

# Measuring High School Graduation and Dropout Rates in the Boston Public Schools: The Findings of Alternative Estimating Methodologies

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**August 2005**

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## **Introduction**

The Youth Transition Funders Group, a coalition of local, regional, and national philanthropic organizations, has provided funding to five cities, including Boston, to undertake research and planning efforts to analyze high school dropout problems and develop strategies for reducing future dropout rates and attracting former dropouts back into the school system.<sup>1</sup> To assist the Boston Youth Transition Task Force in its efforts to analyze and assess the magnitude, nature, and consequences of high school dropout problems in the city, the Center for Labor Market Studies has been engaged in an array of research activities over the past six months.

This paper is designed to address a number of key issues involved in measuring high school graduation and dropout problems at the local level. Using four different methodologies developed by national, state, and local research organizations, we will present a set of estimates of high school graduation rates and dropout rates for Boston public high schools over the past decade. Comparisons of Boston public high school graduation and dropout rates will be made with those for the state as a whole. Where available, findings on graduation and/or dropout rates will be presented by type of high school, graduate level, gender, and race-ethnic subgroups of students. Findings from alternative methods will be reviewed and assessed. A set of desired future research activities will be outlined at the end of the paper.

## **Alternative Methodologies for Estimating High School Graduation and Dropout Rates**

The measurement of graduation and dropout rates has been a controversial issue. Part of this is due to the fact that varying methodologies used by independent researchers have led to radically different results from the graduation and dropout rates reported by states. Recently, the measurement of graduation rates has received even more attention as states are now required to submit graduation rates to the federal government as part of the reporting component under the No Child Left Behind Act (NCLB).<sup>2</sup>

There are a number of alternative definitions and measures of graduation and dropout rates. In this paper we will look at the following four measures:

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<sup>1</sup> The other cities involved in the planning stage of the demonstration are New York City, Philadelphia, Portland (Oregon) and San Jose.

<sup>2</sup> See: Daria Hall, *Getting Honest About Grad Rates: How States Play the Numbers and Students Lose*, The Education Trust, Washington D.C., June 2005

- The Basic Completion Rate, sometimes referred to by its acronym (BCR), which measures the ratio of the number of high school graduates in a given year (T) to the number of high school freshmen in the city’s public high schools three years earlier (T – 3).<sup>3</sup>
- The Cumulative Promotion Index which uses data on high school enrollments from grades 9 to 12 over a two-year period and the number of high school graduates in a given year to estimate the on-time graduation rate for high school students.
- The annual and projected four-year dropout rates for the Boston public high school district from the Massachusetts Department of Education. These dropout rates are based on definitions developed by the Massachusetts Department of Education and based on data reported annually by each school district.<sup>4</sup>
- The ninth grade cohort dropout rates for a given class of high school students developed by the Boston Public School System. The “cohort rate” methodology measures the fraction of incoming high school freshmen who will dropout of high school over the next four years. For example, of the incoming freshmen class in the fall of 2000, how many will drop out of school by June of 2004, the expected date of high school graduation for students who are on-time graduates.<sup>5</sup>

As will be revealed below, these four alternative methodologies for estimating high school graduation and dropout rates yield quite different answers about the graduation rate. Part of these differences is attributable to differences in the measures themselves, but there are some unexplained differences in these estimates of graduation rates that require further research and analysis.

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<sup>3</sup> See: Christopher B. Swanson, “Sketching a Portrait of Public High School Graduation: Who Graduates? Who Doesn’t,” in Dropouts in America, (Editor: Gary Orfield), Harvard Education Press, Cambridge, pp. 13-40.

<sup>4</sup> For a review of the current formulas used by the Massachusetts Department of Education to calculate the annual and four year dropout rate for the state and individual school districts, See: Massachusetts Department of Education, Statistical Reports, Dropout Rates in Massachusetts Public Schools: 2002-03, Dropout Rate Calculations and Data Collection, website, 2000.

<sup>5</sup> For a review and critique of alternative methodologies for measuring high school graduation and dropout rates at the national and state level,

See: Andrew Sum, Paul Harrington, et. al., The Hidden Crisis in the High School Dropout Problems of Young Adults in the U.S., Report Prepared for the Business Roundtable, Washington, D.C., 2002; (ii) Philip Kaufman, “The National Dropout Data Collection System: History and the Search for Consistency”, in Dropouts in America Confronting Graduation Rate Crisis, (Editor: Gary Orfield), Harvard Education Press, Cambridge, 2004.

## **Estimates of High School Graduation Rates with the Basic Completion Rate (BCR) Methodology**

The first methodology for estimating the high school graduation rate involves a comparison of the number of actual high school graduates during a given year (2004) with the number of high school freshmen enrolled in public schools in the fall four years earlier (Fall 2000). The algebraic formula for this calculation is the following:

$$\text{BCR graduation rate, year } t = G_t / \text{ENR}_{9, t-4}$$

Where  $G_t$  = Number of high school graduates in the spring of year  $t$

$\text{ENR}_{9, t-4}$  = Number of enrolled 9th graders in the fall four years earlier

Suppose that there are 800 high school graduates in a given year (2004) and 1000 freshmen in the fall term four years earlier (2000), then the BCR graduation rate would be equal to  $800 / 1000 = .80$ .

