficient categories, the percentage of 10th-grade students has increased from 38% to 59% in English Language Arts and from 24% to 44% in Mathematics. Math scores at the lower grade levels have shown less progress (e.g., from 31% to 34% Advanced or Proficient in 8th-grade Mathematics), and Grade 8 History/Social Sciences scores have been quite low (11 or 12% Advanced or Proficient for the past four years).

Class of 2003 MCAS results. In the spring of 2001, 68% of the Class of 2003 achieved competency determination status by passing both portions of the 10th-grade MCAS. 82% passed the English language arts assessment and 75% passed the mathematics assessment (“passing” being a scaled score of 220 or higher for each assessment). After the fall 2001 retest, approximately 75% had achieved competency determination status, and after the spring 2002 test, approximately 81% had passed both sections.

MCAS performance varies across different sub-populations. On a diagnostic level, this can be seen as MCAS fulfilling its mandate to spotlight achievement disparities and thereby direct energy and resources to the neediest students and schools. Because of the high-stakes nature of the assessment, however, these disparities also mean that the negative consequences of failure will fall more heavily on certain populations if the gaps are not closed.

Achievement gaps by district income category. Average results were higher in the higher-income districts and lower in the lower-income districts. After the spring 2002 tests, approximately 95% of the students in the highest-income districts had received a competency determination, while in the lowest income districts about 59% of the Class of 2003 had earned a competency determination.

Achievement gaps by student status. Overall, 81% of 10th-graders had passed both required MCAS tests after the third attempt (spring 2002). Passing rates for “regular education” students were significantly higher, at 87%. Conversely, failure rates for students with disabilities¹³ and participating

¹³ Students with disabilities are defined as students who “either have an Instructional Education Program (IEP) or receive Section 504 instructional accommodations.”

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Limited English Proficient students were much lower—55% for students with disabilities and 35% for participating LEP students.¹⁴

Achievement gaps by race/ethnicity. White students in the Class of 2003 had an 87% passing rate after the spring 2002 tests (three attempts). Asian and Native American students had a passing rate of 83% after three attempts. African-American and Hispanic students had passing rates of 56% and 50% respectively after three attempts.

Achievement gaps by gender. Female students in the Class of 2003 had an 83% passing rate after the third round of tests, while males had an 80% rate of attaining the competency determination.

MCAS results for younger students. On average, younger students performed fairly well on the 2001 MCAS in Reading and English language arts, with 93% passing the 3rd-grade reading test and between 87% and 92% passing the 4th, 7th, and 8th-grade English language arts tests. Math was more problematic—while 80% passed the 4th-grade test, only 66-68% passed the 6th and 8th-grade tests. The history/social science average score was even lower, with 59% passing.

Achievement gaps by district income category. As with the 10th-graders, average results were higher in the higher-income districts and lower in the lower-income categories. In 3rd-grade reading, however, all but the lowest-income students averaged over 90% passing, as did 85% of the lowest-income. In English language arts, average passing rates ranged from 97% to 74% for 4th-graders, 97% to 71% for 7th-graders, and 98% to 79% for 8th-graders. In mathematics, the performance varied more widely, from 94% to 62% for 4th-graders, 83% to 39% for 6th-graders, and 89% to 41% for 8th-graders. Across grades 4 through 8, the average gap between highest and lowest income categories was 27.7 percentage points in English language arts and 41.3 percentage points in mathematics. History/social science average passing rates ranged from 82% in the highest-income districts to 32% in the lowest-income districts.

Achievement gaps by student status. On average, regular education students did well on the MCAS in Reading and English language arts, with 93% or more passing the 3rd, 4th, 7th, and 8th-grade tests. Both students with disabilities and LEP students passed the MCAS at significantly lower levels than regular education students. 6th and 8th-grade math and 8th-grade history/social science were particularly problematic, with 31% or fewer students with disabilities and LEP students passing (these were also the worst performance areas for regular education students, but two-thirds to three-quarters of these students passed.)

Achievement gaps by race/ethnicity. Passing rates varied by race/ethnicity, with white and Asian students on average having higher passing rates than African-American, Hispanic, and Native American students. Four-fifths or more of all groups passed the 3rd-grade reading test. 6th and 8th-grade math was particularly problematic, on average, for African-American and Hispanic students, with only about one-third of these students passing, versus three-quarters of white and Asian students.

