UMASS DONAHUE INSTITUTE • RESEARCH & EVALUATION GROUP

A Study of MCAS Achievement and Promising Practices in Urban Special Education

Data Analysis and Site Selection Methodology

September 2004

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Executive Summary

Study Overview

This report is part of a broader research effort to clarify MCAS achievement and identify promising practices in urban special education. This research is being conducted by the University of Massachusetts Donahue Institute at the direction of the Massachusetts State Legislature in collaboration with the Massachusetts Office of Educational Quality and Accountability. The ultimate goal of this study is to identify district and school-level practices supporting MCAS achievement among elementary and middle school students with special needs in urban public schools. This report presents the methodology and findings of a comprehensive analysis of student level MCAS data, and provides an overview of the site selection process for district and school case studies conducted in conjunction with this research.

This phase of the research project was intended to identify urban districts and schools that demonstrate better than expected MCAS achievement among students with special needs. The study defined 33 Massachusetts school districts as urban based on two criteria: 1) An enrollment of 4000 or more students; and 2) A demography that places it in the lower half of the state's demographic distribution of communities. These 33 urban districts were stratified into four groups based on their demographic characteristics. The groupings provided a framework for comparison of MCAS achievement and ensured that each system was measured against its demographic peers.

This study of MCAS achievement was limited to students with special needs in grades 4, 7, and 8. Source data for the research was provided by the Massachusetts Department of Education. The source data file included both Student Information Management System (SIMS) and MCAS data for the school years ending 2001-2003. Following are the results of the analysis of these data.

Special Education Student Population Characteristics

Within the 2003 analysis data set, which included students in grades 4, 7, and 8, 17.6% receive special education services.

- The percentage of special education students varies from district to district and from grade to grade. The percentage of students in special education is higher in urban districts than in non-urban systems and the percentage of students in special education in Grades 4, 7, and 8 varies from 14.6% in Lowell to 28% in Cambridge.
- There is no consistent pattern to special education participation by grade level.

Income characteristics

- The percentage of students from low income families varies from district to district and grade to grade.
- The percentage of students from low income families is higher in urban districts than in non-urban systems.
- The percentage of students from low income families in Grades 4, 7, and 8 varies from 14.1% in Peabody to 84.2% in Springfield.
- When looking only at students in special education, the percentage of students from low income families is higher than for all students, with low income status much more prevalent in urban than in non-urban districts. For example, the mean percentage of low income grade 4 students with special needs in urban districts is 71.5%, compared to 22% in non-urban districts.

Disability type

- Among students with special needs, nearly 70% are identified with one of four disabilities and another 20% have no specific disability indicated (in this data set). The most common disability category is Specific Learning Disability, representing 51% of students in special education in Massachusetts. The other categories include Developmental Delay/Intellectual; Emotional Disturbance; and Speech/Language/Communication.
- Urban districts have a greater proportion of students with identified developmental delays or intellectual impairments non-urban districts (47.1% versus 53.4%).
- Urban districts have a greater proportion of students with identified emotional or behavioral disturbances than non-urban districts (7.7% versus 4.7%).
- Non-urban districts have a greater proportion of students with specific learning disabilities than urban districts (53.4% versus 47.1%).

Placement of students with special needs

- Urban students with special needs are more likely to be placed in restrictive environments than non-urban students. Urban districts have a greater proportion of students in substantially separate classrooms than non-urban districts (28% to 9%), and have more students in outside placements (7% versus 4%).
- Conversely, non-urban districts have a greater proportion of students who are "Up to 25% Separated" from the regular classroom than urban districts (58% versus 38%).
- Boston exhibits a very different student placement profile than the set of 33 urban districts. The district has far fewer students in minimally restrictive, general education modified settings (1% compared to 13% for the urban 33). It also had a far greater proportion of students in substantially separate classrooms (46% compared to 28%).

Limited English Proficiency (LEP) and special education

- The percentage of SPED LEP students varies from district to district, raging from 0% in New Bedford to 19% in Lawrence.
- The percentage of LEP students who are also in special education is higher in urban districts than in non-urban systems. The mean percentage of Grade 4 SPED LEP students in urban districts is 12.6% while the percentage in non-urban districts is 1%. For Grade 7, 8.6% of urban students are SPED LEP as compared to 0.6% in non-urban districts. For Grade 8, the numbers are 7.2% in urban districts and 0.3 % in non-urban systems.

Special Education Student Performance

Special education students exhibit wide variation in educational achievement as measured by MCAS. Whether in urban or non-urban districts, students with special needs generally demonstrate lower achievement than other students. Within the population of students with special needs, the performance of students in urban districts lags that of their peers in non-urban districts. Consistent with past studies of student MCAS achievement, students with special needs' MCAS scores tend to decrease as the degree of demographic challenge of the resident district increases.

Performance by disability type in urban and non-urban districts

- Of the disability types with substantial student counts, students in the Developmental Delay/Intellectual Impairment, Emotional Disturbance, and Multiple Disabilities categories demonstrated consistently lower achievement than did students with other identified disabilities. This was true for both ELA and math exam achievement across all grade levels and urban/non-urban districts.
- Students in all disability categories display the greatest success on the grade 4 MCAS exams, with declining success on the grade 7 ELA and grade 8 math exams.
- The gap in pass rates between urban and non-urban students increased with grade level, moving from 19 points in Grade 4 ELA and 22 points in Grade 4 Math; to 26 points in Grade 7 ELA; to 34 points in Grade 8 Math.
- The narrowest gap in urban and non-urban performance was consistently found to be among students in the Developmental Delay/Intellectual Impairment category, where the gap was 3 points in Grade 4 ELA and Grade 4 Math, 11points in Grade 7 ELA, and 0 in Grade 8 Math.

Performance by placement category in urban and non-urban districts

- Students in less restrictive classroom environments demonstrated higher achievement than students in more restrictive environments. In fact, achievement and extent of restriction tracked very closely and predictably. The caveat to this is that students in outside placements generally displayed higher achievement on the grade 7 ELA and grade 8 math exams than did students in substantially separate classrooms. These trends were not consistent on the grade 4 ELA and math exams.
- Students in all placement categories display the greatest success on the grade 4 MCAS exams, with declining success on the grade 7 ELA and grade 8 math exams.
- The pass rates of urban students were lower than those of non-urban students for all tests and all placement categories except Grade 4 ELA, where urban students in out of district placements had an 11 point higher pass rate than non-urban students in out of district placements (51% to 40%).
- In comparing the achievement of urban and non-urban students by placement, those in the 25 to 60% Separated category displayed the smallest gaps in pass rates.

Special education performance improvement over time, 2002 – 2003

Among the 33 urban districts, there was generally improvement in MCAS performance between 2002 and 2003.

- Data show improvements within each of the urban sub-groups on all exams, as measured by both proficiency index scores and pass rates. The one exception to this improvement was in the overall pass rates of students in districts within the Moderate to Low challenge sub-group on the grade 8 math exam (-5%). The proficiency index score remained stable for this group.
- Overall, the largest improvements in pass rates tended to be on the grade 7 ELA exam; while the smallest were on the grade 8 math exam.

MCAS Achievement by District

For the purpose of comparative analysis, the 33 urban districts were stratified by demography as follows:

Level of Challenge	District
High Challenge	Lawrence, Chelsea, Holyoke, Springfield, and New Bedford
Moderate to High Challenge	Fall River, Lowell, Lynn, Brockton, Boston, Fitchburg, and Revere.
Moderate to Low Challenge	Chicopee, Everett, Worcester, Taunton, Pittsfield, West Springfield, Leominster, Malden, and Somerville.
Low Challenge	Haverhill, Methuen, Salem, Westfield, Gloucester, Quincy, Medford, Peabody, Framingham, Cambridge, Waltham, and Marlborough.

With these demographic groupings established as a context for comparison, the selection of districts for field study was based on MCAS achievement among students with special needs at the district level. MCAS achievement was measured on each of the four exams considered by this study. Comparisons were made and selection "points" were awarded based on relative performance on each of the four tests, as well as the direction (positive or negative) and extent of change in scores between the 2002 and 2003 administrations of these tests.

Two indicators were used to measure achievement and change over time: the Proficiency Index, which is a measure of the district's overall MCAS performance; and the pass rate, which is the percentage of students with an MCAS score in the Needs Improvement, Advanced, or Proficient category.

Relatively High Performing Districts

Districts were chosen for further study based on the overall achievement of their students with special needs relative to demographically defined peer districts. A comprehensive district selection matrix was used to organize the results of performance analyses at the sub-group and district level. Although the MCAS achievement of urban students with special needs continues to fall well short of established goals, data show that students in some districts have indeed fared better than others. Following are the districts that displayed the best performance across the grade 4, 7, and 8 ELA and math exams, for which no identifiable data anomalies existed, presented by demographic sub-group:

Level of Challenge	District
High Challenge	Chelsea and New Bedford
Moderate to High Challenge	Lynn and Fall River
Moderate to Low Challenge	Everett and Pittsfield
Low Challenge	Waltham, Framingham, and Methuen

Following a review of the distribution of disability types and placements within these districts, and discussion of available evidence to confirm each district's suitability for selection as a field research site, three systems were selected and agreed to participate in a district-level field research process: Chelsea, Everett, and Framingham (Lynn was also selected but declined to participate). Two individual schools participated in the field research process, including the Morningside Community School in Pittsfield and the Mary Lyon School in Boston.

Details related to the performance and practices of these districts and schools appears in *A Study of MCAS Achievement and Promising Practices in Urban Special Education: Report of Field Research Findings.*

I. Introduction and Methodology

This report provides an overview of the methodology and findings of a quantitative analysis of MCAS and other student level data as part of *A Study of MCAS Achievement and Promising Practices in Urban Special Education*. This study, which remains ongoing, is being conducted by the University of Massachusetts Donahue Institute, in collaboration with the Office of Educational Quality and Accountability, through funding provided by the Massachusetts State Legislature. This report presents a methodological overview for the quantitative component of this research and presents findings related to the population characteristics and MCAS performance of students with special needs in urban districts across the Commonwealth of Massachusetts.

This report also describes the district selection process that supported the field research component of this study. The field methodology and findings of the field research phase are reported in the companion to this report, *A Study of MCAS Achievement and Promising Practices in Urban Special Education: Report of Field Research Findings*.

Background and Methodological Overview

This study identified and examined urban school districts and individual schools with promising English language arts (ELA) and math achievement among students with special needs. We selected 33 districts with urban characteristics based on two criteria: 1) having 4000 or more students enrolled in public schools; and 2) being in the lower half of the state's demographic distribution of communities. To effectively focus available resources and time, this study was limited to an examination of the performance of students in elementary (Grade 4 ELA and math) and middle school (Grade 7 ELA and Grade 8 math).

Districts and schools of interest were selected for field research, including school site visits and staff interviews, based on an analysis of the MCAS performance of students with special needs. With regard to this analysis, it was not sufficient to simply identify the systems whose students with special needs scored highest on MCAS. Past research has shown that student performance is often dependent on community factors that set the background for achievement before a child even enters the classroom. Because demography has been proven to account for so much in student achievement, the study methodology compared the MCAS achievement of each urban community to achievement in other similarly challenged communities.

The 33 districts were placed into four groups based on overall demographic characteristics using a methodology developed by Dr. Robert Gaudet. This methodology, the Community Effects Factor (CEF), allows the researcher to place communities into clusters of municipalities that have similar demographic characteristics and, thus, should have broadly similar educational performance.[1] (See Appendix G for more information on the Community Effects Factor.)

The CEF model statistically evaluates the impact of the following community characteristics on student achievement: average education level, average income, poverty rate, single-parent status, and primary language spoken. These variables were selected because they correlate with achievement, and because the education literature identifies them as connected to academic performance.

[1] The Community Effects Factor (CEF) model was developed in a doctoral dissertation (Education Achievement Communities: A New Model for "Kind of Community" in Massachusetts Based on an Analysis of Community Characteristics Affecting Educational Outcomes, May 1998, University of Massachusetts, Amherst).

In order to refine the CEF model, we first factored in the impact that these demographic variables have on each other. This was done through a technique known as principal component analysis, a statistical mechanism that reduces many variables to a few salient ones that have the greatest impact on an outcome. Once the salient factors were identified, a regression analysis sorted out the roles of the various input factors on outcomes and produced the equations that would be used to build a kind-of-community model and to predict expected district performance on achievement tests.

By accounting for the influence community demographics have on performance, this research identified urban school districts that perform above both demographic expectations and districts in similarly challenged communities with regard to the MCAS achievement of students with special needs.

Issues in the Assessment of Special Education Achievement

With almost a million students enrolled in Massachusetts public K-12 schools, educators must develop a range of strategies to meet the diverse needs of their students. Students attending schools in high-income suburbs pose—and are presented with—different challenges than those who go to schools in urban areas. Students with limited English language skills require different pedagogy than those with stronger language skills.

While approximately 15% of Massachusetts students are enrolled in special education, there is a great diversity of learning needs represented in that population. Some students need very limited services while others present more substantial challenges. Thus, when evaluating the achievement of special education students, we considered several factors.

We examined the percentage of students in a district who were identified as needing special education for several reasons. A district that has a relatively low percentage of special education students may have more rigorous standards in identifying such students than a district that has a relatively high percentage. In the former case, it is more likely that special education students do present substantial educational challenges. In the latter case, when there are a high percentage of special education students in a district, it may be that some identified students do not, in fact, present substantial challenges. Generally, a district that has a low percentage of students in special education–which probably represents students who do have special needs–will tend to have lower special education MCAS scores than a district with less rigorous identification standards. Conversely, the district with less rigorous identification standards may have a lower threshold for determination of special needs, which, consequently, may boost the apparent achievement of its students with special needs.

Another factor we considered was the distribution or breakout of disability and placement for special education students. Special education students are classified according to disability type and placement. There are 13 disability types[2] and five basic placement categories.[3] Disability types include both physical and mental challenges and reflect a variety of learning issues, ranging from severe cognitive impairment to specific learning disabilities. Placement refers to the extent of the services provided to the student outside the general classroom. Some special education needs can be met in the general classroom, while more severe or individualized needs may best be addressed outside of the general classroom.