The BCR graduation rate has a number of technical advantages and is readily understood by the general public. It only requires two pieces of data, the number of high school graduates during a given school year and the number of enrolled high school freshmen four years earlier. Data for both of these variables are readily available and do not require any information on the estimated number of dropouts, which are believed by many educational analysts to be unreliable.<sup>6</sup> There are, however, several factors that can complicate the interpretation of the BCR graduation rate. First, if students are held back in a given year of high school, especially the ninth grade, it will inflate the number of ninth grade and reduce the number of graduates three years later even if all those held back eventually do graduate. A similar problem can occur if students need to spend an additional year of school at the end of high school to complete graduation requirements, including passing the MCAS exam. Second, the BCR graduation rate will be affected by the number of net transfers into or out of the school system. If more students leave the local public school system to transfer to private schools or to other school districts then move into the system from other districts, then the BCR graduation rate will decline even though the number of true dropouts has not risen. These net transfers out of the school system will lower the value of  $G$  while leaving  $\text{ENR}_9$  unchanged, thus lowering the graduation rate.

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<sup>6</sup> See: (i) Gary Orfield (Editor), Dropouts in America...; (ii) Andrew Sum and Paul Harrington, The Hidden Crisis in High School Dropout Problems...

Estimates of BCR graduation rates for the city of Boston’s public high schools for the Classes of 1998 to 2003 are displayed in Table 1 and Chart 1. Findings in Table 1 are displayed for all high schools combined and for the three exam schools (Latin, Latin Academy, O’Bryant Technical) and the district / magnet schools separately.<sup>7</sup>

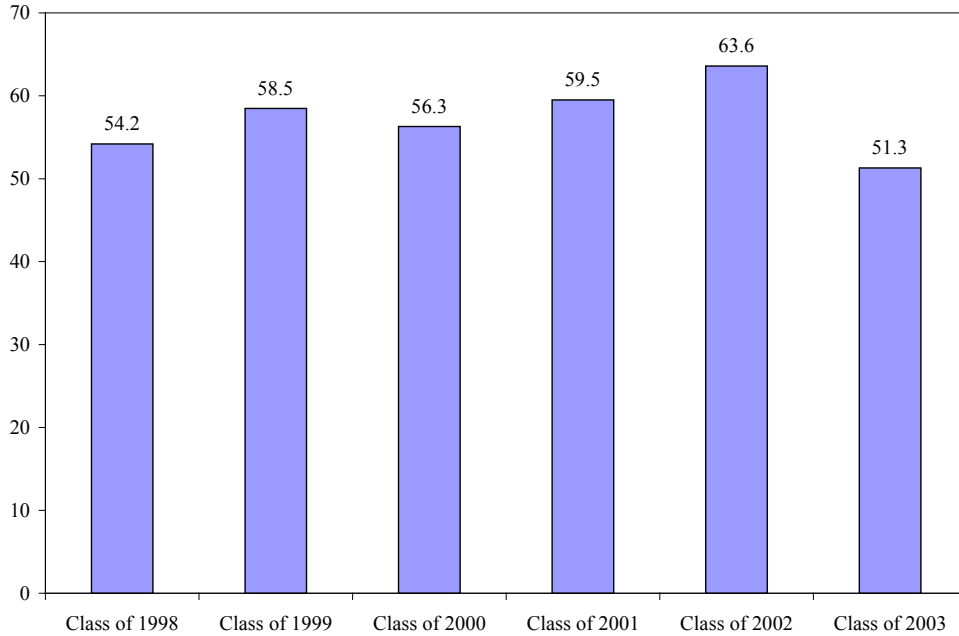
**Table 1:**  
Trends in High School Graduates as Percent of Freshmen Enrollees (9th Grade) in Boston Public Schools, Classes of 1998 to 2003, Total and by Exam and District/Magnet Schools

<b><u>Exam Schools</u></b>			
Class	Freshmen Enrollees	Graduates	Graduates as % of Freshmen
1998	1,012	738	72.9
1999	1,074	740	68.9
2000	1,053	717	68.1
2001	1,059	734	69.3
2002	1,067	747	70.0
2003	1,103	772	70.0
<b><u>District/Magnet Schools</u></b>			
1998	3,986	2,188	54.9
1999	4,095	2,062	50.4
2000	4,049	2,157	53.3
2001	3,969	2,258	56.9
2002	4,183	2,591	61.9
2003	4,483	2,092	46.7
<b><u>All Schools</u></b>			
1998 <sup>1</sup>	4,998	2,926	58.5
1999 <sup>1</sup>	5,169	2,802	54.2
2000 <sup>2</sup>	5,102	2,874	56.3
2001 <sup>2</sup>	5,028	2,992	59.5
2002 <sup>3</sup>	5,250	3,338	63.6
2003 <sup>4</sup>	5,586	2,864	51.3

**Note:** <sup>(1)</sup> 16 Schools, <sup>(2)</sup> 19 Schools <sup>(3)</sup> 21 Schools <sup>(4)</sup> 20 Schools. Number of high school reporting graduates increased over the reporting period due to an expansion in number of alternative magnet schools

<sup>7</sup> The number of district / magnet high schools in the city of Boston reporting some graduates increased over the time period being analyzed from 16 to 21. Many of these were small high schools

Chart 1:  
Number of High School Graduates as a Percent of Freshmen Enrollees (9th Grade) in  
Boston Public High Schools, Classes of 1998 to 2003  
 (in %)



