June, 2003

Center for
Community
Performance
Measurement

Benchmarking Public Education in Worcester: 2003

WORCESTER
REGIONAL
RESEARCH
BUREAU

CCPM-03-03

Welcome...

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Dear Citizen,

This is the second report on the status of public education in Worcester from the Center for Community Performance Measurement. The purpose of this report is to provide updated and more extensive information on the same public education indicators that were presented last year. The performance indicators record changes and accomplishments during the last year as well as future challenges. This report compares Worcester's performance on each indicator to its past performance as well as to the performance of comparable cities in Massachusetts, including Springfield, Lowell, and Fall River.
(These cities were selected based on the criteria shown on page 16.)

There are also new elements in this report, such as an expanded section on family involvement, financial information on the public schools, and performance data for the two charter schools in Worcester. We hope these additions will better inform the community about the status of Worcester's public education system.

Thank you for taking the time to read this report. We hope that it will encourage widespread discussion about the future of public education in Worcester.
We look forward to hearing your comments and suggestions on the project.

Sincerely,

Mark Colborn - *President*

Roberta R. Schaefer, Ph.D. - *Executive Director*

Richard H. Beaman - *Manager, CCPM*

Introduction and Financial Indicators

In 1993, the Massachusetts Legislature passed the Massachusetts Education Reform Act. The act initiated major changes to the public education system in the Commonwealth, including a large infusion of additional funds to ensure adequate per-pupil expenditures in all districts, the implementation of statewide standards, and accountability for student performance through the Massachusetts Comprehensive Assessment System (MCAS).

As shown in the table below, the overall budget of the Worcester Public Schools has increased by more than $100 million over the past decade, from $112 million during the 1992-1993 school year to $213 million during the 2002-2003 school year, or an increase of 89.2% (after adjusting for inflation).[1] The total number of students in the Worcester Public Schools has increased by 22.3% over that period, from 21,027 to 25,711. The result is that inflation-adjusted per pupil expenditures[2] increased from $5,907 in 1992-1993 to $7,886 in 2001-2002, an increase of 33.5%. (Per pupil expenditures for 2002-2003 are not yet available.) Meanwhile, the total number of staff increased by 30.7% from 2,444 in 1992-1993 to 3,194 in 2002-2003; 74.3% of this increase is in the teaching staff.

The table also shows charter school payments from the state of $10.9 million in FY03, or $8,389 per student who attends the charter schools from Worcester. This is an increase of 66.5% over the last three years. The Worcester Public Schools were partially reimbursed by the state for students attending the charter schools until FY02; in FY02 the WPS were reimbursed $2.3 million and in FY01 were reimbursed $2.5 million.[3]

[1] All figures prior to the 2002-2003 school year are adjusted for inflation based on the Consumer Price Index from the Bureau of Labor Statistics: http://data.bls.gov/cgi-bin/cpicalc.pl.

[2] Per pupil expenditures are calculated by the Massachusetts Department of Education based on expenditure and enrollment reports submitted by the district at the end of each school year.

[3] Between FY98 and FY02, the WPS were reimbursed for each student attending a charter school based on the following formula: 100% in the child's first year, 60% in the second year, and 40% in the third year. The reimbursement was not funded by the state in FY03, but there are two proposals (one by the Governor and the other by the House of Representatives) that would return partial reimbursement to the district for pupils attending the charter schools in FY04.

Input Indicators for the Worcester Public Schools

	1992-1993	2000-2001	2001-2002	2002-2003	% Change, 1994-2003
Budget – inflation adjusted (non-inflation adjusted)	$112,438,133 ($87,842,291)	$204,456,956 ($196,679,765)	$210,904,993 ($206,769,209)	$212,775,225	+89.2% (+142.2%)
Number of students	21,027	24,931	24,963	25,711	+22.3%
Total per pupil expenditures*	$5,907	$7,720	$7,886	N/A	+54.8%
Total staff	2,444	3,442	3,332	3,194	+30.7%
District administrators	18	25	25	21	+16.7%
School administrators	71	82	82	81	+14.1%
Teachers	1,498	2,083	2,132	2,055	+40.0%
Other	887	1,252	1,093	1,037	+16.9%
Charter school payments**	N/A	$6,533,250	$8,233,440	$10,880,533	N/A
Number of students in charter schools from Worcester	N/A	1,155	1,236	1,297	N/A
Per student tuition rate[4]	N/A	$ 7,569	$ 8,395	$8,389	N/A
Reimbursement to WPS	N/A	$2,489,723	$2,324,844	$ 0	N/A

* Non-inflation adjusted ** Adjusted for inflation

[4] The per student tuition rate for the charter schools is higher than the per pupil expenditures for the Worcester Public Schools because the charter school tuition rate is calculated based on the total expenditures of the Worcester Public Schools divided by the total number of students. The WPS per pupil expenditures are calculated by the state for instructional costs and exclude long-term debt payments, which in FY02 totaled $13.9 million.

Benchmarking Public Education in Worcester

INDICATOR

1 Attendance and Dropout Rates

Why is it important?

While teacher effectiveness, quality of school buildings, and availability of textbooks and computers are important elements that contribute to student academic achievement, students must attend classes and not drop out before graduation in order to benefit from teachers, facilities and technology. Studies have shown that students who drop out have lower lifetime earnings and less success in today's labor market.[1] One analysis of U.S. Department of Labor statistics showed that high school dropouts had a 6.7% unemployment rate compared to 3.5% for high school graduates, and annual earnings for dropouts were approximately $10,000 less per year than for graduates.[2]

What is the trend in Worcester?

Attendance Rates

The average daily attendance rate for all schools in the Worcester Public Schools system was 94.7% for the '01-'02 school year. This was a slight increase from the '00-'01 level of 94.5%. Since the '95-'96 school year, attendance rates at all levels have increased, as shown in **Chart 1-1**. During the '01-'02 school year, elementary schools had the highest average attendance rates of 95.3%, followed by middle schools at 93.4%, and high schools at 90.8%.

As shown in **Chart 1-2**, the Abby Kelley Foster Charter School had an attendance rate during the '02-'03 school year of 95%, which was a slight increase over the '01-'02 level of 94%. The Seven Hills Charter School had an attendance rate of 95% during the '01-'02 school year (more recent data are unavailable).

The most recent data available for comparable school districts are for the '00-'01 school year. As shown in **Chart 1-3**, Worcester's average attendance rate of 94.3% was slightly above the statewide rate of 94.0%, and above comparable districts. Springfield had the lowest average attendance rate of those cities surveyed at 88.2%.

Dropout Rate

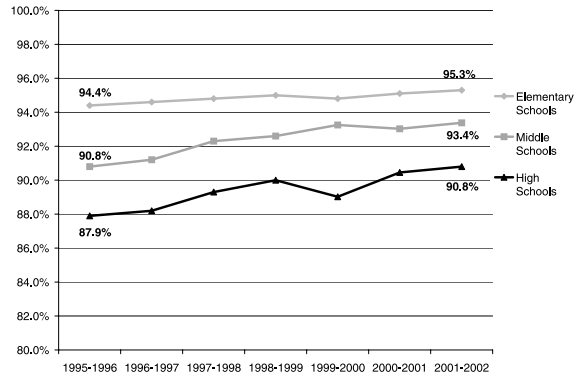
The dropout rate in the Worcester Public Schools for the '01-'02 school year declined to 5.6% from the prior year level of 6.2%, as shown in **Chart 1-4**. This rate of 5.6% is the lowest dropout rate that the Worcester Public Schools has seen in the recent past, as also shown in **Chart 1-4**. During the '94-'95 school year, the WPS had a dropout rate of close to 8%.

As shown in **Table 1-1**, the University Park Campus School (grades 7-12) had no student drop out during the '01-'02 school year, and thus had the lowest rate. This is followed by the Accelerated Learning Laboratory (3.0%), the Vocational School (4.3%), Doherty High School (4.8%), and Burncoat High (5.5%).

The most recent data available for comparable districts is for the '00-'01 school year. As shown in **Chart 1-5**, although Worcester's rate for the years considered is above the statewide rate of 3.5%, it had the lowest rate among comparable communities surveyed. Lowell had the highest dropout rate of 9.8% in '00-'01.[3]

These dropout rates are calculated based on the federal government's guidelines, which tend to inflate the rates for urban communities that have high mobility rates (see **Indicator 2: Mobility Rates**). The Worcester Public Schools has asked the Department of Education to consider using what it regards as a more accurate calculation procedure, by which the total number of dropouts is compared to the total student enrollment for the entire year. This alternate calculation results in a dropout rate in Worcester of 5.3% for the '01-'02 school year rather than the reported rate of 5.6%.