¹⁴ LEP students who have been in the country for more than three years or who are recommended for regular education for the next year must take all four MCAS tests in English (except 3rd grade). Students who have been in the U.S. for 3 or less years, are in bilingual education or English as a second language classes and are at or near grade level in Spanish must take the Spanish-version math, science and history tests.

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Comparisons with students outside the Commonwealth. While Massachusetts students are in various stages of meeting Massachusetts' standards, they actually outperform many of their counterparts in other states on external measures.

The National Assessment of Educational Progress (NAEP). The NAEP is a national assessment used to track what America's students know and can do in various subject areas.¹⁵ Massachusetts students have scored above the national average on all NAEP tests taken since 1992. On the 2000 mathematics NAEP, Massachusetts 4th-graders ranked third and 8th-graders were tied for fifth among their peers in participating states. On the 1998 NAEP writing assessment, Massachusetts 8th-graders ranked second after their counterparts in Connecticut. On the 2000 science NAEP, Massachusetts 4th-graders tied for first place and 8th-graders tied for second among their counterparts.

SAT. In 2001, Massachusetts students taking the SAT had an average combined score of 1026 out of 1600, compared with the national average of 1020. This level of performance is particularly impressive when participation rate is factored in. Approximately 79% of Massachusetts students took the SAT in 2001. This was higher than all but two other states—whose average combined scores were lower. Within the Commonwealth, SAT participation rates increased in all district categories between 1995 and 2000. However, while the highest-income districts are approaching a 90% participation rate, students in the lower-income districts have a rate of approximately 55%.

Third International Mathematics and Science Study (TIMSS). In 1999, Massachusetts participated in the TIMSS Benchmarking Study, which compared the math and science performance of U.S. students in 13 states and 14 districts/consortia to their international peers. In mathematics, Massachusetts students averaged 513, versus the U.S. average of 502 and the international average of 487. In science, Massachusetts students averaged 533 points, compared to the U.S. average of 515 and the international average of 488. Massachusetts students showed particular strength in fractions and numbers, algebra, and life sciences.

¹⁵ NAEP results are based on representative samples of students, not the total population of students.

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Part V – Capacity for Education Reform

MERA’s impact on the Department of Education. In addition to increasing the state’s share of support for education funding, the Education Reform Act expanded the state’s role in public education in many ways. The new state functions included:

- the development of curriculum frameworks in core subject areas,
- assessment of students’ mastery of the frameworks,
- creation of a system for holding schools and districts accountable for student performance,
- support for new forms of local school and district governance,
- collection and use of data to enhance the performance of the system,
- improvement of educator quality,
- expansion of early childhood education, and
- implementation of charter schools.

Most of these new functions became the responsibility of DOE.

Many in the state, and on the Education Reform Review Commission, believe that DOE does not have an administrative budget sufficient to allow it to carry out its responsibilities for leading and managing Education Reform implementation. Prior to passage of Education Reform, staffing of DOE was cut back by nearly two-thirds, in response to the recessions of the 1980s and early 1990s. Many of these cuts were to the DOE regional centers, which were eliminated entirely by 1991. DOE staffing reached its lowest level in 1993, and grew only very slowly in the first years of Education Reform implementation. Between 2001 and 2002, total DOE staffing increased from 405 to 446 FTE.

The staff cuts to DOE between 1980 and 1993 affected state-funded positions much more than federal ones. As a result, the percentage of DOE employees who are federally funded has increased. In 1980, about one-third of DOE employees were federally funded. By 1993, there were more federally-funded than state-funded DOE staff. More recently, just under half of DOE’s positions have been federally funded. While many federally funded staffers have not directly been part of MERA implementation, some have played important roles.

Impact of the federal No Child Left Behind Act. The centerpiece of the federal No Child Left Behind Act (NCLB), which President Bush signed into law in January of 2002, is a requirement that states administer standards-based assessments in reading and mathematics to all of their students in each year from third to eighth grade. Based on these assessments, schools must make “adequate yearly progress” towards bringing all students up to a “proficient” level of performance within twelve years and towards closing achievement gaps.