Over the six year period (Graduating Classes of 1998 to 2003), the BCR graduation rate varied from a low of 51.3% for the Class of 2003 to a high of just under 64% for the Class of 2002. The Class of 2002 was the last graduating class that did not have to pass the MCAS exam to receive a high school diploma from the Boston public schools. There were strong incentives for students in the pipeline to complete all of their graduation requirements before the MCAS provisions took hold. The number of Boston public high school graduates from the Class of 2003 fell by nearly 500 from the previous year even though the number of freshmen three years earlier had risen to nearly 5,600. A bigger freshmen class combined with a sharp decline in the number of graduates pushed the BCR graduation rate down to 51 percent for the Class of 2003, the lowest rate in the six-year period covered by our analysis.<sup>8</sup>

Findings for the exam and district / magnet schools show large differences in BCR graduation rates between these two groups of high schools. On average, over the past six years,

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<sup>8</sup> Part of the rise in the number of freshmen in recent years may be due to a tendency to hold students back in the ninth grade due to poor academic performance, including poor scores on the MCAS test. Nationally, there has been a rise in the number of ninth graders who are not being promoted to the 10<sup>th</sup> grade encouraging some school districts to alter the organization of schools for ninth graders to improve school attachment and grade promotion. Robert Tomsho, "Schools Focus Extra Efforts on Ninth Grade," The Wall Street Journal, August 24, 2005, pp. B-1-B-2.

70 percent of the freshmen in the three exam high schools graduated three years later versus only 54% of the students the district / magnet schools. For the Class of 2003, the gap between the graduation rates of these two groups of schools widened considerably to more than 23 percentage points. As expected, the exam schools appear to have been completely unaffected by the MCAS requirements while graduation rates from the district / exam schools plummeted sharply. Improvement in citywide BCR graduation rates will require a major improvement in the on-time graduation rates of students in the district / magnet schools, which in turn will necessitate a sharp increase in the ability of the students in those schools to pass the MCAS exam and meet other graduation requirements.

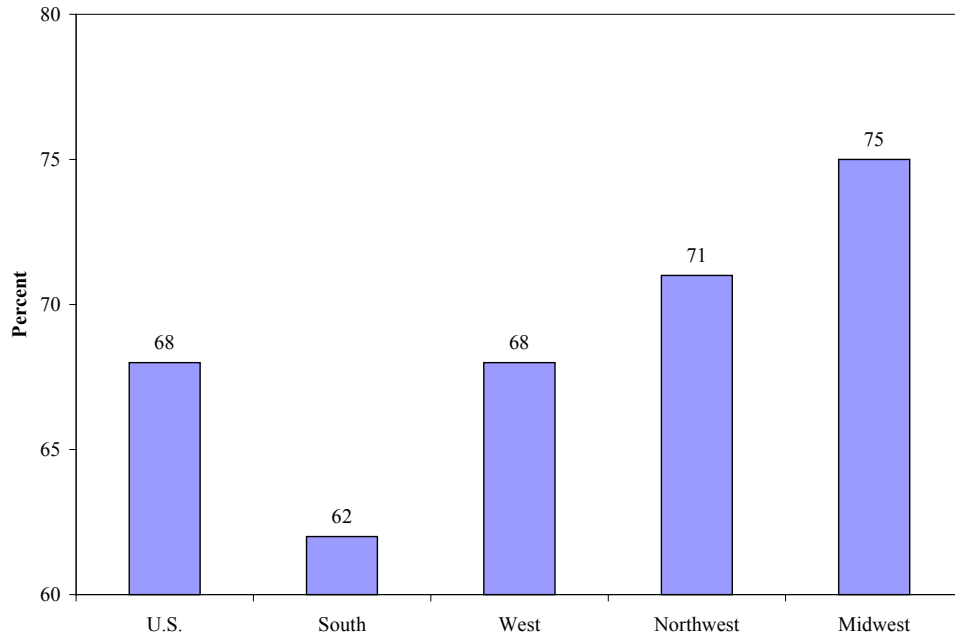
### **Estimates of High School Graduation Rates Based on the Cumulative Promotion Index (CPI)**

High school graduation rates for the Boston Public Schools also can be calculated using a relatively new measure called the Cumulative Promotion Index, known by its acronym the CPI. The CPI was developed by researchers at the Urban Institute in Washington, D.C. and is particularly useful in comparing on-time graduation rates across public school districts, states, and the nation as a whole. In a research report by Christopher B. Swanson titled: Who Graduates? Who Doesn't? A Statistical Portrait of Public High School Graduation, Class of 2001, values of the CPI index are calculated for the U.S., the four geographic regions, the 50 states, and the ten largest school districts in each state using the Common Core of Data (CCD) maintained by the U.S. Department of Education.<sup>9</sup> The CPI graduation rate for public schools in the entire nation for the class of 2001 was estimated to be 68% (Chart 2). These graduation rates varied sharply across regions and states. The CPI index was lowest in the South (62%) and highest in the Midwest region (75%). Massachusetts had a CPI index of 71% for the class of 2001, only ranking 26<sup>th</sup> highest among the 50 states and the District of Columbia. In this section of the paper, we present our estimates of the CPI for the Boston Public School District for each graduating class between 2000 and 2004.

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<sup>9</sup> This report was published by the Urban Institute in 2004. A condensed version of this report appears in a paper prepared by Christopher B. Swanson the volume Dropouts in America, edited by Gary Orfield.

Chart 2:  
Class of 2001 Graduation Rates for the Nation and the Four Geographic Regions



Source: Christopher B. Swanson in Dropouts in America.