Chart 1-1: Average Attendance Rates, 1995-2002



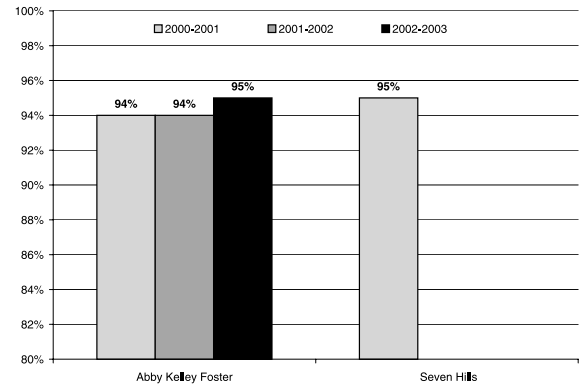
Data source: Worcester Public Schools

[1] P. Boudett, et. al., "'Second Chance' Strategies for Women Who Drop Out of School," *Monthly Labor Review* 123, no. 12, (2000): 19-31; Robert F. Kronick, "The Imperative of Dealing with Dropouts: Theory, Practice and Reform," *Education* 114, no. 4, (1994): 530-535.

[2] Tracy L. Schmidt, "Should I Stay or Should I Go?," *State Legislatures* 27, no. 6, (2001): 25-27.

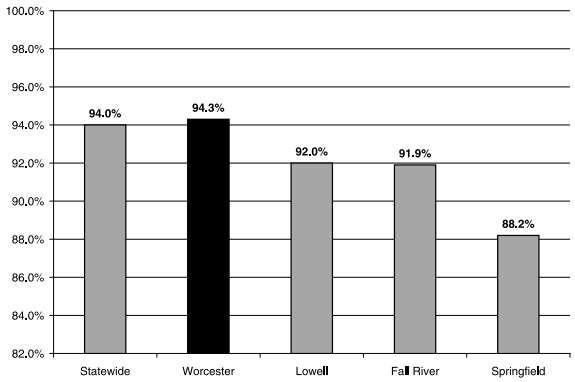
[3] The comparison of Worcester's dropout rate with those of comparable districts in Chart 1-5 omits vocational school students because Lowell and Fall River have regional vocational schools that include students from surrounding communities.

Chart 1-2: Average Attendance Rates for Charter Schools



Data source: Department of Education, Abby Kelley Foster Charter School

Chart 1-3: Attendance Rates in Comparable Cities, 2000-2001



Data source: Massachusetts Department of Education

What does this mean for Worcester?

Attendance rates continue to improve steadily at all levels in the Worcester Public Schools. In particular, high schools have had significant increases in attendance rates since the mid-1990s.

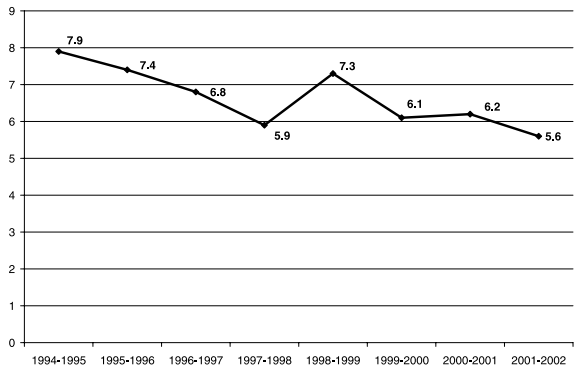
Last year, we noted that dropout rates appeared to have stabilized in Worcester at around 6%. It is encouraging to see that for the '01-'02 school year the rate dropped to 5.6%. The most significant declines in the last year were at North High School, where the dropout rate fell from 9.1% to 7.6%, and at Burncoat High School, where the rate fell from 7.7% to 5.5%. Continuing to retain more students through graduation should improve students' future success and lifetime earnings.

Because students in the class of 2003 are the first to be required to pass both the English and math MCAS exams (or be granted a waiver through an appeal) in order to graduate, dropout rates should be monitored closely in the future to determine if this requirement increases the dropout rate for those who have not yet passed both exams. (Also see **Indicator 5: MCAS Scores**.*)*

Table 1-1: Dropout Rates, '01-'02

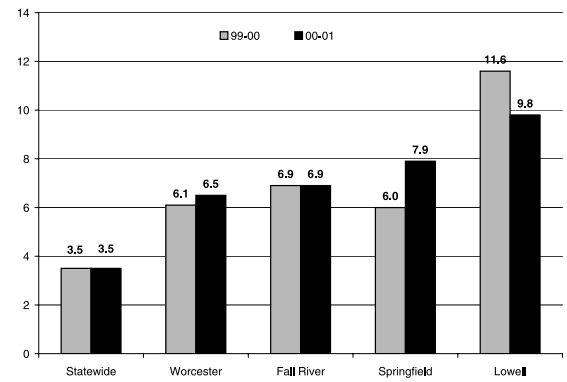
University Park Campus School	0.0%
Accelerated Learning Lab	3.0%
Vocational High School	4.3%
Doherty High School	4.8%
Burncoat High School	5.5%
South High	6.4%
North High	7.6%

Chart 1-4: Trend in District Dropout Rate, 1995-2002



Data source: Worcester Public Schools

Chart 1-5: Dropout Rate in Comparable Districts, 1999-2001



Data source: Massachusetts Department of Education
Note: Rates do not include Vocational Schools in each community.

INDICATOR

2 Student Mobility

Why is it important?

Student mobility, or the rate at which students transfer among schools, significantly affects academic performance. A student who starts the year at one school but moves to another school midway through the year will not have the consistency of one teacher or one curriculum model. Additionally, highly mobile students frequently perform below their peers on the Massachusetts Comprehensive Assessment System (MCAS), an important evaluation tool that measures academic achievement. High mobility rates can also bring down aggregate district achievement levels. For example, writing about MCAS scores at the Gavin Middle School in South Boston, the Boston Globe reported, "Grade 8 failure rates went up in English and only slightly down in math… One explanation: A significant number of eighth-graders entered Gavin that year lacking basic skills."[1]

In recognition of the relationship between student mobility and achievement levels, the federal "No Child Left Behind" legislation of 2002 included a provision under which schools should only be held accountable to the state for the annual progress of students who are enrolled in the school for one complete school year. To meet this provision, the Massachusetts Department of Education established that, beginning in 2003, schools will be held accountable for the spring MCAS results only of students who had been enrolled in their school on October 1st of that school year. Districts, however, will be held accountable for all students who take the MCAS tests while enrolled there regardless of when that student enrolled in the district. Districts in Massachusetts with high mobility rates, including Worcester, will therefore be held accountable to the state for all students in their district, regardless of whether or not the students are enrolled in the district for an appropriate period of time to benefit from the district's curriculum and educational environment.[2] Failure to make adequate yearly progress (AYP) will result in the need to develop a school improvement plan approved by the state that would be expected to yield better student results.

[1] Anand Vaishnav, "In Boston, Gains and Problems," *Boston Globe*, 2 November 2001, A33.

[2] Many states have enacted policies that hold districts accountable only for those students who are present in a district for a complete school year. However, according to the Massachusetts Department of Education, the Massachusetts policy which holds the district accountable for the test results of students who have been enrolled for less than a year reduces the possibility of any student "falling through the cracks."

[3] According to the Seven Hills Charter School Annual Report, 2002.

What is the trend in Worcester?

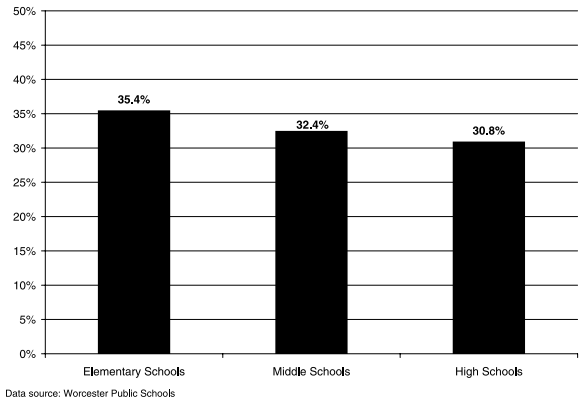
For the '01-'02 school year, the Worcester Public Schools had an average school mobility rate of 33.8%. This means that on average, 33.8% of students who began the school year at one school transferred to another school at some point during the year. As shown in **Chart 2-1**, elementary schools had the highest average mobility of 35.4%, while middle schools had a rate of 32.4%, and high schools had a rate of 30.8%.

As shown in **Chart 2-2**, average school mobility rates have varied over time, but have not changed dramatically in recent years. For elementary schools, the rate has remained around 35%. Mobility rates in high schools have declined slightly, from 33% in '96-'97 to 31% in '01-'02. Rates for middle schools have increased, from 24% in '96-'97 to 32% in '01-'02.