Student performance was related to disability type. For example, students diagnosed with as developmentally delayed/intellectually impaired and as emotionally or behaviorally disturbed had significantly lower mean MCAS scores than students with other disabilities. In contrast, students who are blind/visually impaired tend to score higher than students with other disabilities. Student performance was also related to placement category. Students

[2] Autism; Developmental Delay/Intellectual; Emotional Disturbance; Neurological/Head Injury; Blind/Visual Impairment; Deaf; Deaf/Blind; Physical; Specific Learning Disability; Multi-mark; Speech/Language/Communication; Health; Multiple Disabilities

[3] General Education Modified; Up to 25% Separated; 25-60% Separate; Substantially Separate; Outside Placement (which can be to a number of public and private facilities). Note: Earlier MA DOE data sets had a 20%-60% Separate category instead of the 25%-60% Separate category.

in the General Education Modified category scored higher on MCAS than students in all other settings. Students in substantially separate classrooms and out of district placements scored lower than students in other settings.

In order to make a fair evaluation of student achievement, it was important to ensure that a particular distribution of disability types and/or placement was not driving test scores. For example, a district that had a high percentage of developmental delay/intellectually impaired students would be more likely to score lower than a district with fewer students in this category, assuming that consistent criteria were applied in the student's evaluation for special education services. Before making any determination on whether or not a district or school was performing well, we factored in how disability and placement characteristics affect achievement.

Demography and Achievement

As noted earlier, community demography is another factor proven to influence MCAS achievement. Statistical analysis consistently shows that students in cities, whether in regular education or special education classes, do not perform as well on the MCAS as students in middle class and advantaged communities. The Community Effects Factor model can be used to place cities in clusters with demographically similar communities whose MCAS performance is, from a statistical standpoint, expected to be comparable.

Table 1

District Groupings Based on Relative Demographic Challenge

High Challenge		Moderate to High Challenge		Moderate to Low Challenge		Low Challenge	
-3.9	LAWRENCE	-2.5	FALL RIVER	-1.7	CHICOPEE	-0.9	HAVERHILL
-3.6	CHELSEA	-2.3	LOWELL	-1.7	EVERETT	-0.8	METHUEN
-3.3	HOLYOKE	-2.2	LYNN	-1.7	WORCESTER	-0.8	SALEM
-3	SPRINGFIELD	-2.1	BROCKTON	-1.3	TAUNTON	-0.8	WESTFIELD
-2.9	NEW BEDFORD	-1.9	BOSTON	-1.2	PITTSFIELD	-0.7	GLOUCESTER
		-1.9	FITCHBURG	-1.2	W. SPRINGFIELD	-0.6	QUINCY
		-1.9	REVERE	-1.1	LEOMINSTER	-0.5	MEDFORD
				-1.1	MALDEN	-0.5	PEABODY
				-1	SOMERVILLE	-0.4	FRAMINGHAM
						-0.3	CAMBRIDGE
						-0.3	WALTHAM
						-0.2	MARLBOROUGH

For purposes of this study, we divided the 33 study communities into four groups based on each community's demography, as shown in Table 1. These groups, which are ordered based on the degree of expected challenge faced by students who reside in a specific community, include: High, Moderate to High, Moderate to Low, and Low challenge. For example, community demography indicates that Chelsea and Lawrence belong in the High Challenge category, while Methuen and Cambridge belong in the Low Challenge category. To level the playing field with regard to the demographic factors effecting performance, each community's special education achievement was evaluated relative to the performance of its demographic peers.

Demographic Challenge and Achievement

Some further discussion of the numeric values assigned to each community is warranted. The average demography for all communities in Massachusetts is 0.0. A community with a negative demographic weight (indicated by a negative number) exhibits demographic characteristics that have been statistically proven to inhibit educational achievement. Conversely, a community with a positive demographic weight exhibits demographic characteristics that have been statistically proven to be supportive of educational achievement.

Urban areas generally have negative demographic weight values while affluent suburbs have positive demographic weight values. These demographic challenges factor in poverty, family status, language facility, education level, and other attributes that correlate with MCAS performance. The demographic weight of a community is a major indicator of the degree of difficulty or challenge faced by educators in boosting student achievement. Lawrence was the most demographically challenged community in our study set, with a demographic weight of –3.9; while Marlborough was the least demographically challenged community in the study set with a demographic weight of –0.3.

Source Data and MCAS Scoring

This study focused exclusively on the MCAS performance of students in grades 4, 7, and 8. The Massachusetts Department of Education (MA DOE) provided a "megafile" containing both Student Information Management System (SIMs) and MCAS achievement data for students in these grades. MA DOE performed the merge of these data and subjected them to an intensive data verification and cleaning process to provide the most complete and accurate dataset possible.

The integration of MCAS data with the SIMs dataset was crucial to the research process, as the SIMs data include a range of personal information, including each student's district and school, and their special education status, placement, and disability type, where applicable. The main data file used in the analyses contained in this report included data from academic years 2000-2001, 2001-2002, and 2002-2003.

Proficiency Index and Scaled Scores

The achievement information in the MCAS/SIMS megafile was provided in scaled scores for both the Math and the ELA MCAS exams. Historically, the MA DOE has publicly reported scaled scores, as well as the percentage of students scoring at the various performance levels (Warning/Fail; Needs Improvement; Proficient; and Advanced) at the school level. Since fall of 2002, the Department has also utilized the "Proficiency Index" as a tool for measuring school, district, and state level performance relative to the goal of every student attaining proficiency in ELA and mathematics.

In calculating a district or school's Proficiency Index (PI), points are credited for each student in the MCAS test group. The number of points credited per student ranges from 0 to 100, depending on the student's MCAS performance relative to becoming proficient. [4] A separate proficiency index score is reported for the English language arts and mathematics exams. PI scores are used throughout this report.

[4] The Proficiency Index is determined by weighting student scaled score achievement. For each student in a district scoring Proficient or Advanced (240-280), 100 points is given. For each student scoring High Needs Improvement (230-238), 75 points is given. For each student scoring Low Needs Improvement (220-228), 50 points is given. For High Warning/Fail (210-218), 25 points is given. For Low Warning/Fail (200-208), 0 points are given. The totals are added up and divided by the number of students who took MCAS, which results in the Proficiency Index.

Limitations of the Data

Coding Structures and Available Data

The two data sets used to develop the master database (SIMS and MCAS) had slightly different coding structures and different levels of reliability. While placement data came from the SIMS set and is considered very reliable, disability type data came from the MCAS set and are considered less reliable. Beyond the source for the disability type data, questions linger regarding the consistency with which districts apply standard criteria to the assignment of these codes to students.

Another concern was the lack of a variable describing the severity of disability, which would have been helpful to this research. While it can be argued that placement can be used as a proxy for severity, this approach has some substantial limitations and so was not utilized in our analyses. The lack of a clear and objective measurement of the severity of each student's disability creates the possibility that observations of comparative performance may be driven by factors other than district or school efficacy.

Outside Placements

Students in out of district placements comprise approximately 6% of students with special needs statewide. These students tend to have relatively poor MCAS performance and are educated outside the traditional school system, in a public or private school setting. T structure of the dataset used in this study allowed the researchers to associate students in out of district placements with their sending district, but not their sending school. Accordingly, in selected analyses, it was appropriate to omit these students from the profile of students at the district level, to enable meaningful comparisons to school-level student profile data.

Students in out of district placements were also excluded from MCAS achievement scores and comparisons found throughout this report. This was due to the overall research objectives of this study, to identify districts and schools that have implemented promising strategies to support the MCAS achievement of students with special needs. With this objective, data analysis focused on students being educated within those systems, as opposed to by sub-contracted organizations.

The Boston Effect

The size of the Boston Public School District relative to individual districts and all others combined was a major concern. In total, Boston represented 17.7% of the total student population in our data set. This district had a fairly unique placement profile, with a much higher percentage of students in substantially separate classrooms and a much lower than average percentage of students in the general education modified category. Because the Boston data held the potential of skewing overall findings, Boston was excluded from selected analyses, as noted throughout this report.

II. Special Education Student Population Characteristics

Special Education Participation

Statewide, 15.2% of students were identified with special needs requiring an individual education plan (IEP). In the research dataset, which included students in grades 4, 7, and 8 only, 17.6% received special education services (see Table 2 for detail). The percentage of special education students varied from district to district and from grade to grade (Appendix A).

- **The percentage of students in special education was higher in urban districts than in non-urban districts across grades.** Whereas the mean percentage of special education participation in Grade 4 was 19% in urban districts, it was 16% in non-urban districts. In Grade 7, the mean was 21% in urban districts and 16% in non-urban districts. And in Grade 8, the mean for urban districts was 20% versus 16% for non-urban districts.
- **The total percentage of students in special education in Grades 4, 7, and 8 varied between districts (See Table 2).** The total percentage varied from a low of 14.5% in Brockton to a high of 28% in Cambridge.
- **There was no consistent pattern to special education participation by grade level in the districts.** For example, as grade level increased, Springfield had increasing percentages of students in special education (Grade 4: 23%; Grade 7: 25%; Grade 8: 28%), Holyoke had decreasing percentages in special education (Grade 4: 30%; Grade 7: 23%; Grade 8: 21%), and Salem maintained the same percentage across grades (Grade 4: 20%; Grade 7: 20%; Grade 8: 20%). These trends may be influenced by any number of factors, including ongoing identification efforts and potentially higher drop-out rates among students with special needs. (See Appendix A).

LEP Characteristics of Students

Statewide, 5.3% of all students were identified as Limited English Proficient (LEP) on the Department of Education's web site. In our dataset, 4.0% were identified as SPED LEP, that is, students with limited English who were receiving special education services (see Table 2).

- **The percentage of SPED LEP students varied from district to district.** Based on our dataset of 33 districts, the percentage of SPED LEP students in Grades 4, 7, and 8 varied from 0% in New Bedford and Gloucester to 30% in Holyoke.
- **The percentage of SPED LEP did not always track the overall percentage of LEP students who were in special education across towns.** To illustrate, whereas Chelsea had 15.4% of its students identified as LEP, only 5% of its students were SPED LEP. In contrast, Fitchburg identified 16.7% of its students as LEP, yet 25% of its students with limited English proficiency were receiving SPED services.
- **The percentage of SPED LEP students was higher in urban districts than in non-urban systems across grades.** The mean percentage of Grade 4 SPED LEP students in urban districts was 12.6% while the percentage in non-urban districts was 1%. For Grade 7, 8.6% of students were SPED LEP as compared to 0.6% in non-urban districts. And the numbers for Grade 8 were 7.2% in urban districts and 0.3 % in non-urban systems.

Table 2.

Summary of District Profile Data									
Degree of Challenge	District	% SPED (DOE Web [1])	% SPED (MCAS [2])	% LEP (DOE - Web)	% SPED LEP [3] (MCAS)	% Non-White (DOE-Web)	% Non-White (MCAS)	% F or R Lunch (DOE Web)	% F or R Lunch (MCAS)
High	**Statewide Mean**	**15.2**	**17.6**	**5.3**	**4.0**	**24.1**	**25.2**	**26.2**	**25.2**
-3.9	LAWRENCE	14.1	18.1	26.7	19.0	89.4	88.9	69.4	79.9
-3.6	CHELSEA	13.0	18.8	15.4	5.0	84.2	83.9	80.0	82.2
-3.3	HOLYOKE	18.9	24.3	20.0	30.0	76.1	79.1	69.0	75.1
-3	SPRINGFIELD	19.6	25.5	10.2	11.0	78.2	79.2	71.2	84.2
-2.9	NEW BEDFORD	17.8	17.9	3.6	0.0	34.4	35.5	62.7	67.0
Moderate to High									
-2.5	FALL RIVER	14.7	18.3	5.5	2.0	22.7	22.1	50.9	54.1
-2.3	LOWELL	12.5	14.6	14.3	15.0	56.0	56.2	66.6	73.1
-2.2	LYNN	14.8	17.2	11.8	12.0	40.1	60.6	66.0	69.7
-2.1	BROCKTON	12.5	14.5	7.2	3.0	40.5	62.2	62.9	59.5
-1.9	BOSTON	19.1	15.4	24.3	17.0	85.9	85.0	73.6	79.4
-1.9	FITCHBURG	14.6	15.0	16.7	25.0	47.6	50.2	50.3	56.8
-1.9	REVERE	12.4	15.4	6.4	1.0	34.9	33.5	49.9	57.1
Moderate to Low									
-1.7	CHICOPEE	15.4	17.8	6.4	6.0	21.3	21.2	45.5	48.2
-1.7	EVERETT	13.7	16.8	10.4	5.0	28.4	27.1	39.5	52.9
-1.7	WORCESTER	17.1	21.3	13.1	7.0	50.3	50.7	56.3	58.6
-1.3	TAUNTON	16.4	21.6	3.1	2.0	13.5	14.8	30.5	30.7
-1.2	PITTSFIELD	13.9	19.7	2.0	3.0	13.6	13.5	31.0	38.0
-1.2	WEST SPRINGFIELD	14.7	16.0	7.2	1.0	15.8	14.8	29.0	33.9
-1.1	LEOMINSTER	16.2	15.3	8.3	8.0	28.8	30.7	28.8	32.0
-1.1	MALDEN	16.2	19.8	10.3	1.0	46.0	41.5	40.5	46.7
-1.0	SOMERVILLE	19.7	24.9	18.1	8.0	53.6	51.5	64.9	65.3
Low									
-0.9	HAVERHILL	16.7	19.6	3.2	4.0	20.0	23.4	28.0	34.1
-0.8	METHUEN	12.6	15.7	5.2	4.0	30.6	19.9	25.2	26.5
-0.8	SALEM	16.9	19.9	10.9	7.0	36.0	35.8	36.5	41.0
-0.8	WESTFIELD	16.5	19.4	5.2	1.0	9.8	10.1	26.5	31.8
-0.7	GLOUCESTER	16.8	22.8	0.9	0.0	4.8	3.7	16.8	21.9
-0.6	QUINCY	15.3	18.0	12.2	5.0	32.0	32.5	25.8	34.9
-0.5	MEDFORD	16.1	19.0	14.5	6.0	24.2	24.0	21.0	22.5
-0.5	PEABODY	13.2	15.8	2.7	1.0	10.2	9.6	15.5	14.1
-0.4	FRAMINGHAM	15.6	22.6	18.2	10.0	30.7	32.1	26.6	33.2
-0.3	CAMBRIDGE	21.4	28.0	9.9	2.0	62.7	63.6	38.6	46.1
-0.3	WALTHAM	18.2	23.0	5.9	2.0	36.3	35.0	23.9	29.9
-0.2	MARLBOROUGH	20.1	22.4	11.9	4.0	29.1	27.0	22.3	26.7

[1]Information Supplied from the Massachusetts Department of Education Web Site (All Grades)

[2]Information compiled from the MCAS data files (all MCAS data are from grades 4, 7, and 8 only)

[3]Just special education students.