### **Data Requirements for Calculating the CPI Index**

The Urban Institute calculates the values of the CPI using enrollment data and graduation data from the Common Core of Data (CCD). The CCD is based on a survey of the nation's public elementary and secondary schools. We replicate the same formula (explained below) that was developed by the Urban Institute; however, instead of relying on the CCD data base for the number of diplomas awarded to Boston Public School graduates, we have used data provided to the Boston Private Industry Council by the Boston Public Schools. Also, we use public high school enrollment data by grade level from the Massachusetts Department of Education (DOE). The enrollment data obtained from the Massachusetts D.O.E. should match closely the figures reported in the CCD because the state submits the CCD data base enrollment data to the federal government's Department of Education. By using enrollment data from the Massachusetts D.O.E and the graduation data provided by the Boston public schools to the Boston Private Industry Council, we are able to calculate the CPI for 2003 and 2004. These calculations would not be possible if we relied on the CCD database because the data for those two years has not yet been made public by the U.S. Department of Education.

## The CPI Methodology

The CPI index basically represents the probability that a student entering the 9<sup>th</sup> grade will complete high school on time and receive a traditional high school diploma. The CPI measures the high school graduation rate in a four step process. The first step involves estimating the number of students who achieve promotion from 9<sup>th</sup> grade to 10<sup>th</sup> grade between two school years. The second and third steps generate estimates of the rates of promotion from 10<sup>th</sup> to 11<sup>th</sup> grade and from 11<sup>th</sup> to 12<sup>th</sup> grade. The fourth step estimates the percent of high school seniors moving from the 12<sup>th</sup> grade to becoming a high school graduate in the same school year. Each step of the process is converted into a ratio (10<sup>th</sup> grade class/9<sup>th</sup> grade class of the preceding school year). The value of the index is then the product of the four ratios (see Table 2 for the specific elements of the formula). The CPI is calculated by using enrollment and graduation data for two neighboring years. For example, the CPI index for the class of 2005 depends on enrollment data for the classes of 2005 and 2006 and graduation data for the class of 2005. Official estimates of the number of dropouts do not enter the formula. This is considered by its designers to be a major virtue of the formula. The following section discusses our CPI calculations for the classes of 2000, 2001, 2002, 2003, and 2004.

Table 2:  
The Formula for Calculating the Cumulative Promotion Index for  
A Hypothetical Graduating Class, Class of 2005

$$\text{CPI index}_{2005} = \frac{10^{\text{th}}_{2006}}{9^{\text{th}}_{2005}} * \frac{11^{\text{th}}_{2006}}{10^{\text{th}}_{2005}} * \frac{12^{\text{th}}_{2006}}{11^{\text{th}}_{2005}} * \frac{G_{2005}}{12^{\text{th}}_{2005}}$$

where  $9^{\text{th}}_{2005}$  = Number of ninth graders enrolled in school at the beginning of the 2004-2005 school year.

$10^{\text{th}}_{2006}$  = Number of tenth graders enrolled in school at the beginning of the 2005-2006 school year.

$G_{2005}$  = Number of high school graduates during the 2004-2005 school year.

$12^{\text{th}}_{2005}$  = Number of high school seniors at beginning of 2004-2005 school year.

It should be noted that the CPI does possess a few shortcomings as a measure of the true graduation rate. First, the CPI cannot account for students who transfer to a private school or another school system and graduate on time. These transferring students would be included in 9<sup>th</sup> and possibly 10<sup>th</sup> and 11<sup>th</sup> grade enrollments (depending on the timing of their transfer) but would not appear in the graduate count, thereby depressing the value of the CPI ratio. Secondly,

students who are held back in 9<sup>th</sup> or later grades but who eventually go on to graduate from high school will lower the value of the 10/9 or 12/11 ratios and thereby depress the value of the CPI index even though the graduation rate remains unchanged. Proper interpretation of the CPI index, thus, depends on knowledge of net transfers out of the Boston public schools, the eventual graduation status of those who transfer out, and the numbers of students retained in grade levels over time.

### **CPI Estimates for the Boston Public High Schools**

The CPI estimates of on-time high school graduation rates for the Boston public schools over the past five school years closely approximate those from the earlier BCR methodology. The CPI graduation rates range from a low of 50.7% for the Class of 2003 to a high of 64% for the Class of 2002. In four of the five years, the CPI graduation rate fell in the 51 to 55 percent range. As was the case for the BCR methodology, there was a substantial rise in the CPI graduation rate for the Class of 2002, the last graduating class that did not have to pass the MCAS exam to receive a diploma. In the next year, there was a steep decline in the graduation rate to 51% before rising back to 53% in the following year.

Chart 3:  
The Values of the CPI Index for Boston Public High Schools Classes of 2001 to 2004