As shown in **Table 2-1**, the University Park Campus School has the lowest mobility rate (7.1%), followed by the New Ludlow School (21.4%), May Street School (21.9%), and Nelson Place School and Thorndyke School (22.0% each). The Lincoln Street School had the highest mobility rate (65.8%), followed by Elm Park Community School (62.5%), and the Belmont Street Community School (57.7%).

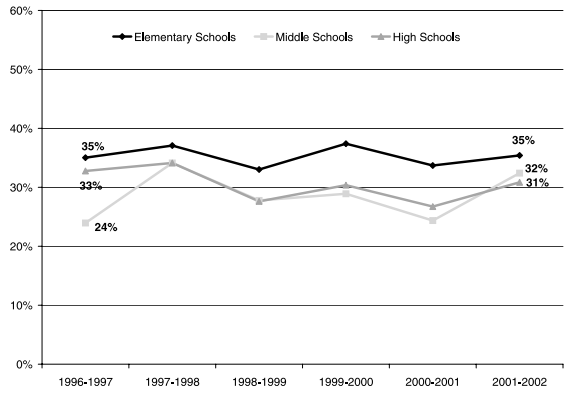
The Abby Kelley Foster Regional Charter School had a mobility rate of 15.3% during the 2001-2002 school year. Over the last several years, the Abby Kelley Foster Regional Charter School has had mobility rates ranging from a high of 16.9% during the '98-'99 and '00-'01 school years and a low of 13.7% during the '99-'00 school year. The Seven Hills Charter School had a mobility rate of 5.3% during the 2001-2002 school year.[3]

Chart 2-1: Mobility Rates by Level, 2001-2002



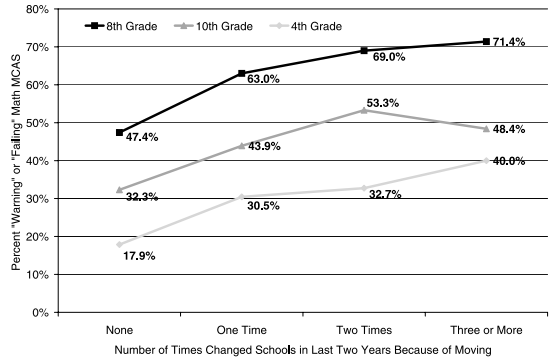
Data source: Worcester Public Schools

Chart 2-2: Trends in Mobility Rates, 1996-2002



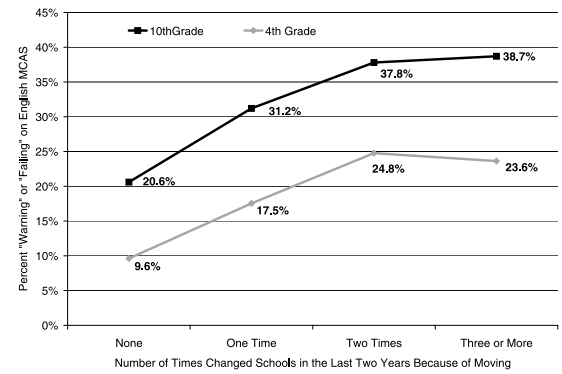
Data source: Worcester Public Schools

Chart 2-3: Mobility and Math MCAS Failing Rates



Data source: Worcester Public Schools

Chart 2-4: Mobility and English MCAS Failing Rates



Data source: Worcester Public Schools

What does this mean for Worcester?

Individual schools have less influence over this indicator than other indicators presented in this report. However, the WPS has implemented several projects to mitigate the effects of mobility on student achievement. For example, a standardized curriculum ensures that students who move from one school to another school in the district will continue to study the same academic material. As well, programs to increase the level of family involvement (see **Indicator 3: Level of Family Involvement***) may help to reduce mobility rates as families become more involved and invested in one school. Differences in the availability of such programs may help explain the wide variation in mobility rates among Worcester schools. For example, the University Park Campus School (UPCS), located in one of the most economically disadvantaged neighborhoods in the city, has an almost negligible mobility rate. One possible reason for the low mobility at the UPCS is that Clark University offers free undergraduate tuition to graduates of the school.*

Regardless of the programs in place to mitigate the effects of mobility, high mobility rates do affect academic achievement in numerous ways. One major indicator of its effect can be seen in scores on MCAS (which is discussed more in depth in **Indicator 6: MCAS Scores***). As shown in* **Charts 2-3** *and* **2-4**, *students who report that they have changed schools at least once during the last two years because they changed residences had higher failing rates for English and math MCAS exams. For example, while 47.4% of students in the 8th grade who did not change schools at all in the past two years failed their math MCAS exam in 2002, 71.4% of students who changed schools three or more times failed that exam. As shown in the charts, similar trends occur in the fourth and tenth grades on both math and English MCAS exams.*

While there are other factors that may contribute to both high mobility rates and low MCAS performance, such as socioeconomic status, it appears that the effect of socioeconomic status can be mitigated in various ways. The University Park Campus School, where 76% of students are eligible for free and reduced-price lunch, has the lowest school mobility rate; 100% of its seventh graders passed their English MCAS exam and 94% of its eighth graders passed their math MCAS exams.

Table 2-1: Lowest and Highest Mobility Rates, '01-'02 School Year

LOWEST RATES		HIGHEST RATES	
University Park	7.1%	Lincoln Street	65.8%
New Ludlow	21.4%	Elm Park	62.5%
May Street	21.9%	Belmont Street	57.7%
Nelson Place	22.0%		
Thorndyke Rd	22.0%		

INDICATOR

3 Family Involvement

Why is it important?

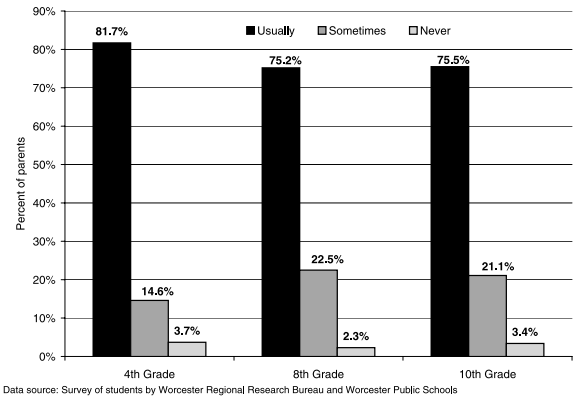
When parents and families are involved in their children's education, the children will frequently perform better academically. Studies have shown that when parents attend school activities, communicate with their children's teachers and principal, and talk to their children about the day's activities, children internalize the message that their parents value education. As a result, children of parents who are involved in these activities feel more confident in school and are more likely to succeed academically.[1]

Temple University psychology professor Laurence Steinberg,[2] among others, has shown that such parent involvement is important at all grade levels, even though parent involvement in the United States tends to decrease as a child gets older.[3] Steinberg and John McWhorter,[4] a University of California linguistics professor, have identified several characteristics of high school students that highlight the need for more parent involvement at that level, including the tendency not to take school seriously and to be influenced by peer pressure that disparages academic success. Parents and families have the opportunity to counteract this pressure by demonstrating to their children the importance and value of academic success. Additionally, Steinberg notes that older students typically spend less time than younger students outside the classroom engaged in activities that reinforce classroom learning.

What is the trend in Worcester?

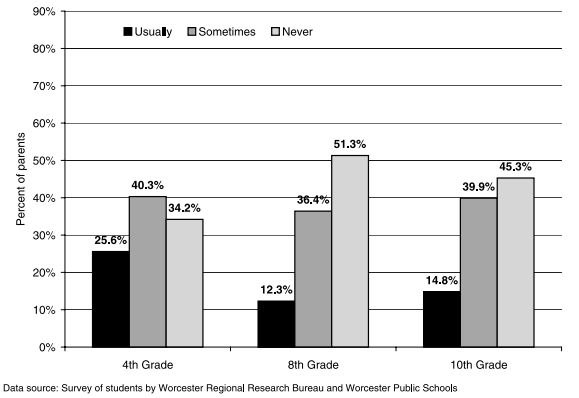
Last year's report presented data from surveys of teachers and principals and noted the inadequacy of those data for determining actual levels of parent involvement. To remedy this problem, in 2002 the Center for Community Performance Measurement collaborated with the Worcester Public Schools to conduct a survey of students to determine parent involvement in their educational lives.[5] Based on the work of Laurence Steinberg, all students in the fourth, eighth, and tenth grades were asked, during the administration of the MCAS exams, how often their parents/guardians know how they are doing in school, attend school programs for parents, watch them participate in extracurricular activities, and help them with homework when they ask.