Massachusetts is in a better position for implementing the new law than are many other states. The MCAS is the sort of test that the federal policy makers had in mind when they wrote the Act, and the state already has regulations on school and district accountability. NCLB will also pose challenges, however. DOE will be responsible for managing multiple large NCLB grant programs. The new law also requires data to be reported and disaggregated in different ways than previously, though data gathering and analysis have sometimes been a weakness in MERA implementation. The NCLB will also increase the work done by the Assessment cluster within DOE, and some of the details of the state’s accountability system will also need revision.

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Data collected from local districts. Prior to 1993, districts reported data to the Massachusetts Department of Education three to four times a year. As MERA has been implemented over the past nine years, and as accountability has been emphasized, reporting requirements and paperwork have increased. Districts are now responsible for completing many more reports and plans throughout the year. These reports include: State End of the Year Report, School Choice Enrollment (October and April), Special Education Verification Report (December 1), District Improvement Plan, School Improvement Plans, Professional Development Plan, Student Success Plan, District Curriculum Accommodation Plan, and Career and Technical Education Report (March 15).

Districts also submit data for statistical reports including: Foundation Enrollment, School System Summary, Education Reform System Staff Report, Education Reform School Staff Report, Math, Science, & Technology Engineering School Report, Math, Science, & Technology Engineering District Report, Returned Dropout Rate, School Attending Children, Special Education Exit Data, State Ward/ Family Foster Care Claim Form, Year End School Indicator Report, Student Exclusion Record, Individual School Report (ISR), Technology Plan Update (Fall and Spring), and 35-Element Student Information Management System (3 times per year).

DOE's use of data. DOE uses collected data in numerous ways: to satisfy state and federal reporting requirements; to calculate and determine state and federal grant allocations; to analyze performance trends; to identify student indicators; to develop school and district profiles; to respond to requests for data from legislators, general public, other states, media, etc.; to evaluate programs; to assist in the development and design of data collection instruments; and to provide updates for presentations and briefings for the Commissioner, Board of Education, and agency staff.

MCAS data are generally sent back to districts several months after students take the assessment. Other than MCAS, there is no established schedule for the release of data to the districts and to the general public. Data produced for annual reports, including Student Exclusions, Plans of High School Graduates, Dropout Rates, School and District Profiles and State Profile, are announced by the Commissioner via the Department's website and in his monthly communiqués to the districts. Other reporting of the data depends on staff availability and requests made by individual districts.

A number of participants in this study noted that the usefulness of state-collected data could be improved through a strategic reexamination of data needs and uses at the local and state levels. These comments are consistent with findings of the Center for Education Policy's 2001 survey of administrators and teachers about state capacity to implement education reform.¹⁶

DOE data for research. The Massachusetts Department of Education website is a tremendous data resource. It is particularly useful for district and school-level MCAS data, which are readily available on the website. In 2001 an electronic data collection system was fully implemented which is expected to shorten the interval between data collection and release. Also in 2001, DOE began assigning individual student identification numbers to all students, which will now enable researchers

¹⁶ *An Analysis of State Capacity to Implement the Massachusetts Education Reform Act of 1993* (2001), sponsored by the Massachusetts Education Reform Review Commission and prepared by the University of Massachusetts Center for Education Policy.

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to analyze state-collected student data along various demographic, geographic, and programmatic lines, while protecting individual student confidentiality. The Student Information System (SIS) offers great promise for future research on student and school performance.

Local resources for curriculum alignment and revision work. The Education Reform Act assumed that local schools and school districts would have the capacity, in terms of staff time and expertise, to bring their curricula into alignment with the state's Curriculum Frameworks. Over the course of Education Reform implementation, many have questioned this assumption, as districts' capacity for curriculum alignment and revision appears to have been highly variable.

Systematic data on local capacity for curriculum alignment across subject areas have not been collected. The data that do exist on curriculum alignment and resources focus on mathematics. A Massachusetts Teachers Association survey of MTA leaders in 56 districts in 2000 reported that 54% of districts had aligned their entire K-12 curriculum with the state math framework, 29% had done partial alignment, and 17% had done no alignment.

Local resources for teaching and learning. The question of whether students and teachers in all of the state's school districts have access to the appropriate textbooks, other materials, and instructional facilities (known generally as the "opportunity to learn" issue) is of paramount importance, especially as the deadline for implementing the competency determination approaches. However, systematic information on opportunity-to-learn resources is not readily available. This type of research would be a valuable contribution to the field.