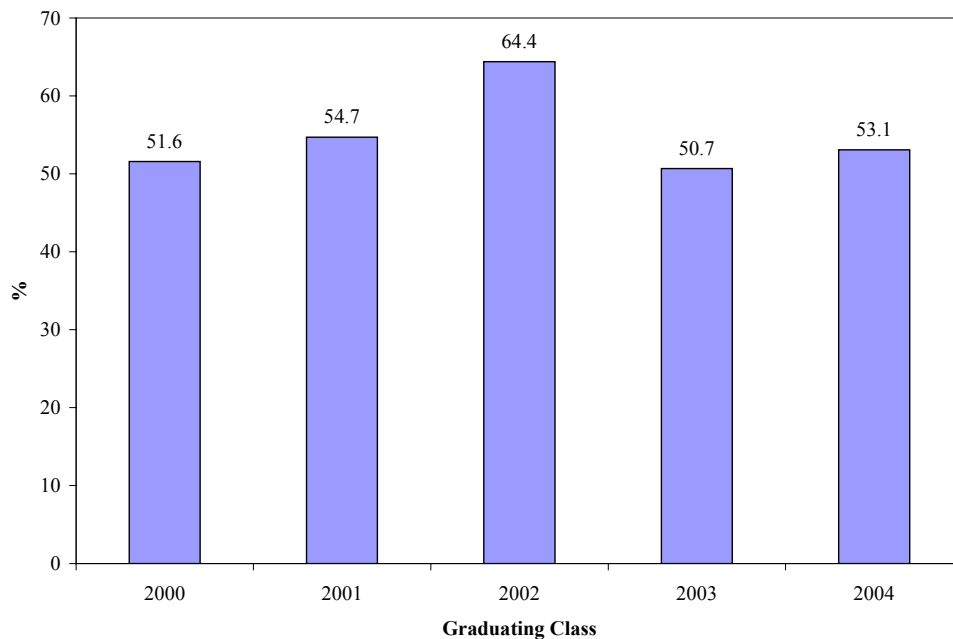


Table 3:  
Estimates of the High School Graduation Rate for the Boston Public Schools Based on the  
Cumulative Promotion Index, Classes of 2000 to 2004

	(A)	(B)	(C)	(D)	(E)
Graduating Class	10/9	11/10	12/11	G/12	CPI (%)
CPI- 2004	4,849/6,169	4,070/4,646	3,956/4,031	3,031/3,856	53.1
CPI-2003	4,646/5,876	4,031/4,670	3,856/3,986	2,938/3,826	50.7
CPI-2002	4,670/6,149	3,986/4,288	3,826/3,863	3,516/3,820	64.4
CPI-2001	4,288/6,009	3,863/4,026	3,820/4,093	3,221/3,765	54.7
CPI-2000	4,026/5,634	4,093/4,340	3,765/4,171	2,944/3,469	51.6

A more detailed examination of the factors driving up the CPI graduation rate for the Class of 2002 reveals that two key developments underlies this rise: a very high fraction of high school juniors being promoted to the 12<sup>th</sup> grade (99%) and a very high share of high school seniors graduating with their class (92%). In the following school year, there was a sharp decline in the number of high school seniors who graduated with their class, only 77% did so. Similar results prevailed for the Class of 2004. Only 78% of the seniors in the fall of 2003 graduated with regular high school diploma in the spring and summer of 2004. A better understanding of the forces underlying this much lower graduation rate for high school seniors, including an inability to pass the MCAS exam, is critical for designing future initiatives to improve the graduation rate for Boston public high school students. A more detailed understanding of the factors underlying the low share of ninth graders moving to the tenth grade over the past five years also would be desirable. Over the past two years, only 78% of the district’s ninth graders are enrolled in the 10<sup>th</sup> grade in the following school year. This low mobility rate of ninth graders can be due to students being held back in grade, dropping out of high school, or transferring out of the local public school system. Knowledge of the contributions of each of these three factors to the low mobility rate is indispensable for future educational policymaking.

### **Annual and Four Year Dropout Rates for Boston Public High Schools**

The Massachusetts Department of Education has provided estimates of both annual and projected four-year dropout rates for the state’s public high schools by district and for the state as

a whole.<sup>10</sup> The State Department of Education has relied upon a dropout rate formula developed by the U.S. Department of Education. According to these rules, “a dropout is defined as a student in grade nine through twelve who leaves school prior to graduation for reasons other than transfer to another school and does not re-enroll before the following October 1”. Students who leave school prior to entering the ninth grade are excluded from these calculations. Annual dropout rates are calculated by dividing the number of school dropouts between July 1 of the school year and June 30 of the following calendar year by the number of students enrolled in high school as of October 1 of the school year.

Estimates of the annual dropout rates of Boston public high school students for the school years 1992-1993 through 2002-2003 are displayed in Table 4. Comparisons with the annual dropout rates for the state as a whole also are provided in that table. The annual dropout rates for city of Boston public high school students ranged from a low of 7.0% (2001-2002 school year) to a high of just under 10% in the 1998-99 school year. After rising steadily from 7.2% in 1996 to 9.8% in 1999, the annual dropout rates from Boston fell sharply over the next three years to 7.0%, the lowest dropout rate in the past decade, before turning up to 7.7% for the 2002-2003 school year.<sup>11</sup> The annual dropout rate for the city’s public schools has exceeded that of the state by anywhere from 3 to 6 percentage points over the last decade. Since 2000, the city’s annual high school dropout rate has been between two and three times higher than that of the state.

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<sup>10</sup> For a review of current dropouts definitions and data collection procedures, See: Massachusetts Department of Education, Dropout Rates in Massachusetts Public Schools: 2002-2003, Dropout Rate Calculations and Data Collection, website, 2003.

<sup>11</sup> The annual dropout rates for the 2002-2003 school year are the first to be based on the state’s student record system known as the Student Information Management System (SIMS). Data for individual students are reported on this system by local school districts to the state Department of Education

Table 4:  
Annual Dropout Rates for Boston and Massachusetts Public Schools,  
School Years, 1993 to 2003

	(A)	(B)	(C)
School Year	Boston	Massachusetts	Boston – Massachusetts
1993	7.6	4.0	+3.6
1994	7.5	4.3	+3.2
1995	8.1	3.6	+4.5
1996	7.2	3.4	+3.8
1997	8.1	3.4	+4.7
1998	8.7	3.4	+5.3
1999	9.8	3.6	+6.2
2000	9.4	3.5	+5.9
2001	8.5	3.5	+5.0
2002	7.0	3.1	+3.9
2003	7.7	3.3	+4.4

Source: Massachusetts Department of Education, selected years.