Income Characteristics of Student Families

Statewide, 26.2% of all students were identified as low income (based upon reported free/reduced lunch status). In our dataset, limited to all students in grades 4, 7, and 8, the percentage was 25.2%. The percentage of low income students varied from district to district and from grade to grade (see Table 2).

As shown in Figure 1, the percentage of low income students was higher in urban districts than in non-urban systems. In our data set, the percentage of students from low income households varied from 14.1% in Peabody to 84.2% in Springfield.

Figure 1

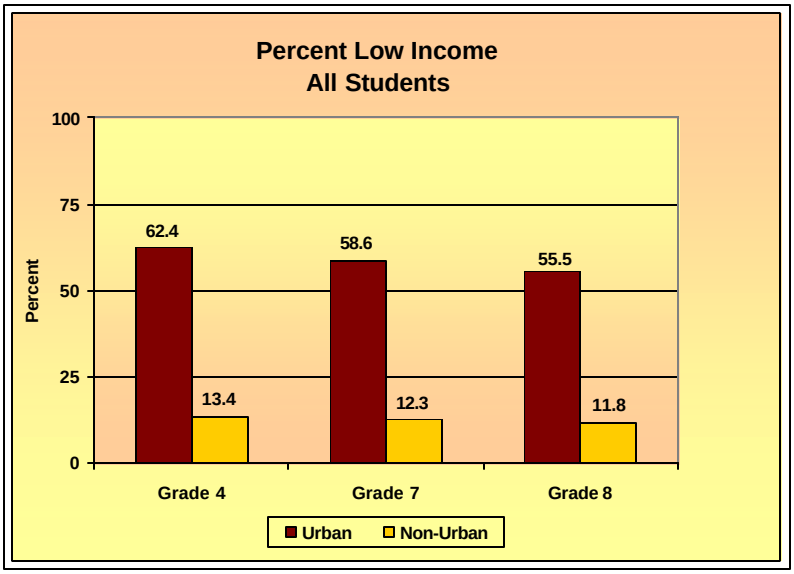
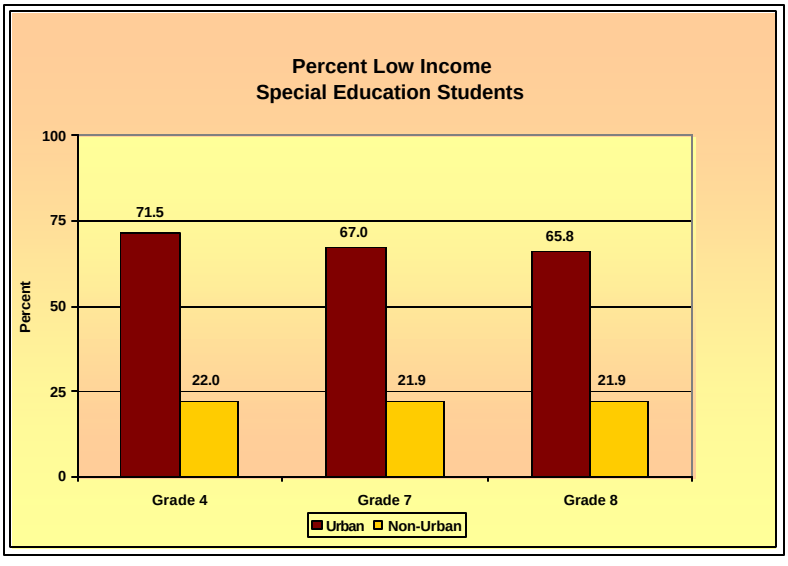


Figure 2 shows the proportion of students with special needs identified as low income in both urban and non-urban districts. When comparing these data to those for all students, the percentage of low income students was higher within each of the three grade levels we studied in both urban and non-urban districts. Low income students with special needs are substantially more prevalent in urban districts than in non-urban districts. For example, the mean percentage of Grade 4 special education students from low income households in urban districts was 71.5%, while the percentage in non-urban districts was 22.0%.

Figure 2



Generally, the percentage of special education students who were eligible for free or reduced priced lunch was higher than the percentage for all students, as shown in Table 4. For example, we found that Fitchburg has 57% of its students eligible for Free/Reduced Lunch and 79% of its special education students eligible. (See Table 4 below.)

Table 4.

Student Poverty by District*		
District	% Among Special Education Students	% Among All Students
BOSTON	84	79
BROCKTON	66	60
CAMBRIDGE	52	46
CHELSEA	83	82
CHICOPEE	65	48
EVERETT	51	53
FALL RIVER	66	54
FITCHBURG	79	57
FRAMINGHAM	46	33
GLOUCESTER	32	22
HAVERHILL	51	34
HOLYOKE	85	75
LAWRENCE	80	80
LEOMINSTER	47	32
LOWELL	81	73
LYNN	74	70
MALDEN	51	47
MARLBOROUGH	32	27
MEDFORD	31	23
METHUEN	37	27
NEW BEDFORD	82	67
PEABODY	20	14
PITTSFIELD	56	38
QUINCY	44	35
REVERE	68	57
SALEM	52	41
SOMERVILLE	73	65
SPRINGFIELD	87	84
TAUNTON	50	31
WALTHAM	43	30
WEST SPRINGFIELD	43	34
WESTFIELD	47	32
WORCESTER	68	59

* Based on student eligibility for free or reduced priced lunch.

Disability Type and Placement of Special Education Students

Through an IEP team evaluation process, students with special needs are placed into specific disability type categories and placed into different educational settings according to agreed upon need (see footnotes 2 and 3 in the *Introduction and Methodology*). Because of the potential variation in disability and placement distribution from district to district and school to school, as well as in achievement based on disability and placement, it was important to consider disability and placement characteristics both when viewing population characteristics and when assessing student MCAS achievement across districts and schools.

Disability Categories

Available data revealed differences in the distribution of disabilities among students with special needs in urban and non-urban districts (Table 5). For example, we found that urban districts had more students categorized as Developmental Delay/Intellectual than non-urban districts (47.1% versus 53.4%), and also had more students in the Emotionally Disturbed category than non-urban districts (7.7% versus 4.7%). Non-urban districts had more students in Specific Learning Disability than urban districts (53.4% versus 47.1%).

See Appendix B1 for additional detail related to the distribution of disability type among students with special needs within each of the 33 urban districts, as defined by this study.

Table 5.

Distribution of Disability Types in Urban / Non-Urban Districts			
Disability Type	**Urban**	**Non-urban**	**Total**
Specific Learning	47.1%	53.4%	50.8%
Developmental Delay/ Intellectual	9.9%	4.3%	6.6%
Emotional Disturbance	7.7%	4.7%	6.0%
Speech/ Language/ Communication	4.1%	7.0%	5.8%
Health	1.4%	4.4%	3.2%
Multiple Disabilities	3.5%	2.8%	3.1%
Neurological/ Head Injury	0.8%	2.3%	1.7%
Autism	1.0%	1.7%	1.4%
Deaf/ Hard of Hearing	0.6%	0.5%	0.5%
Blind/ Visual Impairment	0.3%	0.2%	0.2%
Physical	0.1%	0.3%	0.2%
Deaf - Blindness	0.0%	0.0%	0.0%
Not Specified	23.5%	18.4%	20.5%

Student Placement

The placement or environment within which a student with special needs is educated also varied based upon whether they attended an urban or a non-urban school district. By law, students are to be placed in the least restrictive environment possible (and given full access to the general curriculum, regardless of setting). Our findings show that urban special education students were likely to be placed in more restrictive environments than non-urban students.

As shown in Table 6, urban districts had more students in Substantially Separate classrooms than did non-urban districts (28% versus 9%). Further, urban districts had more students in Outside Placements than non-urban districts (7% versus 4%); while non-urban districts had more students in the far less restrictive environment described as Up to 25% Separated (58% versus 38%).

See Appendix B2 for additional detail related to distribution of placement among students with special needs within each of the 33 urban districts, as defined by this study.

Table 6.

Distribution of Placement in Urban / Non-Urban Districts			
Placement Type	**Urban**	**Non-urban**	**Total**
Gen Ed Modified	13%	15%	14%
Up to 25% Separated	38%	58%	50%
25 to 60% Separated	13%	11%	12%
Substantially Separated	28%	9%	17%
Outside Placement	7%	4%	6%
Not Specified	1%	2%	2%

We also identified differences in placement based on the demography of the district in the dataset, for example: (see Appendices C3 and C4 for detail)

- Districts in the Low Challenge group (for group list see Table 1) had 18% of their special education students in Substantially Separated classrooms.
- Districts in the High Challenge had 27% of their special education students in Substantially Separated classrooms.
- Districts in the Moderate-to-High Challenge group had 17% of their special education students in 25% to 60% Separated classrooms.
- Districts in the High Challenge group had 1% of their special education students in 25% to 60% Separated classrooms.

There were few differences in the Outside Placement rates in the four groupings of districts used in this study. In the four groups, the percentage of outside placement ranged only from 6.7% to 7.6%. This may suggest that the costs associated with outside placements force a high and consistent standard for assignment to these placements.

As noted in the *Introduction and Methodology* section, with the exception of Outside Placement, Boston exhibited a very different placement profile than the other 33 urban districts (Table 7). Boston had a far smaller proportion of students in General Education Modified classrooms – 1% compared to 13% – and a far greater proportion in substantially separate classrooms (46% to 28%). (See Appendices B2 and C4 for additional detail.)

Table 7.

Distribution of Placement Boston / Urban		
Placement Type	**Boston**	**Total Urban**
Gen Ed Modified	1.0%	13%
Up to 25% Separated	24%	38%
25 to 60% Separated	22%	13%
Substantially Separated	46%	28%
Outside Placement	7%	7%
Not Specified	0%	1%

III. Special Education Student MCAS Achievement

Special education students in Massachusetts exhibited wide variation in educational achievement as measured by MCAS. Special education students, whether in urban or non-urban districts, generally displayed lower MCAS achievement than regular education students. However, students with special needs in non-urban districts generally outperformed their peers in urban districts.

Achievement as it Relates to Demography

Consistent with past research regarding the MCAS achievement of all students, the MCAS achievement of students with special needs generally decreases as the degree of demographic challenge within the district's home community increases. In every grade included in this report, more challenged districts consistently bore lower achievement scores than did relatively less challenged districts. The only exception was on the Grade 4 Math test where the Low Challenge group underperformed the Moderate to Low Challenge group by about one point both in Proficiency Index (PI) and pass rate.

Following are text highlights of some of the data featured in Tables 8 and 9. These tables show the proficiency scores and pass rates, respectively, for the grade 4 ELA and math, grade 7 ELA, and grade 8 math exams. These tables include the mean values for each of the four sub-groups. Additional data detailing the performance of students from each district by exam are presented in Appendix D1-4.

The performance of special education students on the 2003 Grade 4 ELA test was as follows:

- In the High Challenge category, the better performers included Springfield (48.1 PI; 57% pass rate), Chelsea (51.5 PI; 63% pass rate), and New Bedford (53.9 PI; 66% pass rate).
- In the Moderate to High Challenge category, the better performers included Fall River (63.6 PI; 79% pass rate), Revere (65.5 PI; 77% pass rate), and Fitchburg (65.6 PI; 81% pass rate).
- In the Moderate to Low Challenge category, the better performers included Worcester (60.6 PI; 73% pass rate), Everett (64.8 PI; 80% pass rate), and Pittsfield (72.3 PI; 84% pass rate).
- In the Low Challenge category, the better performers included Waltham (63.6 PI; 76% pass rate), Gloucester (68.9 PI; 79% pass rate), and Framingham (70.3 PI; 85% pass rate).

The performance of special education students on the 2003 Grade 4 Math MCAS was as follows:

- In the High Challenge category, the better performers included Springfield (41.0 PI; 48% pass rate), New Bedford (49.2 PI; 64% pass rate), and Chelsea (51.5 PI; 65% pass rate).
- In the Moderate to High Challenge category, the better performers included Revere (50.9 PI; 64% pass rate), Fall River (53.6 PI; 67% pass rate), and Fitchburg (63.8 PI; 75% pass rate).
- In the Moderate to Low Challenge category, the better performers included Worcester (52.5 PI; 68% pass rate), Everett (56.1 PI; 65% pass rate), and Pittsfield (62.1 PI; 74% pass rate).
- In the Low Challenge category, the better performers included Waltham (55.4 PI; 68% pass rate), Gloucester (59.2 PI; 73% pass rate), and Framingham (61.8 PI; 77% pass rate).

The performance of special education students on the 2003 Grade 7 ELA MCAS was as follows:

- In the High Challenge category, the better performers included New Bedford (44.9 PI; 59% pass rate), Chelsea (45.2 PI; 62% pass rate), and Springfield (45.8 PI; 53% pass rate).
- In the Moderate to High Challenge category, the better performers included Fall River (49.7 PI; 61% pass rate), Fitchburg (54.9 PI; 70% pass rate), and Lynn (56.0 PI; 74% pass rate).
- In the Moderate to Low Challenge category, the better performers included Leominster (60.6 PI; 82% pass rate), Somerville (60.8 PI; 81% pass rate), and Malden (65.1 PI; 82% pass rate).
- In the Low Challenge category, the better performers included Framingham (70.0 PI; 88% pass rate), Gloucester (70.8 PI; 84% pass rate), and Waltham (71.8 PI; 90% pass rate).

The performance of special education students on the 2003 Grade 8 Math MCAS was as follows:

- In the High Challenge category, the better performers included New Bedford (22.2 PI; 9% pass rate), Springfield (22.3 PI; 18% pass rate), and Chelsea (24.0 PI; 14% pass rate).
- In the Moderate to High Challenge category, the better performers included Boston (24.5 PI; 18% pass rate), Lynn (26.0 PI; 15% pass rate), and Fitchburg (44.2 PI; 38% pass rate).
- In the Moderate to Low Challenge category, the better performers included Malden (29.9 PI; 25% pass rate), West Springfield (31.0 PI; 22% pass rate), and Somerville (34.6 PI; 33% pass rate).
- In the Low Challenge category, the better performers included Cambridge (33.5 PI; 31% pass rate), Framingham (34.1 PI; 33% pass rate), and Waltham (34.9 PI; 34% pass rate).

Refer to Tables 8 and 9, following pages, for additional data.

This table is sorted by demography, from those urban districts confronted with the greatest relative demographic challenge to those with the least.

Table 8.