Chart 3-1: How often parents/guardians know how their child is doing in school



Data source: Survey of students by Worcester Regional Research Bureau and Worcester Public Schools

Chart 3-2: How often parents go to school programs for parents



Data source: Survey of students by Worcester Regional Research Bureau and Worcester Public Schools

[1] W. S. Grolnick and M. L. Slowiaczek, "Parents' involvement in children's schooling: A multidimensional conceptualization and motivational model," *Child Development* 64 (1994), 237-252.

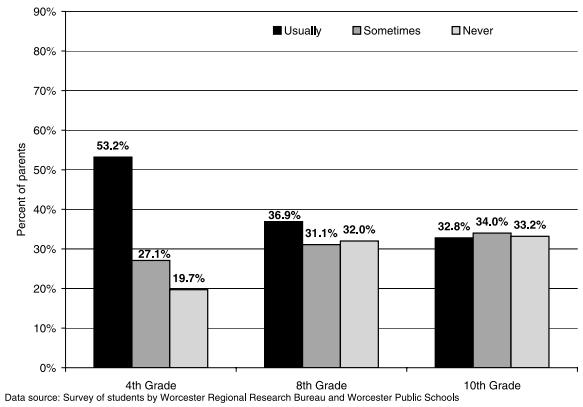
[2] Laurence Steinberg, *Beyond the Classroom: Why School Reform Failed and What Parents Need To Do* (New York: Simon & Schuster, 1996).

[3] According to Steinberg, the drop-off in involvement does not occur in many Asian countries; if anything, in Asian countries parents become more involved in their children's education as they get older (page 78-100).

[4] John McWhorter, *Losing the Race: Self-Sabotage in Black America* (New York: Free Press, 2000).

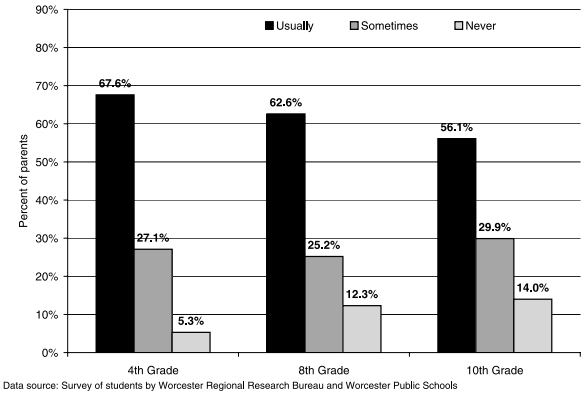
[5] It should be noted that any self-reported survey data such as those reported here are subject to potential bias and only reflect the perspectives of the individuals responding to the survey.

Chart 3-3: How often parents watch their children in extracurricular activities



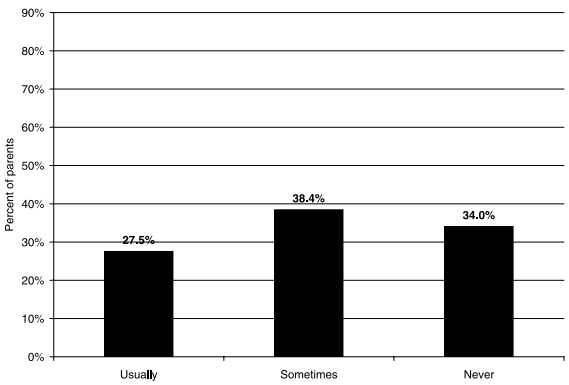
Data source: Survey of students by Worcester Regional Research Bureau and Worcester Public Schools

Chart 3-4: How often parents help with homework when they're asked



Data source: Survey of students by Worcester Regional Research Bureau and Worcester Public Schools

Chart 3-5: How often parents help their 10th graders choose classes



Data source: Survey of students by Worcester Regional Research Bureau and Worcester Public Schools

Additionally, students in the tenth grade were asked how often their parents/guardians help them choose the courses they are going to take. Because these questions were asked during the administration of the MCAS exams, each student's responses can be compared to his or her MCAS scores to determine correlations between family involvement and academic achievement.

As shown in **Chart 3-1**, most students indicated that their parents usually know how they are doing in school. 81.7% of fourth graders responded in this way, while 75.2% of eighth-grade students and 75.5% of tenth-grade students responded in this way.

As shown in **Chart 3-2**, only 25.6% of fourth graders report that their parents/guardians usually attend school programs for parents, and only 12.3% of eighth graders and 14.8% of tenth graders respond in this way. Over half of all eighth graders say that their families never attend school programs for parents.

As shown in **Chart 3-3**, 53.2% of fourth graders indicate that their parents usually watch them in extracurricular activities (such as school performances or sports), whereas 36.9% of eighth graders reports this, and just a third of tenth graders report that their parents usually watch them.

As shown in **Chart 3-4**, parents are more likely to help with students' homework in the fourth grade than in higher grades: 67.6% of students in that grade indicate that their parents usually help. However, this proportion declines in the eighth grade to 62.6% of students, and even further to 56.1% of tenth graders. 14% of tenth graders indicate that their parents never help with their homework when asked. For students in the tenth grade who are able to select their own courses rather than following a preset program, 34% say that their parents never help them, as shown in **Chart 3-5**. 27.5% say that their parents usually help them select courses.

Continued on Page 9.

Family Involvement (cont.)

Charts 3-6 and **3-7** compare family involvement in the Worcester Public Schools and the two charter schools in the city. As shown in **Chart 3-6**, involvement at the fourth grade appears to be higher at the Abby Kelley Foster Regional Charter School and lower at the Seven Hills Charter School. In contrast, as shown in **Chart 3-7**, involvement at the eighth grade is higher in three of the four areas surveyed at the Seven Hills Charter School than in the Worcester Public Schools and the Abby Kelley Foster Regional Charter School.

In order to evaluate Laurence Steinberg's hypothesis that parent involvement declines as students get older, a family involvement score was calculated for each student by adding together the responses to the four primary questions. A score of 4 indicates that the student responded "never" to all four questions, whereas a score of 20 indicates that the student responded "usually" to all four questions. As shown in **Chart 3-8**, the average involvement score for students in the fourth grade was 15.299, while in the eighth grade it was 13.787, and in the tenth grade it was 13.698. This confirms Steinberg's proposition and indicates that in Worcester most of the reduction in involvement occurs between the fourth and the eighth grades.

To determine whether family involvement has an impact on student achievement, each student's family involvement score was compared to his or her scores on the math, English, and history MCAS exams. As shown in **Chart 3-9**, students in the fourth grade who have a high family involvement score have an average English MCAS score that is 13.3 points higher than that of students with low family involvement scores. Similarly, math MCAS scores are on average 13.4 points higher. In the eighth grade, those who have a high family involvement score have average math MCAS scores that are 16.6 points higher than students with low family involvement scores, as shown in **Chart 3-10**. As shown in this same chart, the trend for history MCAS scores does not seem to be as clear. Finally, at the tenth grade, as shown in **Chart 3-11**, students with high family involvement scores score an average of 11.1 points higher on the English MCAS exam, and 7.5 points higher on the math MCAS exam.

Chart 3-6: Family Involvement in the 4th Grade, Worcester Public Schools and Charter Schools

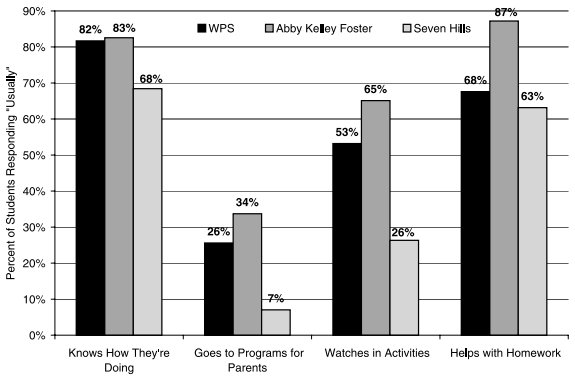


Chart 3-7: Family Involvement in the 8th Grade, Worcester Public Schools and Charter Schools