The annual dropout rates for Boston public school students for the 2002-2003 school year are displayed by grade level, gender, and race-ethnic group in Charts 4 and 5. Somewhat surprisingly, annual dropout rates varied only slightly across the four high school grades, being only slightly higher among ninth graders (7.9%) than their counterparts in the higher grades. The annual dropout rates for juniors and seniors were 7.4%. As noted earlier in our discussion of the CPI graduation rates, the share of beginning high school seniors who graduated with their class has declined considerably over the past few years. Part of this decline is clearly attributable to their dropping out of high school.

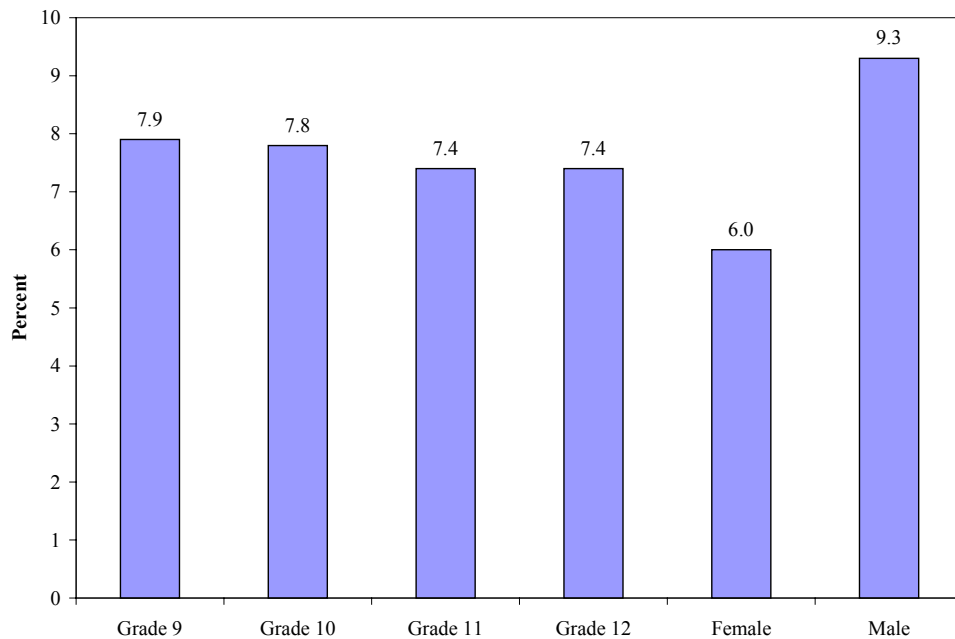
The dropout rate among male high school students in Boston during the 2002-2003 school year was sharply higher than among women (9.3% vs. 6.0%). As revealed in a series of earlier research papers prepared by the Center for Labor Market Studies for the Boston Private Industry Council, there have been growing gender gaps in high school attendance in the city's three exam high schools, in high school graduation rates, college attendance rates, and especially four year college attendance rates.<sup>12</sup> The gender gaps in college attendance rates are particularly large among Blacks and Hispanics and among students attending the district and magnet high

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<sup>12</sup> See: Andrew Sum and Neil Sullivan, Gender Gaps in High School Dropout Rates and College Attendance Rates in Massachusetts and Its Large Cities, Center for Labor Market Studies, Northeastern University, Boston, 2002.

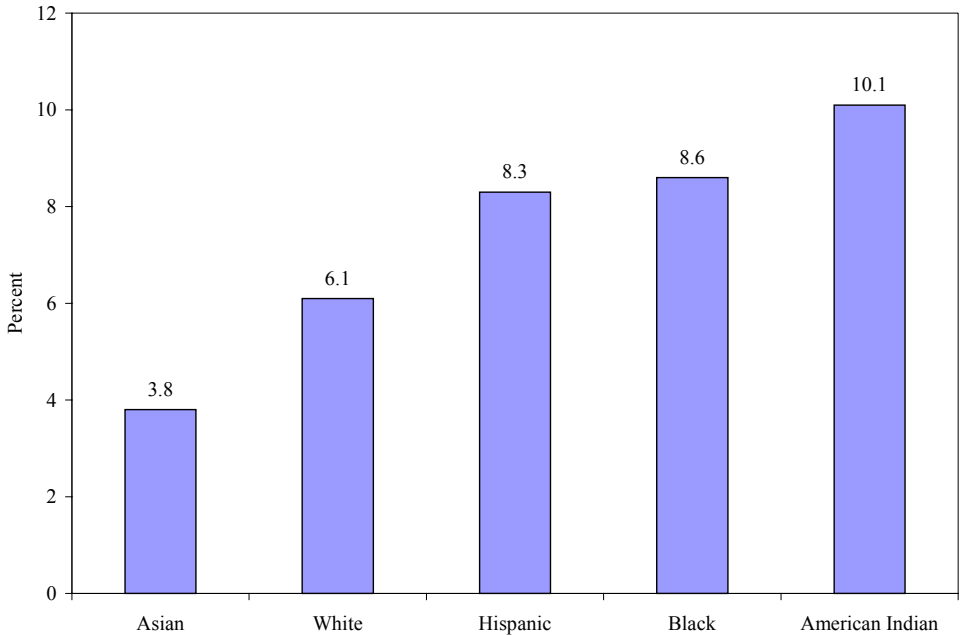
schools in the city. There is a clear need for new program strategies that can help boost the academic achievement, high school graduation rates, and college attendance rates of male high school students in Boston and in many other central cities across the state.