2003 Special Education Student Proficiency Index Scores by District						
Degree of Challenge	District		G4 ELA	G4 Math	G7 ELA	G8 Math
High		**Group Mean**	**45.8**	**40.6**	**43.3**	**21.3**
-3.9	LAWRENCE		33.6	26.6	36.6	18.0
-3.6	CHELSEA		51.5	51.5	45.2	24.0
-3.3	HOLYOKE		39.6	37.8	40.0	17.5
-3	SPRINGFIELD		48.1	41.0	45.8	22.3
-2.9	NEW BEDFORD		53.9	49.2	44.9	22.2
Moderate to High		**Group Mean**	**51.8**	**44.3**	**49.2**	**24.4**
-2.5	FALL RIVER		63.6	53.6	49.7	24.2
-2.3	LOWELL		36.4	33.7	44.7	23.2
-2.2	LYNN		52.9	44.2	56.0	26.0
-2.1	BROCKTON		50.0	43.6	47.8	23.8
-1.9	BOSTON		39.3	36.1	49.4	24.5
-1.9	FITCHBURG		65.6	63.8	54.9	44.2
-1.9	REVERE		65.5	50.9	46.8	23.9
Moderate to Low		**Group Mean**	**57.4**	**50.1**	**53.2**	**26.7**
-1.7	CHICOPEE		50.3	45.2	47.1	19.5
-1.7	EVERETT		64.8	56.1	58.2	28.4
-1.7	WORCESTER		60.6	52.5	47.3	23.9
-1.3	TAUNTON		55.1	48.8	56.3	27.6
-1.2	PITTSFIELD		72.3	62.1	48.0	21.0
-1.2	WEST SPRINGFIELD		46.7	46.7	57.2	31.0
-1.1	LEOMINSTER		52.0	48.8	60.6	29.2
-1.1	MALDEN		58.3	47.9	65.1	29.9
-1.0	SOMERVILLE		48.8	40.3	60.8	34.6
Low		**Group Mean**	**58.0**	**49.4**	**63.9**	**31.8**
-0.9	HAVERHILL		53.0	42.6	59.4	32.0
-0.8	METHUEN		48.8	46.8	62.2	32.3
-0.8	SALEM		56.0	46.7	63.5	30.7
-0.8	WESTFIELD		49.4	39.6	54.1	25.3
-0.7	GLOUCESTER		68.9	59.2	70.8	30.3
-0.6	QUINCY		61.9	53.5	66.7	29.7
-0.5	MEDFORD		56.6	55.2	61.7	26.6
-0.5	PEABODY		55.6	45.6	66.7	30.8
-0.4	FRAMINGHAM		70.3	61.8	70.0	34.1
-0.3	CAMBRIDGE		53.8	41.7	64.3	33.5
-0.3	WALTHAM		63.6	55.4	71.8	34.9
-0.2	MARLBOROUGH		55.7	48.2	57.8	33.0

This table is sorted by demography, from those urban districts confronted with the greatest relative demographic challenge to those with the least.

Table 9.

2003 Special Education Student MCAS Pass Rates by District						
Degree of Challenge	District		G4 ELA Pass Rate	G4 Math Pass Rate	G7 ELA Pass Rate	G8 Math Pass Rate
High		**Group Mean**	**54%**	**47%**	**51%**	**13%**
-3.9	LAWRENCE		38%	24%	39%	8%
-3.6	CHELSEA		63%	65%	62%	14%
-3.3	HOLYOKE		43%	42%	44%	6%
-3	SPRINGFIELD		57%	48%	53%	18%
-2.9	NEW BEDFORD		66%	64%	59%	9%
Moderate to High		**Group Mean**	**64%**	**53%**	**63%**	**16%**
-2.5	FALL RIVER		79%	67%	61%	13%
-2.3	LOWELL		41%	33%	51%	14%
-2.2	LYNN		70%	52%	74%	15%
-2.1	BROCKTON		61%	53%	68%	19%
-1.9	BOSTON		45%	43%	64%	18%
-1.9	FITCHBURG		81%	75%	70%	38%
-1.9	REVERE		77%	64%	57%	19%
Moderate to Low		**Group Mean**	**70%**	**63%**	**69%**	**17%**
-1.7	CHICOPEE		70%	60%	60%	11%
-1.7	EVERETT		80%	65%	75%	21%
-1.7	WORCESTER		73%	68%	62%	14%
-1.3	TAUNTON		69%	60%	75%	14%
-1.2	PITTSFIELD		84%	74%	60%	11%
-1.2	WEST SPRINGFIELD		60%	64%	75%	22%
-1.1	LEOMINSTER		62%	59%	82%	22%
-1.1	MALDEN		70%	58%	82%	25%
-1.0	SOMERVILLE		59%	43%	81%	33%
Low		**Group Mean**	**73%**	**62%**	**82%**	**28%**
-0.9	HAVERHILL		68%	48%	81%	33%
-0.8	METHUEN		65%	70%	82%	30%
-0.8	SALEM		72%	59%	80%	30%
-0.8	WESTFIELD		64%	49%	67%	16%
-0.7	GLOUCESTER		79%	73%	84%	23%
-0.6	QUINCY		82%	69%	86%	23%
-0.5	MEDFORD		75%	63%	75%	18%
-0.5	PEABODY		77%	60%	85%	29%
-0.4	FRAMINGHAM		85%	77%	88%	33%
-0.3	CAMBRIDGE		64%	49%	82%	31%
-0.3	WALTHAM		76%	68%	90%	34%
-0.2	MARLBOROUGH		67%	63%	79%	29%

Performance by Disability Type

There are 13 categories of special education disability.[5] Yet, the majority of special education students were categorized within the following four types: Specific Learning Disability; Developmental Delay/Intellectual; Emotional Disturbance; and Speech/Language/Communication. Specific Learning Disability represented about 50% of students in special education in Massachusetts.[6] Comparing the MCAS performance of students in different categories and in different categories across urban and non-urban districts revealed some substantial differences in performance. Tables 10, 11, and 12 summarize these data for the Grade 4 ELA and math, Grade 7 ELA, and Grade 8 math exams, respectively.

- Of the disability types with substantial student counts, students in the Developmental Delay/Intellectual Impairment, Emotional Disturbance, and Multiple Disabilities categories demonstrated consistently lower achievement than did students with other identified disabilities. This was true for both ELA and math exam achievement across all grade levels and urban/non-urban districts.
- Students in all disability type categories displayed a downward trend in overall achievement as they progress from grade 4 to 7 to 8.
- The gap in pass rate between urban and non-urban students increased with grade level, moving from 19 points in Grade 4 ELA and 22 points in Grade 4 Math, to 26 points in Grade 7 ELA and 34 points in Grade 8 Math.
- The narrowest gap in urban and non-urban performance was consistently in Developmental Delay/Intellectual where the gap was 3 points in Grade 4 ELA and Grade 4 Math, 11points in Grade 7 ELA, and 0 in Grade 8 Math.

Table 10.

2003 Grade 4 ELA and Math Pass Rates by Disability Type

	ELA Pass			Math Pass		
Disability Type	Non-Urban	Urban	Difference	Non-Urban	Urban	Difference
Autism	80%	71%	-9%	71%	67%	-4%
Blind/ Visual Impairment	94%	86%	-8%	82%	86%	4%
Deaf - Blindness	100%	100%	0%	79%	61%	-18%
Deaf/ Hard of Hearing	92%	71%	-21%	80%	79%	-1%
Developmental Delay/ Intellectual	56%	53%	-3%	36%	39%	3%
Emotional Disturbance	78%	59%	-19%	72%	50%	-22%
Health	86%	67%	-19%	77%	55%	-22%
Multiple Disabilities	79%	59%	-20%	62%	44%	-18%
Neurological/ Head Injury	87%	68%	-19%	69%	54%	-15%
Not Specified	89%	76%	-13%	79%	61%	-18%
Physical	93%	100%	7%	89%	58%	-31%
Specific Learning	85%	67%	-18%	73%	57%	-16%
Speech/ Language/ Communication	82%	62%	-20%	70%	59%	-11%

[5] There are 12 categories if one does not include Multi-mark, which rarely showed up in the dataset.

[6] There was no category specified for some students in the data set. For urban students, 23.5% were not specified. For non-urban students, 18.4% were not specified.

Table 11.

2003 Grade 7 ELA Pass Rates by Disability Type			
Disability Type	**Non-Urban**	**Urban**	**Difference**
Autism	85%	67%	-18%
Blind/ Visual Impairment	100%	75%	-25%
Deaf - Blindness	-	100%	null
Deaf/ Hard of Hearing	96%	74%	-22%
Developmental Delay/ Intellectual	57%	46%	-11%
Emotional Disturbance	81%	55%	-26%
Health	92%	70%	-22%
Multiple Disabilities	74%	52%	-22%
Neurological/ Head Injury	93%	67%	-26%
Not Specified	91%	71%	-20%
Physical	100%	50%	-50%
Specific Learning	90%	69%	-21%
Speech/ Language/ Communication	88%	67%	-21%

Table 12.

2003 Grade 8 Math Pass Rates by Disability Type			
Disability Type	**Non-Urban**	**Urban**	**Difference**
Autism	52%	25%	-27%
Blind/ Visual Impairment	54%	50%	-4%
Deaf - Blindness	-	-	-
Deaf/ Hard of Hearing	57%	22%	-35%
Developmental Delay/ Intellectual	5%	5%	0%
Emotional Disturbance	44%	10%	-34%
Health	50%	20%	-30%
Multiple Disabilities	28%	7%	-21%
Neurological/ Head Injury	45%	24%	-21%
Not Specified	52%	23%	-29%
Physical	53%	0%	-53%
Specific Learning	38%	16%	-22%
Speech/ Language/ Communication	38%	24%	-14%

Performance by Placement

There are five basic categories of special education placement: General Education Modified; Up to 25% Separated; 25 to 60% Separated; Substantially Separated; and Outside Placement. Generally, students receive more specialized services and support as the percentage of separation from the general classroom increases. Some interesting differences were observed between the MCAS performance of students in different placements and across urban and non-urban settings.

The salient points are addressed below, followed by more detailed presentations of data in tables 13-16. All of these tables are ordered from least to most restrictive educational environment.

- Student achievement declined consistently from the least restrictive in-school environment to the most restrictive. However, students in outside placements generally displayed higher achievement on the grade 7 ELA and grade 8 math exams than did students in substantially separate classrooms. These trends were not consistent on the grade ELA and math exams.
- Students in all placement categories display a downward trend in overall achievement as they progress from grade 4 to 7 to 8.
- The pass rates for urban students were lower than those of non-urban students for all tests and all placement categories except Grade 4 ELA, where urban students in Outside Placement had an 11 point higher pass rate than non-urban Outside Placement students (51% to 40%).
- Urban and non-urban students in 25 to 60% Separated placements displayed the smallest gaps in pass rates (9 points in Grade 4 ELA; 7 points in Grade 4 Math; 10 points in Grade 7 ELA; and 13 points in Grade 8 Math).

Table 13.

2003 Grade 4 ELA Pass Rates by Placement Type

Disability Type	Non-Urban	Urban	Difference
Gen Ed Modified	86%	71%	-15%
Up to 25% Separated	86%	68%	-18%
25 to 60% Separated	74%	65%	-9%
Substantially Separated	65%	52%	-13%
Outside placement	40%	51%	11%
Not Specified	86%	83%	-3%

Table 14.

2003 Grade 4 Math Pass Rates by Placement Type			
Disability Type	**Non-Urban**	**Urban**	**Difference**
Gen Ed Modified	76%	59%	-17%
Up to 25% Separated	73%	58%	-15%
25 to 60% Separated	62%	55%	-7%
Substantially Separated	51%	44%	-7%
Outside placement	60%	36%	-24%
Not Specified	76%	77%	1%

Table 15.

2003 Grade 7 ELA Pass Rates by Placement Type			
Disability Type	**Non-Urban**	**Urban**	**Difference**
Gen Ed Modified	92%	76%	-16%
Up to 25% Separated	91%	71%	-20%
25 to 60% Separated	78%	68%	-10%
Substantially Separated	71%	48%	-23%
Outside placement	83%	44%	-39%
Not Specified	91%	69%	-22%

Table 16.

2003 Grade 8 Math Pass Rates by Placement Type			
Disability Type	**Non-Urban**	**Urban**	**Difference**
Gen Ed Modified	44%	16%	-28%
Up to 25% Separated	45%	21%	-24%
25 to 60% Separated	24%	11%	-13%
Substantially Separated	14%	6%	-8%
Outside placement	21%	11%	-10%
Not Specified	54%	33%	-21%

Special Education Performance Improvement over Time

One measure of improved achievement is progress over time. MCAS data are limited for purposes of longitudinal analysis because exams are not given to students in every grade every year. As a result, cohort phenomena – the characteristics of students in each grade from year to year – limit the ability to precisely track improvement. The attitudes and abilities of students in a particular classroom may be quite different from one year to the next. This is not as limiting a factor at the district level as it is at the school level, due to larger cohort sizes. Despite these limitations, it is still useful to examine district progress on the MCAS over time. (See Appendix E for detailed district performance trends over time.)

Tables 17 and 18 highlight changes in the Proficiency Index Scores and pass rates of students with special needs, by demographic group, on the 2002 and 2003 MCAS exams.

- These data show evidence of improvement among each of the urban sub-groups on all exams, as measured by both proficiency index scores and pass rates. The one exception to this improvement was in the overall pass rates of students in districts within the Moderate to Low challenge sub-group on the grade 8 math exam (-5%). [The proficiency index score remained stable for this group.]
- Overall, the largest improvements in pass rates tended to be on the grade 7 ELA exam, while the smallest were on the grade 8 math exam.

Table 17

Proficiency Index Improvement Over Time, 2002-2003

Degree of Challenge	2002 GR4 ELA	2003 GR4 ELA	Change	2002 GR4 Math	2003 GR4 Math	Change
High Challenge	42	46	4	37	41	4
Moderate to High	51	52	1	43	44	1
Moderate to Low	54	57	3	47	50	3
Low	53	58	5	46	49	3

Degree of Challenge	2002 GR7 ELA	2003 GR7 ELA	Change	2002 GR8 Math	2003 GR8 Math	Change
High Challenge	39	43	4	20	21	1
Moderate to High	46	49	3	23	24	1
Moderate to Low	47	53	6	27	27	0
Low	58	64	6	31	32	1

Table 18

Pass Rate Improvement Over Time, 2002-2003						
Degree of Challenge	2002 GR4 ELA	2003 GR4 ELA	Change	2002 GR4 Math	2003 GR4 Math	Change
High Challenge	48	54	6	40	47	7
Moderate to High	58	64	6	47	53	6
Moderate to Low	69	70	1	57	63	6
Low	66	73	7	55	62	7
Degree of Challenge	2002 GR7 ELA	2003 GR7 ELA	Change	2002 GR8 Math	2003 GR8 Math	Change
High Challenge	41	51	10	11	13	2
Moderate to High	55	63	8	14	16	2
Moderate to Low	54	69	15	22	17	–5
Low	71	82	11	26	28	2

IV. Field Study Site Selection Process

District Groups by Degree of Demographic Challenge

After narrowing down the candidate districts to thirty-three on the basis of demographic factors and school district population, we selected field study sites based on several criteria. First, for a district to be considered, it had to demonstrate better special education student achievement than demographically similar districts on some, but not all, tests. This demographic stratification allowed us to make comparisons of student performance grounded in community context, which has been proven to affect MCAS achievement.