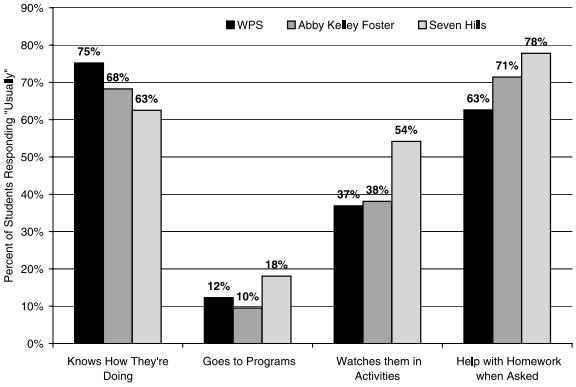


Chart 3-8: Average Level of Family Involvement

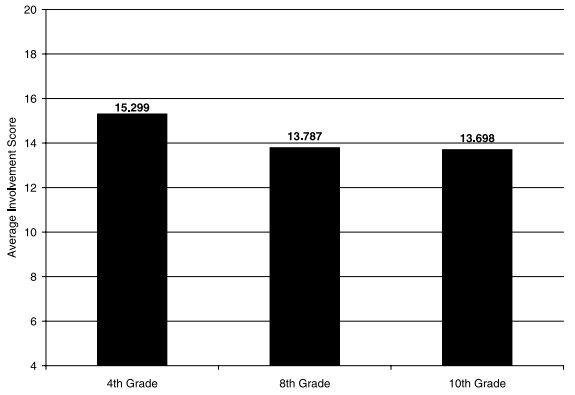
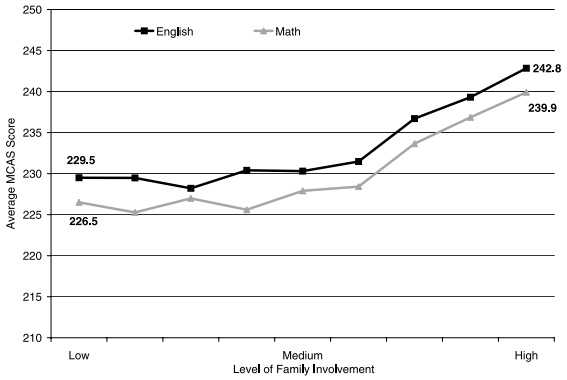
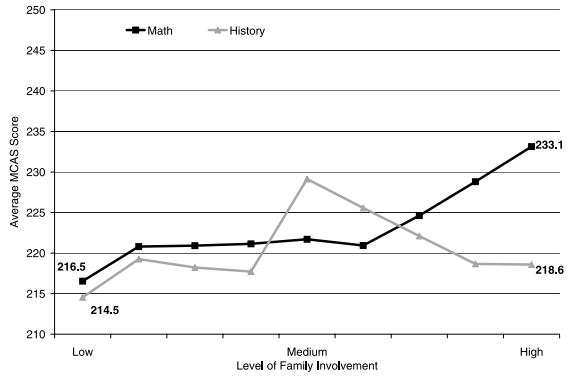


Chart 3-9: Level of Family Involvement and Average MCAS Scores, 4th Grade



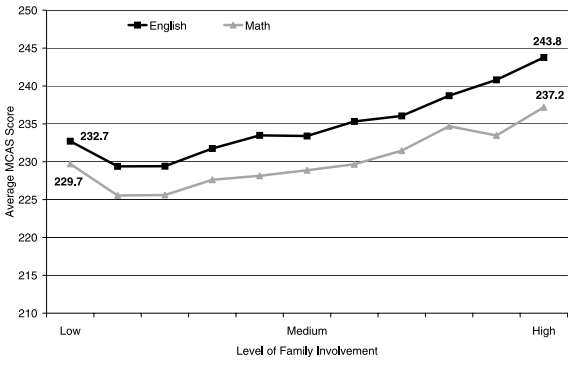
Note: Level of family involvement is an aggregate score of responses to the four questions regarding family involvement levels

Chart 3-10: Level of Family Involvement and Average MCAS Scores, 8th Grade



Note: Level of family involvement is an aggregate score of responses to the four questions regarding family involvement levels

Chart 3-11: Level of Family Involvement and Average MCAS Scores, 10th Grade



Note: Level of family involvement is an aggregate score of responses to the four questions regarding family involvement levels

What does this mean for Worcester?

The Center for Community Performance Measurement plans to continue this survey of students. Therefore, the information presented in this report will be used as a baseline by which to judge future trends.

In most cases, the schools that have the highest levels of family involvement are also those that have lower poverty rates (as measured by the percent of students eligible for free lunches), and lower mobility. Thus, schools in more affluent and stable neighborhoods have higher family involvement. This is the case with the Thorndyke Road School, Tatnuck Magnet School, Worcester Arts Magnet School, Wawecus Road School, and the West Tatnuck School. In addition, students in these schools perform well on MCAS exams. However, some schools in poorer and less stable neighborhoods have above-average family involvement. The best example of this is the Canterbury Street School, which has above-average poverty rates, above-average mobility rates, yet still has higher than average family involvement levels. The Canterbury Street School also performs very well on the MCAS exams (see also **Indicator 5: MCAS Scores)**. *Thus, the programs at Canterbury Street School may serve as a model for how to increase family involvement despite external challenges.*

On the other hand, some schools with below-average family involvement levels still have high student achievement. For example, the Belmont Street Community School, the Grafton Street School, and the Lincoln Street School, according to this survey, have below-average family involvement levels and scored above the statewide average on at least two of the three MCAS exams administered at the elementary school level. These three schools also have above-average mobility rates and above-average poverty levels (as measured by the percent of children eligible for the free lunch program). They thus have achieved high student achievement despite a very challenging external environment. The programs at these schools should be reviewed carefully as well to determine if they may be applicable elsewhere in the system.

INDICATOR

4 Post-Graduate Placement

Why is it important?

The fields of employment that are currently expected to have the highest growth rates (including information technology, biotechnology, and various health professions) frequently require advanced training for entry-level positions. Many studies have shown that post-secondary education is also important for higher future earnings and greater flexibility in the workforce.[1] One such study analyzed data from the Bureau of Labor Statistics and found that between 1979 and 1990, women with a 4-year college degree experienced a 104% increase in earnings (after adjusting for inflation), while women with only a high school education saw a 74% increase.[2] Similarly, men with 4-year degrees saw an earnings increase of 77%, while men with only a high school education saw increases of just 46%. One study estimated that a person with a 4-year college degree earns almost twice as much per year as someone with only a high school education.[3] (These data do not prove that college made all the difference, since those more likely to succeed in college may also be more likely to have other personal attributes conducive to workplace success.)

In order to help graduates compete for higher-paying jobs, the WPS has established a goal of ensuring that 80% of its high school graduates enter some form of post-secondary training immediately following graduation.

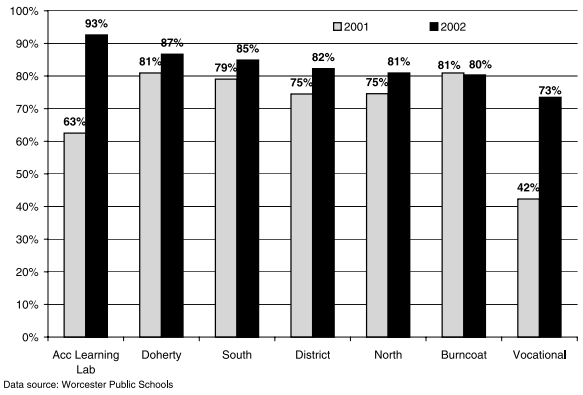
What is the trend in Worcester?

Graduating students are asked by the public schools before they graduate about their plans after graduation. Among graduates of the Class of 2002, 82% planned to attend some form of post-secondary educational placement, as shown in **Chart 4-1**. This was an increase from 75% of students in the Class of 2001.[4] The Accelerated Learning Laboratory had the highest rate of post-secondary plans at 93%, a significant increase from its level in 2001 of 63%. The Vocational School also saw a significant increase from 42% in 2001 to 73% in 2002. As shown in **Chart 4-2**, the increase at the Vocational School is primarily due to more students planning to attend 2-year programs, with this category increasing from 29.7% in 2001 to 59.0% in 2002.

As shown in **Chart 4-3**, post-graduate placement rates in 2000 were slightly higher in Lowell (78%) and Springfield (76%) than in Worcester (75%). Worcester, however, had the highest percentage of students choosing to attend a 4-year institution in 2000 at 49%.

The percent of graduates in Worcester choosing to attend a 4-year institution has steadily declined in recent years. As shown in **Chart 4-4**, the percentage of students choosing to attend 4-year schools has declined from 51% in 1996 to 43% in 2002 (not including the Vocational School).[5] At the same time, the percentage choosing to attend a 2-year institution has increased from 26% to 40% during this period.

Chart 4-1: Percent of Graduates Planning Post-Secondary Education, 2001 and 2002



Data source: Worcester Public Schools

[1] Daniel E. Hecker, "Reconciling Conflicting Data on Jobs for College Graduates," *Monthly Labor Review* 115, no. 7 (1992), 3-13. Jerry Gray & Richard Chapman, "Conflicting Signals: The Labor Market for College-Educated Workers," *Journal of Economic Issues* 33, no. 3 (1999), 661. Gerald Friedman, "Book Review: What Employers Want: Job Prospects for Less-Educated Workers," *Labor History* 42, n.1, 97.