The 1998 National Assessment of Educational Progress (NAEP) did include a survey of teachers on issues such as resource adequacy and professional development, with the results reported as a percentage of each state's students whose teachers said they had "all or most" of the resources they need. Compared with all of the other states that participated in the 1998 NAEP, teachers of poor¹⁷ students in Massachusetts are less likely to report that they have all the resources they need. Except for 4th-grade language arts, teachers of non-poor students in Massachusetts are also less likely than the national sample to report that they have all the resources they need. The gaps between poor and non-poor students' resources in Massachusetts are also larger than the gaps found in the national sample.

Unlicensed or out-of-field teachers. Because schools rarely leave teaching positions vacant, they sometimes hire teachers who are not certified for the area in which they are teaching. In the 1999-2000 school year, the state issued 1,185 certification waivers. According to the Northeastern University Center for Labor Market Studies, 4.8% of teachers in 2000 were uncertified in the fields in which they were primarily teaching. Of these teachers, 46% were continuing teachers, rather than new hires. In Fall 2000, 28% of all newly hired middle and high-school teachers were hired to teach in fields for which they were not certified. The largest proportions of uncertified teachers were in technology, reading, foreign languages, industrial arts, chemistry, and physics.

Professional development opportunities for teachers. The legislature, in response to MERA, has earmarked a portion of Chapter 70 funds to local districts specifically for professional development, on a per-student basis. Local teachers, schools, and districts determine how these

¹⁷ "Poor" students were defined as those eligible for free or reduced-price lunch.

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funds are spent, and teachers collect Professional Development Points from state-approved providers. The state thus is able to collect information on the quantity of professional development activities, but relatively little is known about the alignment of professional development with state standards and the quality/impact of services received.

Two studies released in 2000¹⁸ faulted local districts' role in professional development. According to these reports, while districts are required by MERA to submit annual Professional Development Plans to the Department of Education, few have actually met this requirement, and the plans that have been submitted generally lack specific information. Many districts failed to spend the recommended amounts on professional development, and also did not comply with the requirement that they report to the Department of Education if they do not choose to spend at the recommended level.

Conclusions

Based upon our research, we offer the following conclusions about areas of success and areas for further work.

Areas of Success:

- 1. The legislature has brought virtually all districts to foundation level.** When the legislature committed itself in 1993 to supporting an unparalleled increase in state support for K-12 education, few thought they would actually do it. They did it, and a greater level of district equity is the result.
- 2. DOE has developed high-quality, well-aligned standards and assessments.** There is growing recognition, supported by external evaluations, that Massachusetts has some of the best standards and assessments in the country. The use of quality standards to align everything from teacher preparation to classroom instruction to school and district accountability is a truly systemic reform effort.
- 3. The state is paying more attention to the neediest students.** While controversial in their implementation, the system of standards and assessments has served to illuminate the persistent inadequacy of the education of many of our young people who might previously have fallen through the cracks. The foundation formula and subsequent appropriations for MCAS remediation have significantly boosted resources for those students who historically have been the least well served.
- 4. Districts are paying more attention to curriculum and instruction.** With relatively clear standards, and as the standards stabilize and assessment results come in, schools have been able to re-examine their offerings and align them both internally, from grade to grade, and externally with the Frameworks. The majority of districts appear to have realigned their curricula, teacher

¹⁸ Massachusetts Teachers Association (2000); Educational Management Audit Board (2000) First Findings: The Summative Report of the Educational Management Accountability Board on the Audits of Massachusetts School Districts and the Impact of the Education Reform Act.

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preparation programs have examined their standards and alignment, and professional development has been supported as a matter of state policy.

5. Students, overall, are increasing their performance. The passing threshold is still low (“needs improvement”), and the achievement gaps are cause for real concern (see below), but 87% of regular-education students in the Class of 2003 have been able to attain competency determination status to date. English language arts performance is improving across the board. And improved NAEP results and relatively high SAT and TIMMS results further indicate that, on average, Massachusetts students are making significant progress.

Areas for Further Work:

1. The achievement gaps. While regular-education students are for the most part meeting the minimum graduation standard, special education students and participating LEP students, on average, are not. Students from poor districts, in general, are not. And African-American and Hispanic students, on average, are not. Further research is needed to delve into the relationships between these variables to identify key areas of opportunity. At the least, attention to instruction, resources, and a realistic timeframe for success will be important.