To make this a bit clearer, the site selection process specifically did not compare student performance in Framingham or Quincy (relatively Low Demographic Challenge) to performance in Springfield (High Demographic Challenge) or Fall River (Moderate to High Demographic Challenge). Rather, districts were evaluated relative to their demographic peers as identified by the Community Effects Factor methodology (see Appendix G). As detailed in Section 1, we placed the 33 districts with urban characteristics into four groups based on the degree of challenge that a community's demographic characteristics created for educational achievement, as listed below. (Please refer to Table 1 for a summary of relevant and available district profile data).

High	Moderate to High	Moderate to Low	Low
Lawrence	Fall River	Chicopee	Haverhill
Holyoke	Lowell	Everett	Methuen
Springfield	Lynn	Worcester	Salem
New Bedford	Brockton	Taunton	Westfield
	Fitchburg	Pittsfield	Gloucester
	Revere	West Springfield	Quincy
		Leominster	Medford
		Malden	Peabody
		Somerville	Framingham
			Cambridge
			Waltham
			Marlborough

The criteria used to identify districts of interest for field research included:

1.) Performance relative to other districts in the group on the 2003 MCAS;

2.) Performance improvement over time, using results of the 2002 and 2003 MCAS; and,

3.) Relative performance and improvement across the four examinations. (few district showed performance across more than three exams. Improved performance on grade 8 math was quite uncommon and therefore of some extra interest)

The two basic performance indicators used in our assessment included the Proficiency Index, which is a measure of the district's overall MCAS performance; and the pass rate, which is the percentage of students receiving a passing grade (Needs Improvement, Advanced, Proficient) on the exam.

We considered several models to identify districts that were performing above their demographic peers. These ranged from awarding points for any score or pass rate above the group mean, to awarding extra points for having performance that was substantially above the group mean. Through analysis, it was determined that the most effective method would be to utilize a model that awarded points for proficiency index scores and pass rates that were above 0.5 standard deviation of the average of each sub-group of the 33 urban districts. This afforded meaningful differentiation among districts and facilitated field site selection.

The District Selection Matrix

The District Selection Matrix summarizes the performance of the 33 districts included in our study. It is supported by the following logic. There were four performance categories used to build the matrix:

1. Over-performance on the Proficiency Index relative to similar districts;
2. Over-performance in pass rate percentage relative to similar districts;
3. Extent of improvement in Proficiency Index, 2002-2003, relative to similar districts; and
4. Extent of improvement in pass rate, 2002-2003, relative to similar districts.

The selection process involved awarding points for MCAS performance that was better than the performance of similar districts in each group as determined by the Proficiency Index and the pass rate for each MCAS assessment. Points were awarded as follows:

Performance Compared to Similar Districts on the 2003 MCAS

Each district's P.I. score and pass rate for each subject and test was compared to the P.I. score and pass rate for demographically similar districts in its group. Those districts whose P. I. scores or pass rates were at least 0.5 standard deviations above the group mean received one point. Districts whose scores or pass rates did not exceed the group mean by .5 standard deviations received 0 points. Scores were summed for each grade and test for each district (See Matrix 2 and 3).

Performance Improvement over Time

Performance was evaluated comparing progress between the 2002 and 2003 MCAS, looking at Proficiency Index and pass rates as well as comparing districts in the same demographic group. Those districts whose P. I. scores and pass rate improved, and the percentage gained exceeded 10%, received one point. Those districts with pass rate and P. I. improvements of 10% or less received 0.5 point. Those districts whose P. I. scores or pass rate stayed the same or did not improve from the previous year received 0 point. Scores were summed for each grade and test for each district (See Matrix 4).

Districts could receive a maximum of 4 points in each performance category for each MCAS test (Grade 4 ELA; Grade 4 Math; Grade 7 ELA; Grade 8 Math). The maximum points possible were 16.

All 33 districts were placed on the District Selection Matrix, which displayed how many points each district received in each category based on the performance of its special education students on MCAS. Points were summed across the matrix. Districts that had the highest total score out of the possible 16 points were identified as possible candidates for further study. (See Matrix 1 for summary detail on points awarded. See Tables 8 and 9 for individual district scores. See Appendix E for district progress over time.)

Other Factors Affecting District Selection

We then examined the high-scoring districts to ensure that there were no anomalies that could have affected performance. If a district demonstrated dramatic improvement from one year to the next, we checked to make sure that the cohort of special education students for one year was not significantly different from that of the next year in a way that could affect scores. If a district had scores from 2003 that seemed to be too high for its demography, we checked the disability and placement distribution of students taking MCAS that year in order to make sure there were no inconsistencies. For example, if a district had an unusually high or low percentage of students in a disability or placement category, it would not be a good candidate for our study because the distribution of students would pose questions that were beyond the scope of the study to answer.[7]

We also discussed district selection with staff from the Office of Educational Quality and Accountability (EQA), the agency that examines district MCAS performance, to make certain there were no other district variables that might be problematic in our research. In addition, we checked with EQA to determine if, based on that agency's work, the districts that we identified as relatively high performing were likely to have programs and policies in place that would contribute to higher achievement.

At the suggestion of this project's Expert Review Panel (see Acknowledgments section), we also analyzed student exclusion data, as exclusion might potentially confound or distort achievement results if the practice were commonplace within a selected district. A brief summary of the salient results of this analysis is presented in Appendix F. In general, exclusions occur at the high school and, to a lesser extent middle school level. In the case of the districts selected for study because of their higher MCAS achievement, it did not appear that the strong MCAS achievement relative to its demographic peers was a result of excluding students from the classroom.

As a final quality control, we looked at Dr. Robert Gaudet's earlier analyses of educational achievement, which utilized the Community Effects Factor model. This was done in order to determine whether the selected districts had demonstrated exemplary performance in past studies, using slightly different methodologies. This was indeed the case.

District and School Selections

Based on scores from the District Selection Matrix, with additional input from EQA, several districts looked promising as candidates for field study. The research team discussed the various known attributes of each candidate system, including their geographic locations, then selected six districts for further study. The researchers then looked at individual school performance in each district of interest to determine whether the exemplary performance was based on one or two schools exhibiting relatively good MCAS scores, or was based on district-wide exemplary performance.

- Three systems were identified and ultimately agreed to participate in district level field study: Chelsea, Everett, and Framingham.
- Two systems were identified for study on an individual school basis (Pittsfield for an elementary school and West Springfield for a middle school).
- Boston, while not selected for district study based on overall performance, did have some schools with higher than expected MCAS performance, and, thus, was selected for an individual school study.[8]

[7] For example, Fitchburg had very high scores, but its SPED type distribution was so different from that of other districts in the study that it did not meet selection criteria. Fitchburg had 26% of its special education students in Developmental Delay/Intellectual, which was inordinately high for the state (6.6%) and the 33 urban districts in the study (9.9%). Further, the scores achieved by these students were higher than would be expected by students in this category. While these findings are of interest, they could not be fully considered within the time constraints of this research project.

[8] Note: The initial selection included the Lynn Public Schools, which were unable to participate due to other commitments. Everett was selected as a replacement to Lynn. Time did not allow completion of research in West Springfield.

Matrix 1.

District Selection Matrix, Summary GR4, 7 and 8 MCAS Performance						
Degree of Challenge	District	Pass Rates	P.I. Scores	02-03 Improved Pass Rate	02-03 Improved P.I. Scores	Total Score
High						
-3.9	LAWRENCE	0	0	4.0	3.5	7.5
-3.6	CHELSEA	3	2	4.0	4.0	13.0
-3.3	HOLYOKE	0	0	1.0	1.5	2.5
-3	SPRINGFIELD	1	0	3.0	2.0	6.0
-2.9	NEW BEDFORD	3	2	3.0	3.5	11.5
Moderate to High						
-2.5	FALL RIVER	2	2	3.0	4.0	11.0
-2.3	LOWELL	0	0	1.0	0.5	1.5
-2.2	LYNN	1	1	4.0	3.5	9.5
-2.1	BROCKTON	0	0	3.5	2.5	6.0
-1.9	BOSTON	0	0	3.0	3.0	6.0
-1.9	FITCHBURG	4	4	4.0	4.0	16.0
-1.9	REVERE	2	2	1.0	0.0	5.0
Moderate to Low						
-1.7	CHICOPEE	0	0	2.5	2.0	4.5
-1.7	EVERETT	1	3	3.0	2.5	9.5
-1.7	WORCESTER	0	0	2.0	3.0	5.0
-1.3	TAUNTON	0	0	2.0	3.0	5.0
-1.2	PITTSFIELD	2	2	2.5	3.0	9.5
-1.2	WEST SPRINGFIELD	1	1	2.5	3.0	7.5
-1.1	LEOMINSTER	2	1	2.0	1.5	6.5
-1.1	MALDEN	2	2	1.0	1.5	6.5
-1.0	SOMERVILLE	2	2	1.0	0.0	5.0
Low						
-0.9	HAVERHILL	1	0	3.0	3.5	7.5
-0.8	METHUEN	1	0	4.0	3.5	8.5
-0.8	SALEM	0	0	3.0	2.5	5.5
-0.8	WESTFIELD	0	0	4.0	4.0	8.0
-0.7	GLOUCESTER	1	3	2.0	2.0	8.0
-0.6	QUINCY	2	0	2.5	1.0	5.5
-0.5	MEDFORD	0	1	3.0	2.0	6.0
-0.5	PEABODY	0	0	2.0	1.5	3.5
-0.4	FRAMINGHAM	3	3	2.5	2.5	11.0
-0.3	CAMBRIDGE	0	0	3.0	3.0	6.0
-0.3	WALTHAM	3	4	2.5	2.5	12.0
-0.2	MARLBOROUGH	0	0	1.5	1.5	3.0

(See Technical Notes section for detail on scoring)

Matrix 2.

Points Awarded, 2003 Proficiency Index						
Degree of Challenge	District	G4 ELA .5SD Above Mean	G4 Math .5SD Above Mean	G7 ELA .5SD Above Mean	G8 Math .5SD Above Mean	Total Points
High	**Group Mean**	**45.8**	**40.6**	**43.3**	**21.3**	
-3.9	LAWRENCE	0	0	0	0	0
-3.6	CHELSEA	1	1	0	0	2
-3.3	HOLYOKE	0	0	0	0	0
-3	SPRINGFIELD	0	0	0	0	0
-2.9	NEW BEDFORD	1	1	0	0	2
Moderate to High	**Group Mean**	**51.82**	**44.28**	**49.17**	**24.44**	
-2.5	FALL RIVER	1	1	0	0	2
-2.3	LOWELL	0	0	0	0	0
-2.2	LYNN	0	0	1	0	1
-2.1	BROCKTON	0	0	0	0	0
-1.9	BOSTON	0	0	0	0	0
-1.9	FITCHBURG	1	1	1	1	4
-1.9	REVERE	1	1	0	0	2
Moderate to Low	**Group Mean**	**57.44**	**50.1**	**53.24**	**26.68**	
-1.7	CHICOPEE	0	0	0	0	0
-1.7	EVERETT	1	1	1	0	3
-1.7	WORCESTER	0	0	0	0	0
-1.3	TAUNTON	0	0	0	0	0
-1.2	PITTSFIELD	1	1	0	0	2
-1.2	WEST SPRINGFIELD	0	0	0	1	1
-1.1	LEOMINSTER	0	0	1	0	1
-1.1	MALDEN	0	0	1	1	2
-1.0	SOMERVILLE	0	0	1	1	2
Low	**Group Mean**	**58.0**	**49.4**	**63.9**	**31.8**	
-0.9	HAVERHILL	0	0	0	0	0
-0.8	METHUEN	0	0	0	0	0
-0.8	SALEM	0	0	0	0	0
-0.8	WESTFIELD	0	0	0	0	0
-0.7	GLOUCESTER	1	1	1	0	3
-0.6	QUINCY	0	0	0	0	0
-0.5	MEDFORD	0	1	0	0	1
-0.5	PEABODY	0	0	0	0	0
-0.4	FRAMINGHAM	1	1	1	0	3
-0.3	CAMBRIDGE	0	0	0	0	0
-0.3	WALTHAM	1	1	1	1	4
-0.2	MARLBOROUGH	0	0	0	0	0

See Table 8 for supporting data

Matrix 3.

Points Awarded, 2003 Pass Rate						
Degree of Challenge	District	G4 ELA Pass Rate	G4 Math Pass Rate	G7 ELA Pass Rate	G8 Math Pass Rate	Total Points
High	**Group Mean**	**54%**	**47%**	**51%**	**13%**	
-3.9	LAWRENCE	0	0	0	0	0
-3.6	CHELSEA	1	1	1	0	3
-3.3	HOLYOKE	0	0	0	0	0
-3	SPRINGFIELD	0	0	0	1	1
-2.9	NEW BEDFORD	1	1	1	0	3
Moderate to High	**Group Mean**	**64%**	**53%**	**63%**	**16%**	
-2.5	FALL RIVER	1	1	0	0	2
-2.3	LOWELL	0	0	0	0	0
-2.2	LYNN	0	0	1	0	1
-2.1	BROCKTON	0	0	0	0	0
-1.9	BOSTON	0	0	0	0	0
-1.9	FITCHBURG	1	1	1	1	4
-1.9	REVERE	1	1	0	0	2
Moderate to Low	**Group Mean**	**70%**	**63%**	**69%**	**17%**	
-1.7	CHICOPEE	0	0	0	0	0
-1.7	EVERETT	1	0	0	0	1
-1.7	WORCESTER	0	0	0	0	0
-1.3	TAUNTON	0	0	0	0	0
-1.2	PITTSFIELD	1	1	0	0	2
-1.2	W. SPRINGFIELD	0	0	0	1	1
-1.1	LEOMINSTER	0	0	1	1	2
-1.1	MALDEN	0	0	1	1	2
-1.0	SOMERVILLE	0	0	1	1	2
Low	**Group Mean**	**73%**	**62%**	**82%**	**28%**	
-0.9	HAVERHILL	0	0	0	1	1
-0.8	METHUEN	0	1	0	0	1
-0.8	SALEM	0	0	0	0	0
-0.8	WESTFIELD	0	0	0	0	0
-0.7	GLOUCESTER	0	1	0	0	1
-0.6	QUINCY	1	1	0	0	2
-0.5	MEDFORD	0	0	0	0	0
-0.5	PEABODY	0	0	0	0	0
-0.4	FRAMINGHAM	1	1	0	1	3
-0.3	CAMBRIDGE	0	0	0	0	0
-0.3	WALTHAM	0	1	1	1	3
-0.2	MARLBOROUGH	0	0	0	0	0

See Table 9 for supporting data

Matrix 4.