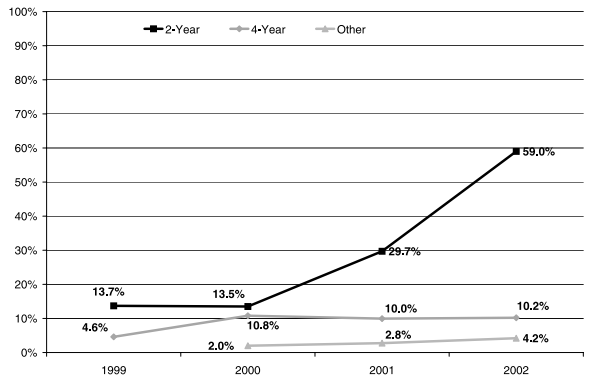
[2] Daniel E. Hecker, p.13.

[3] Jeremy Kahn, "Is Harvard Worth It?," *Fortune* 141, no. 9 (2000), 200.

[4] The increase in the number of students planning some form of postsecondary education is similar to the national trend. According to *Projection of Education Statistics to 2011* by the U.S. Department of Education (August 16, 2001), there will be a 16% increase in the number of students seeking a college education between 2001 and 2011.

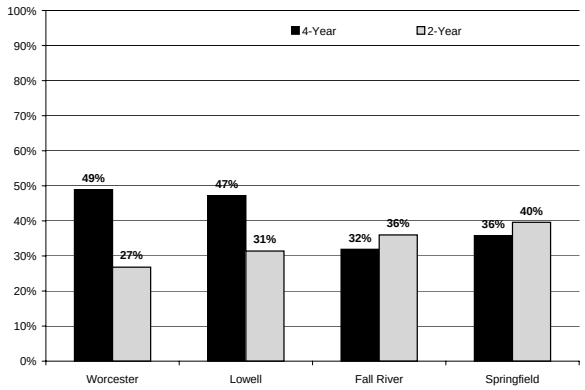
[5] This may reflect the changing demographics of the city which has seen a considerable increase in the number of poor immigrants during the last decade. (Worcester Regional Research Bureau, "The 2000 Census: Income and Educational Attainment in Worcester and the Region," Report no. CCPM-02-04.)

Chart 4-2: Trend in Percent of Vocational Students Planning Post-Secondary Education



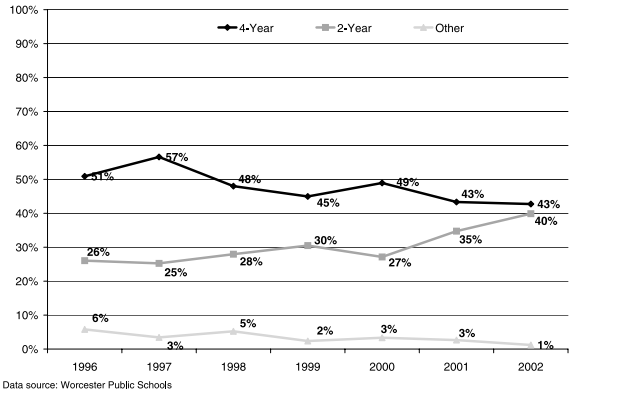
Data source: Worcester Public Schools

Chart 4-3: Post-Secondary Plans for Worcester and Comparable Districts, 2000



Data source: Massachusetts Department of Education

Chart 4-4: Trends in the Percent of Students Planning Post-Secondary Education, Excluding the Vocational School



Data source: Worcester Public Schools

What does this mean for Worcester?

All but one high school in Worcester had an increased percentage of students from the Class of 2002 planning to continue their education beyond the high school level. Only Burncoat High School had a slight decline (from 81% to 80%). As well, two high schools had very significant increases (the Accelerated Learning Laboratory and the Vocational School).

As indicated in last year's report, the percentage of students from the Vocational School planning to attend a post-graduate institution continues to rise. In the past, the Vocational High School prepared students primarily for success in employment without additional education. Now, the school appears to be addressing the preparation of students to meet the challenges of further education and a labor market that requires more advanced skills for higher-paying jobs.

Traditionally, a larger percentage of students in Worcester chose to attend 4-year rather than 2-year institutions. This has been changing over the last several years, and if the trend continues the Class of 2003 will be the first to have a higher percentage of students choosing to attend a 2-year institution. According to a report by the National Center for Public Policy and Higher Education, this appears to be following a national trend.[6] *Enrollment at 2-year institutions nationwide has been growing faster than enrollment at 4-year colleges and will soon be the largest sector in postsecondary education. According to this same report, 2-year institutions have increased in popularity because of rising tuition costs at 4-year colleges, overall increases in the number of high school graduates, demographic changes that have increased the proportion of poor and minority students in 2-year institutions, and more stringent admissions requirements at many 4-year colleges.*

[6] Jane V. Wellman, "State Policy and Community College-Baccalaureate Transfer," The National Center for Public Policy and High Education, Report #02-6, August, 2002.

INDICATOR

5 MCAS Scores

Why is it important?

MCAS was implemented following the Education Reform Act of 1993 and is designed to measure student performance based on the Massachusetts Curriculum Frameworks and learning standards. All students are tested periodically in various subjects, including English language arts, mathematics, history and social science, and science and technology. The tests thereby serve as one basis of accountability for students, schools, and districts. Starting with the class of 2003, all students are required to score at least 220 (out of 280) on the grade 10 MCAS test in English language arts and mathematics in order to graduate.

Teachers, schools and districts use MCAS results to target programs and schools for improvements, to diagnose student strengths and weaknesses, and to identify students who need tutoring. The Massachusetts Department of Education (DOE) also uses the results to determine high-performing schools and to target those that require DOE oversight to ensure the implementation of improvement plans.

What is the trend in Worcester?

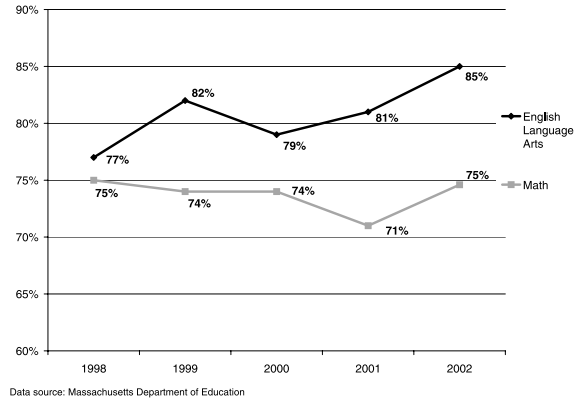
This report focuses on scores for mathematics and English language arts, as these subjects are most critical for future success, as well as the areas in which students must pass tests at the tenth grade level in order to receive a diploma. (Students have five opportunities to pass before the end of their senior year.)

In the fourth grade, as shown in **Chart 5-1**, the percentage of Worcester students receiving a passing score on the English and math MCAS tests has increased over the last year. For English, 85% of students in 2002 passed the exam, whereas 75% of students passed the math exam. While the percentage of students passing the English exam has increased significantly over the last several years, the percentage passing the math exam has only recovered to its 1998 level.

As shown in **Chart 5-2**, the percentage of students passing the English test in the seventh grade has increased from 71% to 77% in the last year. Similarly, the percentage of students passing the math exam in the sixth grade has increased from 52% to 61% in the last year. These tests were administered in these grades for the first time in 2001, so it will take more time to identify any trends.

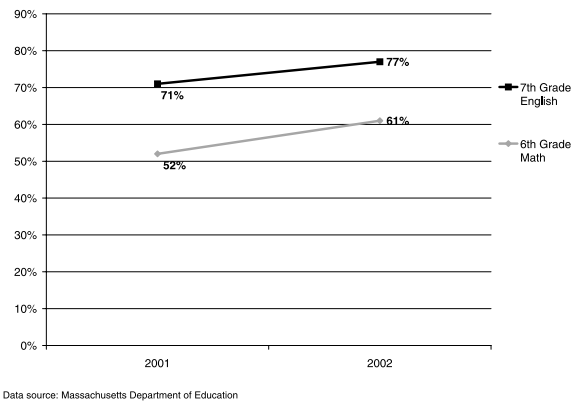
As shown in **Chart 5-3**, the percentage of eighth graders passing the math test has declined slightly in the last year, from 45% in 2001 to 42% in 2002. **Chart 5-4** shows that a higher percentage of students in the tenth grade passed the English test in 2002 than in 2001, but the same percentage passed the math test.