Chart 4:  
2002-2003 Annual Dropout Rates of Boston Public High School Students by Grade and Gender  
(in %)



High school dropout rates among Boston public high school student also varied widely across race-ethnic groups during the 2002-2003 school year. The dropout rates varied from a low of 3.8% among Asians to between 8 and 9 percent for Hispanic and Black students to a high of 10% among a small number of American Indian students. The racial / ethnic pattern of dropout rates mirrors closely that for the state as a whole. Further information on gender differences in dropout rates across race-ethnic groups would be highly desirable.

Chart 5:  
2002-2003 Annual Dropout Rates of Boston Public High School Students by Race-Ethnic Origin  
(in %)



The Massachusetts Department of Education also generates estimates of projected four-year dropout rates for past, current, and future graduating classes. These four year dropout rates are based on a formula that takes into consideration the dropout rate for each high school grade in the appropriate year for that graduating class. For example, the projected four year dropout rate for 2006 is based on the dropout rate of grade 9 students during the 2002-2003 school year and the dropout rates of students in grades 10, 11, and 12 during that same year (Table 5). The key assumption underlying this formula is that dropout rates for future 10<sup>th</sup>, 11<sup>th</sup>, and 12<sup>th</sup> graders will be the same as those currently experienced by students in those three grades.

Table 5:  
The Statistical Formula for Calculating the Projected Four Year  
Dropout Rate for Class of 2006 Graduates in a Hypothetical School District

$$\text{Projected Four Year Dropout Rate} = [1 - (1 - A)(1 - B)(1 - C)(1 - D)] * 100$$

Where A = Observed dropout rate for 9<sup>th</sup> graders in 2003.  
 B = Observed dropout rate for 10<sup>th</sup> graders in 2003.  
 C = Observed dropout rate for 11<sup>th</sup> graders in 2003.  
 D = Observed dropout rate for 12<sup>th</sup> graders in 2003.

Let A = 6.0  
 B = 5.0  
 C = 4.5  
 D = 4.0

$$\begin{aligned} \text{Projected Four Year Dropout Rate} &= [1 - (.940)(.950)(.955)(.960)] \\ &= 1 - .819 = \underline{.181} \end{aligned}$$

Estimates of four year dropout rates for all Boston public high school students and those in the state as a whole for the 1995-96 through 2002-2003 school years are displayed in Table 6. The projected four year dropout rates for the Boston public schools varied from a low of 26 percent to a high of 34 percent over this eight year period, with dropout rates of 30 to 34 percent prevailing over the past four years. These findings imply that approximately one-third of the city's public high schools will not graduate from high school with a regular diploma. The four-year dropout rates for Boston have been at least twice as high as those of the state as a whole over the past eight school years. The projected four-year dropout rate for the state has only been estimated at 13 to 14 percent over the past few years. This implies a high school graduation rate of somewhere between 86 and 87 percent. This estimated state graduation rate, however, is considerably higher than that generated by three alternative methodologies, including the Basic Completion Rate (72% for the Class of 2003), the CPI methodology (71% for the Class of 2001), and the official diploma award methodology (79.5% for the Class of 2003).<sup>13</sup> A better understanding of the sources of these discrepancies is clearly desired.

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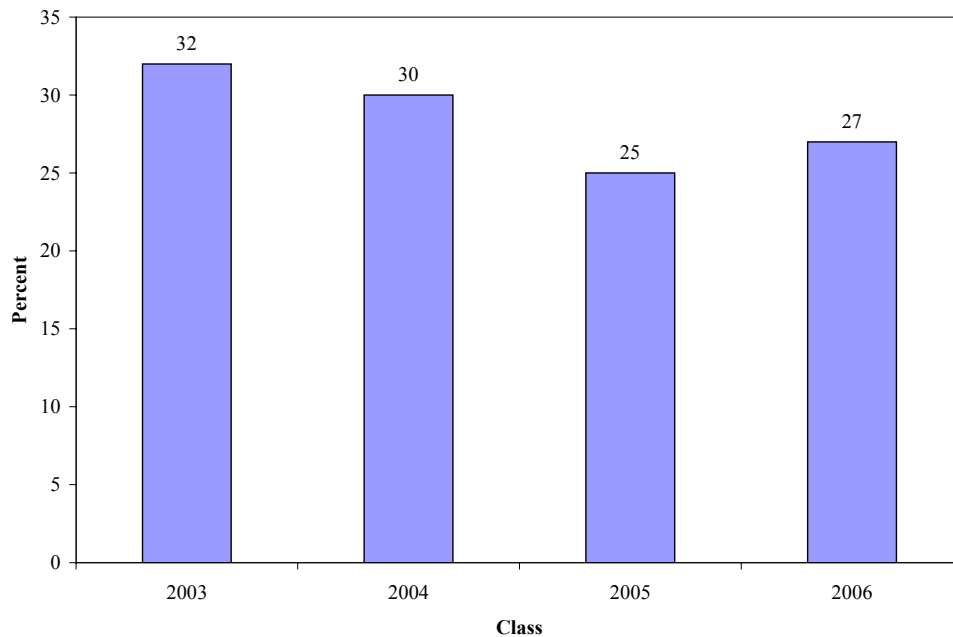
<sup>13</sup> The "diploma awards" methodology compares the actual number of high school diplomas awarded by public and private high schools during a given year with the average number of 17 to 18 year olds in the state. See: Andrew Sum, Paul Harrington, et. al., The Hidden Crisis in the High School Dropout Problems of Young Adults in the U.S.