Points Awarded for Change in Scores 2002-03			
Degree of Challenge	**District**	**Pass Rate**	**Proficiency Index**
High			
-3.9	LAWRENCE	4.0	3.5
-3.6	CHELSEA	4.0	4.0
-3.3	HOLYOKE	1.0	1.5
-3	SPRINGFIELD	3.0	2.0
-2.9	NEW BEDFORD	3.0	3.5
Moderate to High			
-2.5	FALL RIVER	3.0	4.0
-2.3	LOWELL	1.0	0.5
-2.2	LYNN	4.0	3.5
-2.1	BROCKTON	3.5	2.5
-1.9	BOSTON	3.0	3.0
-1.9	FITCHBURG	4.0	4.0
-1.9	REVERE	1.0	0.0
Moderate to Low			
-1.7	CHICOPEE	2.5	2.0
-1.7	EVERETT	3.0	2.5
-1.7	WORCESTER	2.0	3.0
-1.3	TAUNTON	2.0	3.0
-1.2	PITTSFIELD	2.5	3.0
-1.2	WEST SPRINGFIELD	2.5	3.0
-1.1	LEOMINSTER	2.0	1.5
-1.1	MALDEN	1.0	1.5
-1.0	SOMERVILLE	1.0	0.0
Low			
-0.9	HAVERHILL	3.0	3.5
-0.8	METHUEN	4.0	3.5
-0.8	SALEM	3.0	2.5
-0.8	WESTFIELD	4.0	4.0
-0.7	GLOUCESTER	2.0	2.0
-0.6	QUINCY	2.5	1.0
-0.5	MEDFORD	3.0	2.0
-0.5	PEABODY	2.0	1.5
-0.4	FRAMINGHAM	2.5	2.5
-0.3	CAMBRIDGE	3.0	3.0
-0.3	WALTHAM	2.5	2.5
-0.2	MARLBOROUGH	1.5	1.5

See Appendix E for supporting data

School Site Selection Process

Because of the influence of cohorts at the school level, the district selection process was an essential first step. Only after we had selected a subset of relatively high performing districts did we review school level data. All school level data are presented in the companion to this report: *A Study of MCAS Achievement and Promising Practices in Urban Special Education: Report of Field Research Findings.* Selecting schools for study involved several considerations:

- **Over-performance as predicted by Low Income status.** In this analysis we examined the actual MCAS scores of special education students and compared them to the performance predicted by the free/reduced lunch rate in the school. Schools that substantially over-achieved were identified as candidates for further field study. We were especially interested in identifying high-performing, high-poverty schools for study.
- **Number of special education students in each tested grade.** At the school level, the number of special education students was often quite small. To minimize error from the small sample size, we selected the schools with the best performance and the largest possible cohort of special education students that significantly over-performed.
- **Disability and placement data for each school.** We looked at the distribution and placement characteristics to determine if high scores were likely the result of having students with less severe special education needs taking the test. This was not the case. In fact, two of the schools selected – Morningside Community School in Pittsfield and the Mary Lyon School in Boston – focused their efforts on students with emotional disturbances, who generally score among the worst on MCAS.

The selected districts were contacted to determine their interest in participating in the study. Once a district agreed to participate, we scheduled field visits and interviews. The field research methodology and sampling data are also presented in the companion to this report *A Study of MCAS Achievement and Promising Practices in Urban Special Education: Report of Field Research Findings*.

V. Technical Notes

General Notes

1) Analysis was based on Special Education students in urban districts.
2) No outside placements were included in the analysis.
3) No Alternative Assessments were included in the Proficiency Index (PI).
4) Subgroup Level PI Scores did not include Boston or Fitchburg. Boston was not included in the group proficiency scores because of the number of students in this district. Fitchburg was not included because of data irregularities.
5) Our analysis is for students in grades 4, 7, and 8 only.

Notes Referring to Master Matrix 1

Matrix 1 can be viewed on page 26 of this report. Urban Districts on the left hand column are arranged in terms of demographic challenge. The urban districts in the high group faced the greatest socio-economic challenges.

Each of the 4 columns (MCAS pass rates, MCAS PI Scores, 02-03 Improved Pass Rate and the 02-03 Improved P.I. Scores) sum the results across the 4 tests. The maximum amount any district could receive for a particular column is 4 points. The maximum across all of the columns (total score) is 16 points.

Column 1: MCAS Pass Rates

This column shows the combined results for the 2003 MCAS results for special education students. The reference sheet for this column is the "Matrix 03 v Mean" worksheet.

Pass Rates for each district and each district grouping (High, Moderate to High, Moderate to Low, and Low) were calculated for all 4 tests (grade 4 ELA, grade 4 Math, grade 7 ELA, and grade 8 Math). In order to get a "1" for a particular test, the district's pass rate must have exceeded the mean pass rate of the district group by more than 0.5 Standard Deviations using all 33 districts. If the district's pass rate did not exceed the group mean pass rate by more than0.5 SD, a "0" was applied.

Column 2: MCAS PI Scores

This column shows the combined PI scores for the 2003 MCAS results calculated only for special education students who took the regular MCAS tests (not alternative assessments). The proficiency index is a calculated score based on the percentage of students scoring in the various levels of proficiency in the district.

The same methodology that was used with the Pass Rates was used in summing PI Scores across the 4 tests.

Column 3: Improved Pass Rates 02-03

This column sums the results for improved pass rates from 02-03 for each of the various tests. A "0" occurs when pass rates either stayed the same or did not improve (decreased) from the previous year. A "0.5" occurs when pass rates improved, but the percentage gained was 10% or less. A "1" occurs when the pass rates improved and the percentage gained was more than 10%. The maximum points for a particular district is 4 (gained by more than 10% for each of the 4 tests)

The reference sheet for this column is "02 - 03 trend % increase"

Column 4: Improved PI Scores 02 - 03

The same methodology as the pass rates is used for the proficiency index scores.

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VI. Appendices

A. Proportion of Students in Special Education by District
B. District Profiles by Disability Type and Placement
C. Distribution of Disability Types and Placement Types within Urban Sub-Groups
D. Differences in MCAS Achievement, All Students and Special Education Students
E. District Performance Trends, 2001 –2003
F. Student Exclusions
G. Deriving the Community Effects Factor

Appendix A: Proportion of Students with Special Needs by District

Proportion of all Students in Special Education			
	Grade 4	Grade 7	Grade 8
Mean for Urban Districts	19%	21%	20%
Mean for Non-Urban Districts	16%	16%	16%
BOSTON	22%	23%	23%
BROCKTON	14%	14%	15%
CAMBRIDGE	25%	28%	31%
CHELSEA	20%	18%	19%
CHICOPEE	17%	18%	18%
EVERETT	19%	12%	19%
FALL RIVER	15%	20%	19%
FITCHBURG	16%	18%	11%
FRAMINGHAM	24%	23%	21%
GLOUCESTER	21%	23%	24%
HAVERHILL	19%	21%	19%
HOLYOKE	30%	23%	21%
LAWRENCE	18%	21%	15%
LEOMINSTER	17%	15%	14%
LOWELL	13%	16%	15%
LYNN	17%	16%	19%
MALDEN	18%	24%	17%
MARLBOROUGH	26%	23%	18%
MEDFORD	17%	19%	21%
METHUEN	17%	15%	15%
NEW BEDFORD	17%	19%	17%
PEABODY	16%	14%	17%
PITTSFIELD	16%	22%	21%
QUINCY	18%	19%	17%
REVERE	16%	16%	14%
SALEM	20%	20%	20%
SOMERVILLE	25%	23%	27%
SPRINGFIELD	23%	25%	28%
TAUNTON	18%	22%	24%
WALTHAM	22%	24%	23%
WEST SPRINGFIELD	16%	18%	14%
WESTFIELD	18%	21%	19%
WORCESTER	19%	23%	22%

Appendix B: Disability Type and Placement by District

B1

Most Frequently Identified Disability Types by District							
	Specific Learning	Developmental Delay/ Intellectual	Emotional Disturbance	Speech/ Language/ Comm.	Multiple Disabilities	All Others	Not Specified
BOSTON	40%	11%	7%	5%	6%	3%	28%
BROCKTON	48%	7%	7%	3%	3%	5%	28%
CAMBRIDGE	60%	3%	6%	0%	2%	3%	26%
CHELSEA	59%	7%	7%	6%	3%	2%	15%
CHICOPEE	41%	9%	8%	6%	8%	6%	22%
EVERETT	60%	10%	7%	4%	1%	4%	13%
FALL RIVER	55%	9%	7%	1%	4%	4%	20%
FITCHBURG	35%	26%	10%	2%	3%	4%	20%
FRAMINGHAM	44%	7%	8%	6%	3%	12%	20%
GLOUCESTER	65%	3%	5%	1%	2%	7%	16%
HAVERHILL	53%	7%	7%	3%	1%	3%	26%
HOLYOKE	43%	7%	3%	7%	2%	4%	34%
LAWRENCE	58%	5%	11%	0%	2%	1%	22%
LEOMINSTER	41%	18%	6%	3%	3%	3%	26%
LOWELL	40%	7%	15%	13%	2%	7%	16%
LYNN	45%	18%	7%	1%	4%	3%	22%
MALDEN	48%	15%	8%	3%	3%	6%	18%
MARLBOROUGH	52%	3%	6%	3%		3%	32%
MEDFORD	48%	7%	6%	2%	6%	5%	27%
METHUEN	46%	10%	5%	3%	1%	8%	26%
NEW BEDFORD	29%	22%	7%	12%	3%	7%	20%
PEABODY	45%	6%	11%	8%	2%	11%	16%
PITTSFIELD	51%	6%	13%	0%	4%	6%	20%
QUINCY	58%	8%	6%	4%	1%	8%	15%
REVERE	48%	10%	6%	5%	4%	7%	20%
SALEM	49%	8%	9%	12%		5%	17%
SOMERVILLE	46%	5%	13%	7%	1%	4%	25%
SPRINGFIELD	47%	6%	8%	1%	7%	3%	29%
TAUNTON	71%	1%	3%	2%	4%	1%	19%
WALTHAM	59%	5%	6%	12%	1%	3%	15%
WEST SPRINGFIELD	50%	11%	7%	11%	1%	10%	9%
WESTFIELD	50%	17%	3%	4%	1%	5%	21%
WORCESTER	44%	17%	9%	1%	1%	3%	23%

B2

Special Education Student Placement by District						
	Gen Ed Modified	Up to 25% Separated	25 to 60% Separated	Substantially Separated	Outside Placement	Not Specified
BOSTON	1%	24%	22%	46%	7%	0%
BROCKTON	19%	44%	9%	22%	6%	2%
CAMBRIDGE	4%	75%	1%	11%	10%	0%
CHELSEA	15%	38%	5%	36%	7%	0%
CHICOPEE	29%	25%	0%	39%	6%	1%
EVERETT	0%	66%	3%	21%	9%	0%
FALL RIVER	54%	14%	2%	20%	6%	4%
FITCHBURG	2%	63%	2%	24%	7%	2%
FRAMINGHAM	7%	35%	22%	27%	8%	1%
GLOUCESTER	54%	33%	5%	4%	4%	0%
HAVERHILL	48%	31%	4%	9%	8%	0%
HOLYOKE	9%	59%	4%	22%	5%	0%
LAWRENCE	21%	47%	0%	13%	15%	4%
LEOMINSTER	2%	67%	0%	24%	6%	1%
LOWELL	13%	32%	37%	10%	6%	1%
LYNN	3%	29%	23%	36%	9%	0%
MALDEN	5%	47%	30%	17%	1%	0%
MARLBOROUGH	24%	54%	0%	13%	8%	0%
MEDFORD		40%	17%	34%	9%	0%
METHUEN	22%	52%	0%	20%	5%	1%
NEW BEDFORD	26%	49%	0%	18%	6%	1%
PEABODY	4%	67%	0%	20%	7%	2%
PITTSFIELD	7%	59%	9%	16%	8%	0%
QUINCY	4%	30%	38%	21%	6%	0%
REVERE	8%	40%	14%	30%	9%	0%
SALEM	42%	35%	0%	16%	7%	0%
SOMERVILLE	4%	43%	18%	26%	10%	0%
SPRINGFIELD	14%	43%	1%	36%	6%	0%
TAUNTON	4%	39%	25%	30%	3%	0%
WALTHAM	1%	44%	26%	21%	8%	0%
WEST SPRINGFIELD	20%	27%	35%	10%	6%	2%
WESTFIELD	4%	41%	31%	21%	1%	2%
WORCESTER	17%	32%	14%	28%	9%	1%

Appendix C: Placement and Disability Type by Degree of Urbanicity

C1

Distribution of Placement in Urban / Non-Urban Districts			
Placement Type	**Urban**	**Non-urban**	**Total**
Gen Ed Modified	13%	15%	14%
Up to 25% Separated	38%	58%	50%
25 to 60% Separated	13%	11%	12%
Substantially Separated	28%	9%	17%
Outside Placement	7%	4%	6%
Not Specified	1%	2%	2%

C2

Distribution of Disability Types in Urban / Non-Urban Districts			
Disability Type	**Urban**	**Non-urban**	**Total**
Specific Learning	47%	53%	51%
Developmental Delay/ Intellectual	10%	4%	7%
EmotioNRl Disturbance	8%	5%	6%
Speech/ Language/ Communication	4%	7%	6%
Health	1%	4%	3%
Multiple Disabilities	3%	3%	3%
Neurological/ Head Injury	1%	2%	2%
Autism	1%	2%	1%
Deaf/ Hard of Hearing	1%	0%	1%
Blind/ Visual Impairment	0%	0%	0%
Physical	0%	0%	0%
Deaf - Blindness	0%	0%	0%
Not Specified	24%	18%	21%