Chart 5-1: 4th Grade MCAS Passing Rate for Worcester



Data source: Massachusetts Department of Education

Chart 5-2: 6th and 7th Grade MCAS Passing Rate for Worcester



Data source: Massachusetts Department of Education

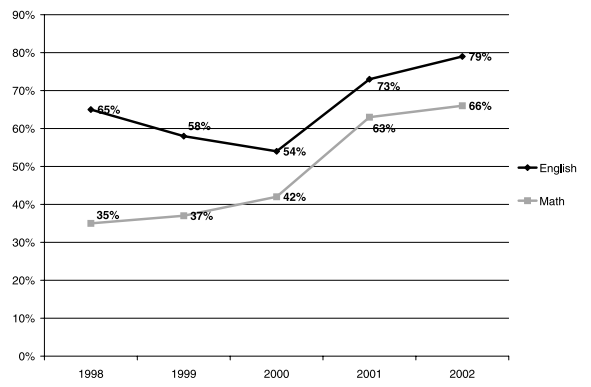
Charts 5-5 and **5-6** compare tenth-grade passing rates in Worcester to statewide rates and rates in the comparable communities of Lowell, Fall River, and Springfield. To ensure an appropriate comparison, vocational students in Worcester and Springfield were removed from the rates, since Lowell and Fall River send students to regional vocational high schools and therefore do not include those students in district totals. In 2002, passing rates for the English MCAS test in the tenth grade were higher in Worcester (79%) than in Lowell (76%), Fall River (76%), and Springfield (71%). Passing rates for the math test in the tenth grade were also higher in Worcester (66%) than in Lowell (62%), Fall River (56%), and Springfield (47%).

Table 5-1 (on Page 15) shows the percentage of students passing the MCAS in Worcester's two charter schools. The Abby Kelley Foster Regional Charter School has seen a decline in the passing rates for the fourth and sixth-grade tests. However, it has maintained a relatively high passing rate for the seventh-grade English test. The Seven Hills Charter School has seen increases in its passing rates for all tests.

Continued on Page 15.

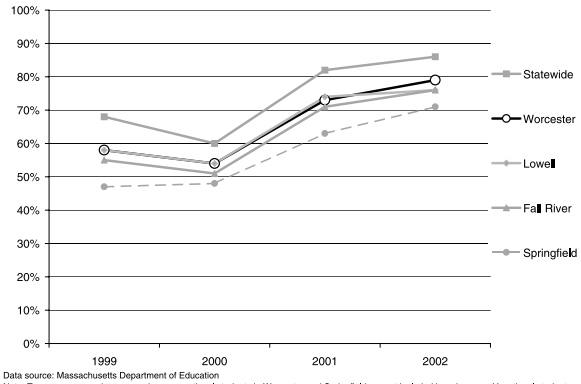
(For more detail on individual schools in the Worcester Public Schools, see the **Data Appendix** on page 17.)

Chart 5-4: 10th Grade MCAS Passing Rate for Worcester



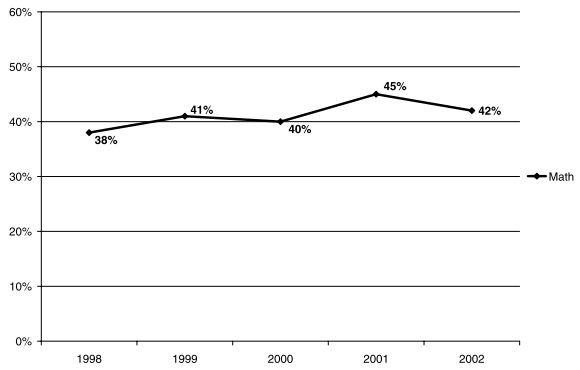
Data source: Massachusetts Department of Education

Chart 5-5: Passing Rates for 10th Grade English MCAS Exam, 1999-2002



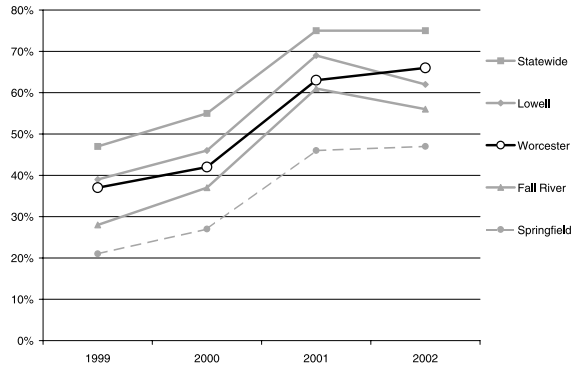
Data source: Massachusetts Department of Education
Note: To ensure appropriate comparisons, vocational students in Worcester and Springfield are not included here because Vocational students in Fall River and Lowell attend regional Vocational high schools and are therefore not included in district figures.

Chart 5-3: 8th Grade Math MCAS Passing Rate for Worcester



Data source: Massachusetts Department of Education

Chart 5-6: Passing Rates for 10th Grade Math MCAS Exam, 1999-2002



Data source: Massachusetts Department of Education
Note: To ensure appropriate comparisons, vocational students in Worcester and Springfield are not included here because Vocational students in Fall River and Lowell attend regional Vocational high schools and are therefore not included in district figures.

INDICATOR

5 MCAS Scores (cont.)

What does this mean for Worcester?

The class of 2003 is required to pass both the math and English MCAS tests, or be granted an appeal from the Massachusetts Department of Education, in order to graduate. The Department of Education will grant an appeal if the following criteria have been met:

1. ***They have taken the exam at least three times;***
2. ***They have on at least one attempt scored at least a 216 (a 220 is required to pass);***
3. ***They have maintained at least a 95% attendance level;***
4. ***They have participated in tutoring programs; and***
5. ***They have a grade point average that is similar to those of other students enrolled in the same course (the student's cohort).***

As of May 27, 2003, of the 1,317 students in the class of 2003, 1,117 (85%) had passed both tests or had been granted an appeal. Of the 200 that had not yet passed both exams or been granted an appeal, 89, or 44%, are regular education students, while the remainder are either special education students (75, or 37.5%), or are in alternative or residential programs.

While the average district-wide scores in Worcester are below the state average, there are many schools in the district that perform better than the state average. The Data Appendix at the end of the report shows scores for all schools. As well, several schools have 100% of students passing the tests, such as the Grafton Street School, Worcester Arts Magnet School, and May Street School in fourth grade English; and the Worcester Arts Magnet School and Thorndyke Road School in fourth grade math. Similarly, the University Park Campus School is the top performer in Worcester, with 100% of students passing exams at all levels except for the eighth grade math exam, in which 94% of its students passed.

As discussed in **Indicator 3: Family Involvement**, *there are several schools in Worcester with students who perform well on MCAS tests despite external challenges, such as high poverty, high mobility, and low parent involvement. For example, although many students at the Grafton Street School experience all of these conditions, average scores on the MCAS tests at the school are good. The average English MCAS score for students in the district who meet these criteria in the fourth grade is 228. Students who meet these criteria in the Grafton Street School, however, have an average score of 238.6, 10 points higher than their counterparts in other schools.* **Table 5-2** *shows those schools that perform well despite significant external challenges, and should be investigated more in depth to determine how to transfer these results to other schools that face the same challenges.*

Table 5-1: Passing Rates for Worcester Public Schools and Charter Schools

		1998	1999	2000	2001	2002	Difference, 1998-2002
Grade 4 Math	Abby Kelley Foster Charter	N/A	54%	56%	55%	42%	-12
	Seven Hills Charter	47%	59%	66%	66%	62%	+15
Grade 4 English	Abby Kelley Foster Charter	N/A	79%	66%	72%	68%	-11
	Seven Hills Charter	59%	54%	69%	69%	84%	+25
Grade 6 Math	Abby Kelley Foster Charter	N/A	N/A	N/A	51%	45%	-6
	Seven Hills Charter	N/A	N/A	N/A	51%	67%	+16
Grade 7 English	Abby Kelley Foster Charter	N/A	N/A	N/A	84%	86%	+2
	Seven Hills Charter	N/A	N/A	N/A	80%	97%	+17
Grade 8 Math	Abby Kelley Foster Charter	N/A	N/A	N/A	N/A	66%	N/A
	Seven Hills Charter	38%	23%	54%	50%	58%	+20

Table 5-2: High Performing Schools, 4th Grade

School	Percent Free Lunch (Avg = 53%)	Mobility Rate (Avg = 35%)	Family Involvement Score (Avg = 15.3%)	English Passing Rate (State = 90%)	Math Passing Rate (State = 81%)
Grafton Street	89.8%	35.7%	14.4	100.0%	84.0%
Canterbury Street	85.4%	36.4%	15.7	95.0%	84.0%
Belmont Street	89.5%	57.7%	14.6	91.0%	82.0%
Lincoln Street	76.0%	65.8%	11.8	88.0%	83.0%