2. Mathematics. The state has made a great deal of progress in terms of English language arts performance, but in mathematics, particularly at the 4th and 8th-grad levels, progress has been less satisfactory. One-third of 8th-graders are still scoring at the Warning level in math, and the percentage in the Advanced or Proficient categories has increased only slowly, from 31% to 34% over the past five years. Educators have successfully placed increased emphasis on literacy and writing across the curriculum in response to the writing components of MCAS; new approaches to mathematics now seem warranted as well.

3. Proper implementation for accountability. Effective implementation is as important as high standards and systematic assessments. A number of stakeholders have noted a significant gap between the implementation of student accountability and the implementation of adult accountability. Others have countered that high stakes for students were necessary if students and educators were to take the goal of meeting standards seriously. Having reached this point, it will be important to ensure that students and educators have sufficient “opportunity to learn” resources to enable them to meet the standards (including curriculum aligned to standards, teacher professional development, current textbooks, and time for these to take effect). If the resources and timeline are insufficient, this could have dire consequences for both individual students and the collective reform effort.

4. Post-12th grade options. If Massachusetts is to maintain the expectation that all students can reach common standards, post-12th grade pathways will be an important vehicle for ensuring that the system can accommodate student needs, in terms of both time and resources. As of the publication of this report, no programs, policies, or resources have been finalized for solving this looming challenge. Post-12th grade pathways to competency determination would represent significant progress toward a system in which standards are held constant and time spent on learning varies with student needs—as opposed to the traditional system of time being held constant and learning varying among students.

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5. From “needs improvement” to proficiency. Massachusetts has set an ambitious target of getting all students to meet the minimum standards required for competency determination status. However, it should not be forgotten that “needs improvement” is an intermediate stage, and that the standard of “proficiency” is the level that more closely approximates the skill levels required for college-level work and/or skilled careers.

6. Educator supply, quality, and distribution. As standards have become more ingrained, attention has begun to shift to the critical importance of highly qualified teachers in helping students meet the standards. Looming retirements of experienced teachers, insufficient retention of new teachers, teacher shortages in urban schools, teacher shortages in certain content areas (especially math, sciences, special education, and languages), higher expectations, and a dwindling supply of principals present formidable challenges. New methods of preparation, induction/mentoring, professional development, scheduling, and pay will all require consideration and evaluation.

7. Updating the funding formula. Our research appears to indicate that the current formula inadequately estimates costs in some areas. Now that we have a number of years’ experience with the demands of education reform, it is time to revisit the formula to ensure that it reflects the real demands of the new environment. In addition to accurately funding the costs of regular education, attention should be paid to ensuring that the special costs of bringing all students to competency are supported equitably.

8. Improved systems for data-based decision-making. MERA has generated a great quantity of potentially useful data, and the implementation of the No Child Left Behind Act will generate much more. Districts are already overburdened with information requests, and they feel that they have little opportunity or capacity to make use of the information that is collected. DOE has recently made TestWiz software available to all districts to help them analyze their MCAS results. This is a very positive step, but issues of local and state data capacity require continued effort. More attention will need to be paid to making the overall data gathering and distribution system more efficient, connected, and effective—both at DOE and at the local level.

9. Re-connection of policymakers and educators in the field. A great deal has been accomplished to date, but many front-line educators have come to feel disengaged from the process. As the state thinks about fine-tuning MERA implementation, it will be important for the governor, the legislature, the Board, the Department, and the various education associations to agree that Education Reform is a worthy goal, that we have much to celebrate, and that we will move forward together.

10. Continued monitoring and evaluation of the reform effort. This Annual Report is a useful step in the collection and analysis of information about the successes and challenges of MERA, but there are a number of areas for future research. These include analyses of the:

- various achievement gaps and how they interact, using student-level data;
- foundation budget formula and the real costs of ensuring that all students have the opportunity to learn in a standards-based environment;
- exemplary programs for helping special education, LEP, and high-poverty students to reach achievement goals;

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- roles of postsecondary and community institutions in expanding opportunities for students to meet standards;
- supply and demand “pipeline” for teachers and administrators;
- effectiveness of various teacher preparation, induction, and professional development approaches; and
- data needs and capacity of the state and local districts and how a data system might be developed to accommodate them.