C3

Distribution of Disability Types Within Urban District Sub-Groups						
Disability Type	**Low**	**Low to Moderate**	**Moderate to High**	**High**	**Boston**	**Total Urban**
Specific Learning	53%	49%	47%	46%	40%	47%
Developmental Delay/ Intellectual	7%	11%	10%	9%	11%	10%
EmotioNRl Disturbance	7%	8%	9%	8%	7%	8%
Speech/ Language/ Communication	5%	3%	4%	4%	5%	4%
Multiple Disabilities	2%	3%	3%	4%	6%	1%
Health	2%	1%	2%	1%	0%	3%
Autism	1%	1%	1%	0%	1%	1%
Neurological/ Head Injury	2%	1%	0%	0%	0%	1%
Deaf/ Hard of Hearing	1%	1%	1%	1%	1%	1%
Blind/ Visual Impairment	0%	0%	0%	0%	0%	0%
Physical	0%	0%	0%	0%	0%	0%
Deaf - Blindness	0%		0%		0%	0%
Not Specified	22%	21%	21%	26%	28%	24%

C4

Distribution of Placement Types Within Urban District Sub-Groups						
Placement Type	**Low**	**Low to Moderate**	**Moderate to High**	**High**	**Boston**	**Total Urban**
Gen Ed Modified	17%	11%	21%	17%	1%	13%
Up to 25% Separated	45%	41%	31%	46%	24%	38%
25 to 60% Separated	13%	15%	17%	1%	22%	13%
Substantially Separated	18%	26%	23%	27%	46%	28%
Outside Placement	7%	7%	7%	8%	7%	7%
Not Specified	1%	1%	2%	1%	0%	1%

Appendix D: Comparison of MCAS Achievement, All Students and SPED

Appendix D1

Difference in Proficiency Index Grade 4 ELA			
2003 G4 ELA	ALL	SPED	Difference
PEABODY	85	56	-29
FRAMINGHAM	84	70	-13
GLOUCESTER	83	69	-14
WALTHAM	82	64	-18
QUINCY	81	62	-19
TAUNTON	79	55	-24
PITTSFIELD	79	72	-7
METHUEN	79	49	-30
MEDFORD	79	57	-22
EVERETT	78	65	-14
LEOMINSTER	76	52	-24
REVERE	75	66	-9
WESTFIELD	75	49	-25
SALEM	75	56	-19
HAVERHILL	75	53	-22
WEST SPRINGFIELD	74	47	-27
MARLBOROUGH	74	56	-18
WORCESTER	74	61	-13
FITCHBURG	73	69	-4
FALL RIVER	71	64	-8
MALDEN	71	58	-13
CHICOPEE	71	50	-20
CAMBRIDGE	71	54	-17
LYNN	70	53	-17
BROCKTON	70	50	-20
NEW BEDFORD	70	54	-16
SOMERVILLE	68	49	-20
CHELSEA	67	51	-16
SPRINGFIELD	66	48	-18
LOWELL	63	36	-26
BOSTON	61	39	-21
LAWRENCE	54	34	-21
HOLYOKE	54	40	-14

Difference in Student Proficiency Index Grade 4 Math			
2003 G4 Math	ALL	SPED	Difference
QUINCY	75	54	-22
GLOUCESTER	75	59	-16
PEABODY	73	46	-28
FRAMINGHAM	73	62	-12
TAUNTON	73	49	-24
METHUEN	72	47	-25
MEDFORD	71	55	-16
EVERETT	70	56	-14
LEOMINSTER	70	49	-21
WEST SPRINGFIELD	69	47	-22
WALTHAM	68	55	-13
REVERE	67	51	-17
PITTSFIELD	67	62	-5
CHELSEA	67	51	-16
MARLBOROUGH	67	48	-18
SALEM	66	47	-20
WESTFIELD	65	40	-25
FITCHBURG	65	64	-1
WORCESTER	64	52	-11
HAVERHILL	63	43	-20
FALL RIVER	62	54	-9
CHICOPEE	62	45	-17
LYNN	62	44	-18
SOMERVILLE	61	40	-21
NEW BEDFORD	60	49	-11
MALDEN	60	48	-12
CAMBRIDGE	60	42	-18
BROCKTON	59	44	-16
LOWELL	57	34	-23
SPRINGFIELD	57	41	-16
BOSTON	52	36	-16
HOLYOKE	49	38	-11
LAWRENCE	43	27	-17

Appendix D2

Difference in Student Proficiency Index Grade 7 ELA			
2003 G7 ELA	ALL	SPED	Difference
PEABODY	89	67	-22
WALTHAM	88	72	-17
QUINCY	88	67	-22
GLOUCESTER	88	71	-17
MEDFORD	87	62	-25
METHUEN	87	62	-24
FRAMINGHAM	86	70	-16
EVERETT	85	58	-27
SOMERVILLE	83	61	-22
WESTFIELD	83	54	-29
MARLBOROUGH	83	58	-25
LEOMINSTER	83	61	-22
WEST SPRINGFIELD	82	57	-25
MALDEN	82	65	-16
HAVERHILL	81	59	-21
SALEM	81	63	-17
TAUNTON	80	56	-24
LYNN	80	56	-24
CAMBRIDGE	79	64	-15
FITCHBURG	78	55	-23
PITTSFIELD	78	48	-30
REVERE	76	47	-29
CHICOPEE	76	47	-29
BOSTON	74	49	-24
FALL RIVER	74	50	-24
LOWELL	73	45	-28
BROCKTON	71	48	-23
WORCESTER	70	47	-23
CHELSEA	68	45	-23
NEW BEDFORD	67	45	-22
SPRINGFIELD	66	46	-20
LAWRENCE	64	37	-27
HOLYOKE	59	40	-19

Difference in Student Proficiency Index Grade 8 Math			
2003 G8 Math	ALL	SPED	Difference
PEABODY	66	31	-35
METHUEN	65	32	-33
QUINCY	64	30	-35
WEST SPRINGFIELD	63	31	-32
FRAMINGHAM	63	34	-29
LEOMINSTER	62	29	-33
MARLBOROUGH	60	33	-27
WALTHAM	60	35	-25
SOMERVILLE	59	35	-24
MEDFORD	58	27	-31
GLOUCESTER	58	30	-27
WESTFIELD	57	25	-32
CAMBRIDGE	55	34	-21
EVERETT	55	28	-27
SALEM	55	31	-24
HAVERHILL	53	38	-15
PITTSFIELD	53	21	-32
MALDEN	52	30	-22
REVERE	52	24	-28
TAUNTON	50	28	-23
BOSTON	49	24	-24
LYNN	48	26	-22
CHICOPEE	47	19	-27
FITCHBURG	46	44	-2
LOWELL	45	23	-21
WORCESTER	43	24	-19
BROCKTON	43	24	-19
CHELSEA	42	24	-18
NEW BEDFORD	41	22	-18
FALL RIVER	38	24	-14
LAWRENCE	35	18	-17
SPRINGFIELD	35	22	-13
HOLYOKE	31	17	-14

Appendix E: District Performance Trends, 2001 – 2003

Appendix E1

2001-2003 Special Education Student Proficiency Index Scores Grade 4 ELA Exam				
Degree of Challenge	**District**	**2001 Mean**	**2002 Mean**	**2003 Mean**
High	**Group**	**40.98**	**41.97**	**45.78**
-3.9	LAWRENCE	34.72	28.96	33.63
-3.6	CHELSEA	43.06	43.75	51.47
-3.3	HOLYOKE	40.44	43.57	39.6
-3	SPRINGFIELD	42.49	47.06	48.09
-2.9	NEW BEDFORD	40.67	40.75	53.94
Moderate to High	**Group**	**47.66**	**50.81**	**51.82**
-2.5	FALL RIVER	57.23	50.97	63.58
-2.3	LOWELL	43.48	44.38	36.35
-2.2	LYNN	45.33	47.27	52.88
-2.1	BROCKTON	43.11	42.71	50
-1.9	BOSTON	34.72	35.57	39.3
-1.9	FITCHBURG	52.78	51.36	65.56
-1.9	REVERE	54.75	75.44	65.52
Moderate to Low	**Group**	**53.37**	**53.58**	**57.44**
-1.7	CHICOPEE	43.9	45	50.32
-1.7	EVERETT	59.86	52.88	64.75
-1.7	WORCESTER	54.12	54.23	60.63
-1.3	TAUNTON	50.17	49.75	55.08
-1.2	PITTSFIELD	53.31	57.84	72.31
-1.2	WEST SPRINGFIELD	53.03	51.16	46.74
-1.1	LEOMINSTER	61.7	54.07	52.02
-1.1	MALDEN	57.94	55.56	58.33
-1.0	SOMERVILLE	45.83	56.63	48.76
Low	**Group**	**49.39**	**52.9**	**57.98**
-0.9	HAVERHILL	46.99	50.21	53
-0.8	METHUEN	40.28	44.23	48.81
-0.8	SALEM	45.59	46.83	56
-0.8	WESTFIELD	45	39.29	49.41
-0.7	GLOUCESTER	60.34	60.1	68.86
-0.6	QUINCY	58.59	60.68	61.92
-0.5	MEDFORD	50.49	57.89	56.6
-0.5	PEABODY	51.89	58.57	55.63
-0.4	FRAMINGHAM	51.52	58.26	70.34
-0.3	CAMBRIDGE	44.23	47.48	53.76
-0.3	WALTHAM	61.11	60.23	63.6
-0.2	MARLBOROUGH	41.92	54.51	55.73

Appendix E2

2001-2003 Special Education Pass Rates on Grade 4 ELA Exam				
Degree of Challenge	District	2001 Pass	2002 Pass	2003 Pass
High	**Group Mean**	**47%**	**48%**	**54%**
-3.9	LAWRENCE	36%	25%	38%
-3.6	CHELSEA	53%	46%	63%
-3.3	HOLYOKE	44%	45%	43%
-3	SPRINGFIELD	50%	55%	57%
-2.9	NEW BEDFORD	49%	54%	66%
Moderate to High	**Group Mean**	**57%**	**58%**	**64%**
-2.5	FALL RIVER	67%	60%	79%
-2.3	LOWELL	51%	52%	41%
-2.2	LYNN	56%	53%	70%
-2.1	BROCKTON	48%	49%	61%
-1.9	BOSTON	35%	40%	45%
-1.9	FITCHBURG	62%	52%	81%
-1.9	REVERE	74%	87%	77%
Moderate to Low	**Group Mean**	66%	69%	**70%**
-1.7	CHICOPEE	50%	64%	70%
-1.7	EVERETT	76%	63%	80%
-1.7	WORCESTER	65%	67%	73%
-1.3	TAUNTON	65%	66%	69%
-1.2	PITTSFIELD	71%	81%	84%
-1.2	WEST SPRINGFIELD	73%	65%	60%
-1.1	LEOMINSTER	73%	70%	62%
-1.1	MALDEN	76%	72%	70%
-1.0	SOMERVILLE	56%	71%	59%
Low	**Group Mean**	**63%**	**66%**	**73%**
-0.9	HAVERHILL	62%	67%	68%
-0.8	METHUEN	46%	46%	65%
-0.8	SALEM	58%	64%	72%
-0.8	WESTFIELD	53%	45%	64%
-0.7	GLOUCESTER	76%	73%	79%
-0.6	QUINCY	74%	76%	82%
-0.5	MEDFORD	65%	79%	75%
-0.5	PEABODY	66%	74%	77%
-0.4	FRAMINGHAM	66%	64%	85%
-0.3	CAMBRIDGE	59%	53%	64%
-0.3	WALTHAM	84%	88%	76%
-0.2	MARLBOROUGH	52%	75%	67%

Appendix E3

2001-2003 Special Education Proficiency Index Scores on Grade 4 Math Exam				
Degree of Challenge	**District**	**2001 Mean**	**2002 Mean**	**2003 Mean**
High	**Group Mean**	**37.92**	**36.55**	**40.56**
-3.9	LAWRENCE	34.38	21.63	26.63
-3.6	CHELSEA	44.44	43.87	51.45
-3.3	HOLYOKE	38.21	40.1	37.77
-3	SPRINGFIELD	37.79	41.11	41.01
-2.9	NEW BEDFORD	39.79	35.05	49.2
Moderate to High	**Group Mean**	**44.97**	**42.8**	**44.28**
-2.5	FALL RIVER	47.69	46.63	53.63
-2.3	LOWELL	39.22	33.21	33.69
-2.2	LYNN	43.9	41.62	44.2
-2.1	BROCKTON	47.6	36.99	43.63
-1.9	BOSTON	33.65	30.01	36.11
-1.9	FITCHBURG	46.7	50.89	63.81
-1.9	REVERE	49.69	59.27	50.85
Moderate to Low	**Group Mean**	**47.61**	**47.11**	**50.1**
-1.7	CHICOPEE	39.58	38.04	45.19
-1.7	EVERETT	52.46	46.79	56.05
-1.7	WORCESTER	47.91	51.88	52.46
-1.3	TAUNTON	45.27	42.33	48.83
-1.2	PITTSFIELD	50.74	50.35	62.11
-1.2	WEST SPRINGFIELD	50	31.4	46.67
-1.1	LEOMINSTER	51.58	45.4	48.79
-1.1	MALDEN	50.4	47.92	47.92
-1.0	SOMERVILLE	43.75	46.43	40.29
Low	**Group Mean**	**43.93**	**45.95**	**49.4**
-0.9	HAVERHILL	38.99	38.6	42.57
-0.8	METHUEN	47.22	40.57	46.77
-0.8	SALEM	40.44	42.69	46.67
-0.8	WESTFIELD	38.61	33.06	39.58
-0.7	GLOUCESTER	56.03	54.33	59.21
-0.6	QUINCY	51.03	53.64	53.54
-0.5	MEDFORD	46.08	48.28	55.19
-0.5	PEABODY	48.15	48.24	45.55
-0.4	FRAMINGHAM	45.4	52.03	61.76
-0.3	CAMBRIDGE	37.79	37.81	41.67
-0.3	WALTHAM	45.63	57.58	55.38
-0.2	MARLBOROUGH	44.62	54.11	48.2