District Profiles

District Profiles

City or Town	2001 Total Enrollment	Change in Enrollment 2000-2001	Number of Schools	% Limited English Proficiency, 2001	% Eligible for Reduced/Free Lunch, 2001	2001 Per pupil expenditures all day programs
Worcester	25,828	+1.2%	50	6.6%	52.2%	$7,423 *
Springfield	26,526	+2.3%	49	10.6%	66.9%	$7,494
Lowell	15,989	-1.7%	26	13.4%	61.1%	$7,814
Fall River	12,104	-0.6%	31	4.1%	50.2%	$7,016

Other Massachusetts Cities

Boston	63,024	+0.1%	135	21.0%	71.9%	$9,488
Brockton	16,791	-0.5%	25	7.6%	36.4%	$7,873
Lynn	15,318	+1.7%	30	13.3%	62.0%	$6,963
New Bedford	14,609	+0.8%	28	4.3%	57.7%	$6,930
Lawrence	12,494	-0.5%	21	25.2%	78.0%	$7,545
Chicopee	7,849	-0.8%	16	4.4%	36.4%	$7,090
Holyoke	7,284	-3.7%	14	26.9%	71.5%	$9,751
Cambridge	7,110	-2.5%	16	8.8%	36.4%	$13,410
Fitchburg	6,294	+5.1%	10	10.8%	49.7%	$6,788
Somerville	6,081	-4.3%	13	16.1%	63.8%	$10,008
Chelsea	5,741	+1.5%	9	17.3%	81.7%	$8,474

* Not adjusted for inflation

WORCESTER REGIONAL RESEARCH BUREAU

Data Appendix for 2001-2002 School Year

						MCAS PASSING RATES						
	Attendance Rate	Dropout Rate	Mobility Rate	Avg. Family Involvement	Post-Grad. Placement	4th Grade ENGLISH	4th Grade MATH	6th Grade MATH	7th Grade ENGLISH	8th Grade MATH	10th Grade ENGLISH	10th Grade MATH
DISTRICT	94.7%	5.6%	33.8%	14.8	82%	85%	75%	61%	77%	42%	72%	59%
Accelerated Learning Lab	94.8%	3.0%	30.9%	14.3*	93%	65%	36%	40%	81%	41%	85%	62%
Adams Street	94.7%	-	41.9%	12.3	-	89%	73%	54%	-	-	-	-
Belmont Street Community	94.9%	-	57.7%	14.6	-	91%	82%	63%	-	-	-	-
Burncoat High	91.0%	5.5%	30.5%	14.3	80%	-	-	-	-	-	77%	64%
Burncoat Middle	93.8%	-	35.0%	14.0	-	-	-	-	82%	47%	-	-
Burncoat St Prep	94.9%	-	33.5%	15.1	-	91%	72%	82%	-	-	-	-
Canterbury St Magnet	95.4%	-	36.4%	15.7	-	95%	84%	65%	-	-	-	-
Chandler Elementary	94.5%	-	49.0%	12.7	-	86%	60%	75%	-	-	-	-
Chandler Magnet	94.4%	-	40.6%	15.4	-	66%	59%	26%	-	-	-	-
City View	94.4%	-	34.2%	13.4	-	81%	72%	53%	-	-	-	-
Clark Street	96.0%	-	25.2%	15.9	-	94%	95%	57%	-	-	-	-
Columbus Park	95.0%	-	41.7%	12.5	-	91%	79%	52%	-	-	-	-
Doherty Memorial High	92.2%	4.8%	20.4%	14.3**	87%	-	-	-	100%	85%	78%	74%
Elm Park	94.1%	-	62.5%	13.1	-	58%	34%	33%	-	-	-	-
Flagg Street	95.9%	-	25.6%	16.1	-	96%	87%	76%	-	-	-	-
Forest Grove Middle	93.8%	-	25.8%	14.2	-	-	-	-	80%	39%	-	-
Gates Lane	95.2%	-	26.2%	16.0	-	84%	71%	52%	-	-	-	-
Goddard	95.1%	-	44.6%	12.4	-	76%	66%	60%	-	-	-	-
Grafton Street	95.4%	-	35.7%	14.4	-	100%	84%	86%	-	-	-	-
Granite Street	95.0%	-	46.5%	13.2	-	53%	61%	52%	-	-	-	-
Greendale	94.7%	-	34.9%	14.7	-	79%	66%	66%	-	-	-	-
Harlow Magnet	94.0%	-	48.3%	14.2	-	62%	50%	8%	-	-	-	-
Heard Street	96.2%	-	32.1%	14.6	-	89%	86%	67%	-	-	-	-
Jacob Hiatt Magnet	95.8%	-	22.4%	15.7	-	92%	88%	79%	-	-	-	-
Lake View	95.8%	-	28.8%	16.2	-	95%	82%	98%	-	-	-	-
Lincoln Street	94.4%	-	65.8%	11.8	-	88%	83%	75%	-	-	-	-
May Street	96.8%	-	21.9%	15.8	-	100%	80%	77%	-	-	-	-
McGrath	95.5%	-	36.0%	15.8	-	81%	84%	68%	-	-	-	-
Midland Street	96.3%	-	27.6%	15.3	-	82%	68%	74%	-	-	-	-
Mill-Swan Magnet	94.7%	-	24.5%	16.0	-	47%	47%	38%	-	-	-	-
Multiple Intell. (Dartmouth)	95.8%	-	40.7%	16.6	-	92%	62%	46%	-	-	-	-
Nelson Place	96.2%	-	22.0%	17.6	-	90%	73%	78%	-	-	-	-
New Ludlow	96.5%	-	21.4%	15.1	-	97%	88%	73%	-	-	-	-
Norrback Avenue	94.8%	-	33.8%	15.5	-	88%	84%	52%	-	-	-	-
North High	90.0%	7.6%	35.8%	13.5	81%	-	-	-	-	-	74%	57%
Quinsigamond	95.5%	-	38.0%	15.6	-	80%	79%	66%	-	-	-	-
Rice Square	95.8%	-	35.9%	16.6	-	85%	72%	48%	-	-	-	-
Roosevelt	95.0%	-	29.4%	16.5	-	84%	73%	67%	-	-	-	-
South High Community	90.0%	6.4%	36.7%	12.8	85%	-	-	-	-	-	71%	57%
Sullivan Middle	92.7%	-	30.7%	13.1	-	-	-	-	72%	41%	-	-
Tatnuck Magnet	95.8%	-	25.1%	17.0	-	95%	91%	78%	-	-	-	-
Thorndyke Road	95.2%	-	22.0%	17.5	-	98%	100%	68%	-	-	-	-
Union Hill	94.4%	-	42.6%	14.6	-	73%	71%	49%	-	-	-	-
University Park Campus	96.6%	0.0%	7.1%	13.8**	-	-	-	-	100%	94%	100%	100%
Vernon Hill	94.7%	-	46.9%	14.6	-	80%	81%	62%	-	-	-	-
Wawecus Road	95.9%	-	28.7%	16.9	-	81%	96%	76%	-	-	-	-
West Tatnuck	95.4%	-	28.6%	16.8	-	93%	87%	60%	-	-	-	-
Worcester Arts Magnet	95.8%	-	22.4%	16.9	-	100%	100%	93%	-	-	-	-
Worcester East Middle	93.2%	-	38.1%	13.6	-	-	-	-	70%	40%	-	-
Worcester Vocational High	92.3%	4.3%	17.1%	13.4	73%	-	-	-	-	-	57%	40%
CHARTER SCHOOLS												
Abby Kelley Foster	94.0%	-	15.3%	16.7*	-	69%	42%	45%	86%	66%	-	-
Seven Hills	95.0%	-	5.3%	15.1*	-	62%	84%	67%	97%	58%	-	-
COMPARISONS	(00-01)	(00-01)			(99-00)							
Worcester	94.3%	6.5%	-	-	75%	85%	75%	61%	77%	42%	72%	59%
Statewide	94.0%	3.5%	-	-	75%	90%	81%	70%	91%	67%	86%	75%
Fall River	91.9%	6.9%	-	-	68%	83%	66%	49%	83%	34%	76%	56%
Lowell	92.0%	9.8%	-	-	78%	79%	60%	43%	83%	46%	76%	62%
Springfield	88.2%	7.9%	-	-	76%	78%	62%	33%	73%	32%	59%	39%

Average Family Involvement Score - Lowest = 4; Highest = 20

* At the 4th grade level. 8th grade scores: Accelerated Learning Lab, 13.6; Abby Kelley Foster, 13.8; Seven Hills, 13.8.

** At the 10th grade level. 8th grade had a family involvement score of 17.0 at the Doherty Satellite Program and 13.0 at the University Park Campus School.

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The Research Bureau gratefully acknowledges the following individuals for their advice and assistance during the ongoing development of this project:

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