Appendix E4

2001-2003 Special Education Student Pass Rates on Grade 4 Math Exam				
Degree of Challenge	**District**	**2001 Pass**	**2002 Pass**	**2003 Pass**
High	**Group Mean**	**39%**	**40%**	**47%**
-3.9	LAWRENCE	28%	21%	24%
-3.6	CHELSEA	53%	47%	65%
-3.3	HOLYOKE	38%	43%	42%
-3	SPRINGFIELD	38%	47%	48%
-2.9	NEW BEDFORD	45%	39%	64%
Moderate to High	**Group Mean**	**52%**	**47%**	**53%**
-2.5	FALL RIVER	61%	48%	67%
-2.3	LOWELL	40%	37%	33%
-2.2	LYNN	51%	45%	52%
-2.1	BROCKTON	52%	44%	53%
-1.9	BOSTON	33%	31%	43%
-1.9	FITCHBURG	57%	61%	75%
-1.9	REVERE	66%	66%	64%
Moderate to Low	**Group Mean**	**57%**	**57%**	**63%**
-1.7	CHICOPEE	42%	44%	60%
-1.7	EVERETT	70%	56%	65%
-1.7	WORCESTER	55%	63%	68%
-1.3	TAUNTON	58%	48%	60%
-1.2	PITTSFIELD	63%	64%	74%
-1.2	WEST SPRINGFIELD	55%	34%	64%
-1.1	LEOMINSTER	63%	52%	59%
-1.1	MALDEN	62%	61%	58%
-1.0	SOMERVILLE	53%	57%	43%
Low	**Group Mean**	**52%**	**55%**	**62%**
-0.9	HAVERHILL	43%	46%	48%
-0.8	METHUEN	59%	43%	70%
-0.8	SALEM	48%	61%	59%
-0.8	WESTFIELD	39%	39%	49%
-0.7	GLOUCESTER	74%	64%	73%
-0.6	QUINCY	63%	61%	69%
-0.5	MEDFORD	61%	55%	63%
-0.5	PEABODY	59%	62%	60%
-0.4	FRAMINGHAM	49%	69%	77%
-0.3	CAMBRIDGE	43%	39%	49%
-0.3	WALTHAM	60%	67%	68%
-0.2	MARLBOROUGH	52%	63%	63%

Appendix E5

2001-2003 Special Education Proficiency Index Scores on Grade 7 ELA Exam				
Degree of Challenge	**District**	**2001 Mean**	**2002 Mean**	**2003 Mean**
High	**Group Mean**		**39.43**	**43.28**
-3.9	LAWRENCE	-	32.95	36.59
-3.6	CHELSEA	-	38.31	45.18
-3.3	HOLYOKE	-	34.35	40.04
-3	SPRINGFIELD	-	41.54	45.75
-2.9	NEW BEDFORD	-	43.3	44.88
Moderate to High	**Group Mean**		**45.95**	**49.17**
-2.5	FALL RIVER	-	43.96	49.73
-2.3	LOWELL	-	45.45	44.72
-2.2	LYNN	-	49.61	55.97
-2.1	BROCKTON	-	43.79	47.83
-1.9	BOSTON	-	45.51	49.35
-1.9	FITCHBURG	-	47.01	54.92
-1.9	REVERE	-	47.69	46.79
Moderate to Low	**Group Mean**		**47.41**	**53.24**
-1.7	CHICOPEE	-	50.84	47.14
-1.7	EVERETT	-	56.49	58.15
-1.7	WORCESTER	-	38.38	47.3
-1.3	TAUNTON	-	49.39	56.33
-1.2	PITTSFIELD	-	39.38	48.04
-1.2	WEST SPRINGFIELD	-	45.21	57.2
-1.1	LEOMINSTER	-	51.6	60.61
-1.1	MALDEN	-	68.75	65.09
-1.0	SOMERVILLE	-	56.87	60.76
Low	**Group Mean**		**58.42**	**63.91**
-0.9	HAVERHILL	-	53.8	59.35
-0.8	METHUEN	-	57.61	62.17
-0.8	SALEM	-	55.28	63.49
-0.8	WESTFIELD	-	48.3	54.05
-0.7	GLOUCESTER	-	67.95	70.76
-0.6	QUINCY	-	61.76	66.73
-0.5	MEDFORD	-	56.88	61.74
-0.5	PEABODY	-	51.92	66.67
-0.4	FRAMINGHAM	-	67.72	70.04
-0.3	CAMBRIDGE	-	56.25	64.26
-0.3	WALTHAM	-	63.82	71.76
-0.2	MARLBOROUGH	-	58.45	57.83

Appendix E6

2001-2003 Special Education Student Pass Rates on Grade 7 ELA Exam				
Degree of Challenge	District	2001 Pass	2002 Pass	2003 Pass
High	**Group Mean**		**41%**	**51%**
-3.9	LAWRENCE	-	27%	39%
-3.6	CHELSEA	-	41%	62%
-3.3	HOLYOKE	-	30%	44%
-3	SPRINGFIELD	-	43%	53%
-2.9	NEW BEDFORD	-	51%	59%
Moderate to High	**Group Mean**		**55%**	**63%**
-2.5	FALL RIVER	-	52%	61%
-2.3	LOWELL	-	54%	51%
-2.2	LYNN	-	55%	74%
-2.1	BROCKTON	-	56%	68%
-1.9	BOSTON	-	54%	64%
-1.9	FITCHBURG	-	51%	70%
-1.9	REVERE	-	57%	57%
Moderate to Low	**Group Mean**		**54%**	**69%**
-1.7	CHICOPEE	-	57%	60%
-1.7	EVERETT	-	65%	75%
-1.7	WORCESTER	-	40%	62%
-1.3	TAUNTON	-	70%	75%
-1.2	PITTSFIELD	-	41%	60%
-1.2	WEST SPRINGFIELD	-	54%	75%
-1.1	LEOMINSTER	-	53%	82%
-1.1	MALDEN	-	80%	82%
-1.0	SOMERVILLE	-	72%	81%
Low	**Group Mean**		**71%**	**82%**
-0.9	HAVERHILL	-	67%	81%
-0.8	METHUEN	-	70%	82%
-0.8	SALEM	-	62%	80%
-0.8	WESTFIELD	-	59%	67%
-0.7	GLOUCESTER	-	81%	84%
-0.6	QUINCY	-	75%	86%
-0.5	MEDFORD	-	68%	75%
-0.5	PEABODY	-	66%	85%
-0.4	FRAMINGHAM	-	81%	88%
-0.3	CAMBRIDGE	-	71%	82%
-0.3	WALTHAM	-	77%	90%
-0.2	MARLBOROUGH	-	75%	79%

Appendix E7

2001-2003 Special Education Student Scores on Grade 8 Math Exam				
Degree of Challenge	**District**	**2001 Mean**	**2002 Mean**	**2003 Mean**
High	**Group Mean**	**21.9**	**20.08**	**21.29**
-3.9	LAWRENCE	22.9	16.41	18.04
-3.6	CHELSEA	22.46	20.18	24
-3.3	HOLYOKE	18.45	16.13	17.46
-3	SPRINGFIELD	22.59	22.05	22.31
-2.9	NEW BEDFORD	20.95	19.95	22.19
Moderate to High	**Group Mean**	**25.1**	**22.55**	**24.44**
-2.5	FALL RIVER	25.15	21.49	24.19
-2.3	LOWELL	22.83	24.16	23.22
-2.2	LYNN	23.39	19.83	26.01
-2.1	BROCKTON	27.11	24.16	23.77
-1.9	BOSTON	24.34	23.63	24.49
-1.9	FITCHBURG	31.43	14.58	44.23
-1.9	REVERE	31.7	25	23.85
Moderate to Low	**Group Mean**	**27.72**	**26.91**	**26.68**
-1.7	CHICOPEE	22.41	21.7	19.48
-1.7	EVERETT	40.32	33.33	28.35
-1.7	WORCESTER	24.61	23.63	23.85
-1.3	TAUNTON	28.54	30.58	27.59
-1.2	PITTSFIELD	27.34	27.2	21
-1.2	WEST SPRINGFIELD	16.96	26.92	31
-1.1	LEOMINSTER	37.5	31.25	29.24
-1.1	MALDEN	31.25	25.81	29.93
-1.0	SOMERVILLE	28.82	35	34.6
Low	**Group Mean**	**34.45**	**30.73**	**31.84**
-0.9	HAVERHILL	25.75	25	31.98
-0.8	METHUEN	38.81	25.99	32.25
-0.8	SALEM	30.17	35.25	30.67
-0.8	WESTFIELD	30.26	22.92	25.28
-0.7	GLOUCESTER	36.15	33.17	30.25
-0.6	QUINCY	42.31	31.74	29.72
-0.5	MEDFORD	37.5	24.28	26.6
-0.5	PEABODY	40.32	29.49	30.81
-0.4	FRAMINGHAM	34.12	37.61	34.09
-0.3	CAMBRIDGE	34.48	39.02	33.54
-0.3	WALTHAM	33.05	31.33	34.88
-0.2	MARLBOROUGH	33.61	25.69	33

Appendix E8

2001-2003 Special Education Student Pass Rates on Grade 8 Math Exam				
Degree of Challenge	District	2001 Pass	2002 Pass	2003 Pass
High	**Group Mean**	**7%**	**11%**	**13%**
-3.9	LAWRENCE	9%	6%	8%
-3.6	CHELSEA	3%	11%	14%
-3.3	HOLYOKE	3%	8%	6%
-3	SPRINGFIELD	7%	13%	18%
-2.9	NEW BEDFORD	6%	13%	9%
Moderate to High	**Group Mean**	**11%**	**14%**	**16%**
-2.5	FALL RIVER	14%	16%	13%
-2.3	LOWELL	6%	12%	14%
-2.2	LYNN	8%	8%	15%
-2.1	BROCKTON	16%	19%	19%
-1.9	BOSTON	10%	19%	18%
-1.9	FITCHBURG	26%	4%	38%
-1.9	REVERE	21%	11%	19%
Moderate to Low	**Group Mean**	**17%**	**22%**	**17%**
-1.7	CHICOPEE	6%	11%	11%
-1.7	EVERETT	47%	28%	21%
-1.7	WORCESTER	11%	17%	14%
-1.3	TAUNTON	15%	29%	14%
-1.2	PITTSFIELD	14%	22%	11%
-1.2	WEST SPRINGFIELD	0%	20%	22%
-1.1	LEOMINSTER	42%	25%	22%
-1.1	MALDEN	25%	23%	25%
-1.0	SOMERVILLE	21%	33%	33%
Low	**Group Mean**	**30%**	**26%**	**28%**
-0.9	HAVERHILL	13%	21%	33%
-0.8	METHUEN	43%	15%	30%
-0.8	SALEM	22%	26%	30%
-0.8	WESTFIELD	19%	12%	16%
-0.7	GLOUCESTER	32%	28%	23%
-0.6	QUINCY	47%	24%	23%
-0.5	MEDFORD	29%	14%	18%
-0.5	PEABODY	35%	27%	29%
-0.4	FRAMINGHAM	26%	41%	33%
-0.3	CAMBRIDGE	33%	43%	31%
-0.3	WALTHAM	25%	24%	34%
-0.2	MARLBOROUGH	31%	22%	29%

Appendix F. Student Exclusions

Student Exclusions

In 2002-2003, the dataset available from the Massachusetts Department of Education:

- Chelsea had no exclusions in grades K-5 and 7 exclusions in grades 6-8. Of these 7 exclusions, none was of a special education student.
- Everett had no exclusions in grades K-5 and no exclusions in grades 6-8.
- Framingham had no exclusions in grades K-5 and 3 exclusions in grades 6-8. Of these exclusions, 1 was of a special education student.
- Pittsfield had no exclusions in grades K-5 and no exclusions in grades 6-8.

It is interesting to note that Chelsea had far fewer expulsions than Lawrence and Holyoke. In 2002-2003:

- Chelsea had 18 exclusions with 7 in middle school and 11 in high school. None of the excluded students were special needs.
- Holyoke, with about the same student population, had 56 with 1 in grades K-2, 5 in grades 3-5, 21 in grades 6-8, and 29 in high school. Fifty percent of the excluded students (28) were special needs.
- Lawrence, with about twice the student population, had 75, with none in grades K-2, none in grades 3-5, 73 in grades 6-8, and 2 in high school. Fifteen percent of the excluded students (11) were special needs.

See http://www.doe.mass.edu/infoservices/reports/exclusions/0203/ for more information

Appendix G. Deriving the Community Effects Factor

Methodology of Deriving the Community Effects Factor

The Community Effects Factor (CEF) is derived by comparing actual scores on standardized tests to scores predicted by a model which factors in the role community characteristics play in educatioNRl outcomes.

The CEF model was developed in a doctoral dissertation, (*Education Achievement Communities: A New Model for "Kind of Community" in Massachusetts Based on an Analysis of Community Characteristics Affecting Educational Outcomes*, May 1998, University of Massachusetts, Amherst). That work is the basis for determining school district effectiveness. The model examines the relationship between selected demographic characteristics and educational outcomes. These characteristics include: average education level; average income; poverty rate; single-parent status; and English language facility. These variables were chosen because they correlate with achievement and because the education literature identifies them as connected to academic performance.

In order to refine a better model of the impact of community characteristics (variables) on educational achievement, it is first necessary to factor the impact of these demographic variables on each other. This can be done through a technique known as principal components analysis (PCA) that is a statistical mechanism that reduces many variables to a few salient ones that have the most impact on an outcome. Once the factors have been identified, a regression analysis produces the equations that can be used to either build a kind-of-community model or to predict expected district performance on achievement tests.

The CEF, which is a measure of the demographic lift or drag of each community concerning educational achievement, is a good point of departure for analyzing school and school district effectiveness. The CEF identifies expected levels of performance based on community characteristics that, for better or worse, are very powerful indicators of educational achievement in Massachusetts. The average demography for all communities in the state is 0.0. In this analysis, Lawrence is the most demographically challenged community in terms of educational outcomes (CEF = – 3.9), and Marlborough is the least demographically challenged (CEF = – 0.3). The CEF has a strong relationship, or correlation, to test scores.

Correlation is a process that identifies the interdependence of one variable with another. Correlation simply shows "the extent to which two things typically run together." [*The Economist*, 6 Dec. 1997, p. 82]. Correlation is not equivalent to causation; it can only reveal tendencies between variables, not identify causes. Correlations simply demonstrate relationships. A perfect correlation would be 1.0. For example, the correlation between inches and

feet is 1.0 because it is a perfect linear fit; 12 inches always equals one foot. Correlations in real world situations involving human behavior are never 1.0.

The correlation, or the connection, between spending (Per-Pupil Expenditure or PPE) and achievement in Massachusetts is relatively low. While spending clearly matters, and while some systems with challenging student populations may need more resources to be successful, merely increasing spending levels has a relatively weak impact on results. Increasingly, many people are coming to the realization that how a system spends money is more important than how much money it spends. The achievement outcome accounted for by the community effects factor (CEF) is much stronger; that relationship (known as the R-squared or R^2) is .50 to .70, which means that about 50% to 70% of the variation (MCAS score differences) in an educational outcome is attributable to demographic factors. This is not to say the community context (the demography), is the most important determinant of school success, but it is a significant element that must be a major consideration in any plan to identify effective systems as the first step in improving public education.

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