Table 6:  
Projected Four-Year Dropout Rate for Public High School  
Students in Massachusetts and the City of Boston, 1996 – 2003  
(in %)

	(A)	(B)	(C)
School Year (Ending Date)	State	Boston	Boston – State
1996	13%	27%	+14
1997	14%	27%	+13
1998	14%	29%	+15
1999	13%	26%	+13
2000	13%	30%	+17
2001	13%	31%	+18
2002	14%	34%	+20
2003	13%	32%	+19

The Massachusetts Department of Education also has generated projected four-year dropout rates for each public school district through the Class of 2006. Over the four year period (2003-2006), the four-year dropout rate for Boston public schools is projected to decline from 32 for the Class of 2003 to 25 percent for the Class of 2005 before rising back to 27 percent for the Class of 2006. The projected drift in the four-year dropout rate reflects the lower annual dropout rates in recent years; however, even under the most favorable of these projections, no less than one-fourth of the city’s public high school students will fail to leave high school with a regular high school diploma.

Chart 6:  
Projected Four-Year Dropout Rates for Boston Public High School Students,  
Classes of 2003 through 2006



### **The Boston Public Schools Ninth Grade Cohort Dropout Rate**

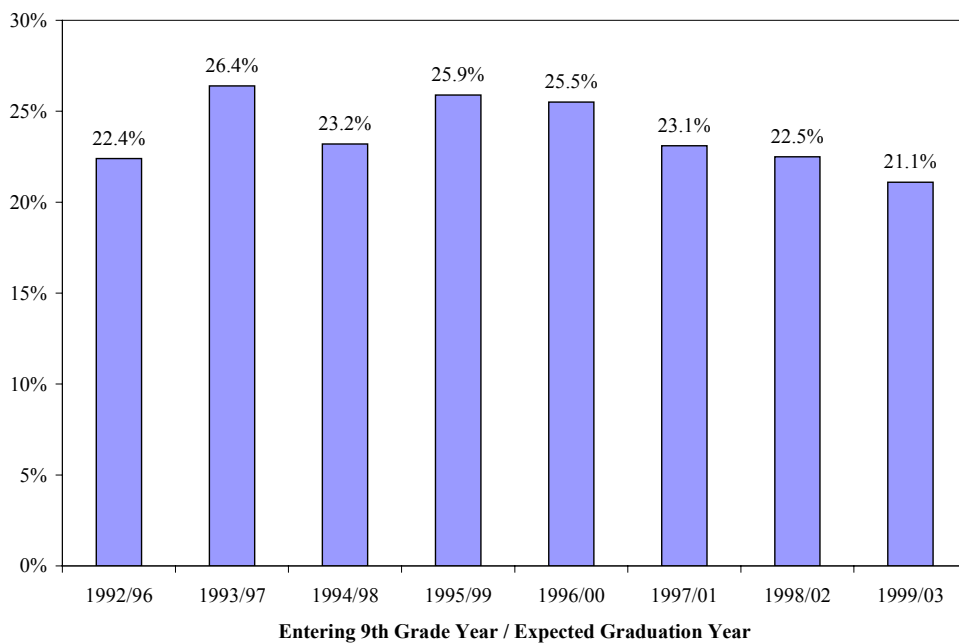
The fourth methodology used to estimate dropout rates is the “Ninth Grade Cohort Dropout Rates” developed by the Boston Public Schools. This methodology is designed to estimate the proportion of students entering the ninth grade in year  $t$  who will dropout of high school by year  $t + 4$ .<sup>14</sup> For example, of the new cohort of high school freshmen in the fall of 1999, how many will dropout of high school by June 2003. One cannot, however, use this estimated dropout rate to calculate a graduation rate. The fact that a student who entered high school in September 1999 had not dropped out by June 2003 does not automatically imply that he/she has graduated with a regular high school diploma. The student may have transferred out of the city’s public high schools or remained in high school at the end of the 2002-2003 school year unable to meet course requirements or pass the MCAS exam. Knowledge of the current diploma status of all entering ninth graders in the fall of 1999 and the fall of 2000 is essential for understanding the ability of high school students to graduate on time or with a time lag.

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<sup>14</sup> For further details on this methodology, See: Boston Public Schools, Office of Research, Assessment, and Evaluation, Q and A, Boston Public Schools, 2003-2004: Student Dropout, Boston, February 2005.

Estimates of the Ninth Grade Cohort Dropout Rates for the entering Boston high school freshmen classes of 1992 to 1999 are displayed in Chart 7 below. These dropout rates ranged from a low of 21 percent for freshman in the entering Class of 1999 to highs of 26 percent for entering freshmen in 1993 and 1995. The Ninth Grade Cohort Dropout rate has declined for five consecutive years, falling to a 20 year low. The cohort dropout rate methodology does not yield nearly the same dropout rates as those generated by the Massachusetts Department of Education’s projected four-year dropout methodology. Part of the discrepancy seems to lie in different dropout rates recorded for individual high schools in the BPS and DOE studies.<sup>15</sup> A more disaggregated analysis of the data used by the Boston Public Schools in the Ninth Grade Cohort studies is needed to help understand the sources of the lower dropout rates reported with the use of this specific methodology.

Chart 7:  
Trends in the Ninth Grade Dropout Rates for Boston’s Public High Schools  
1992-96 to 1999-2003

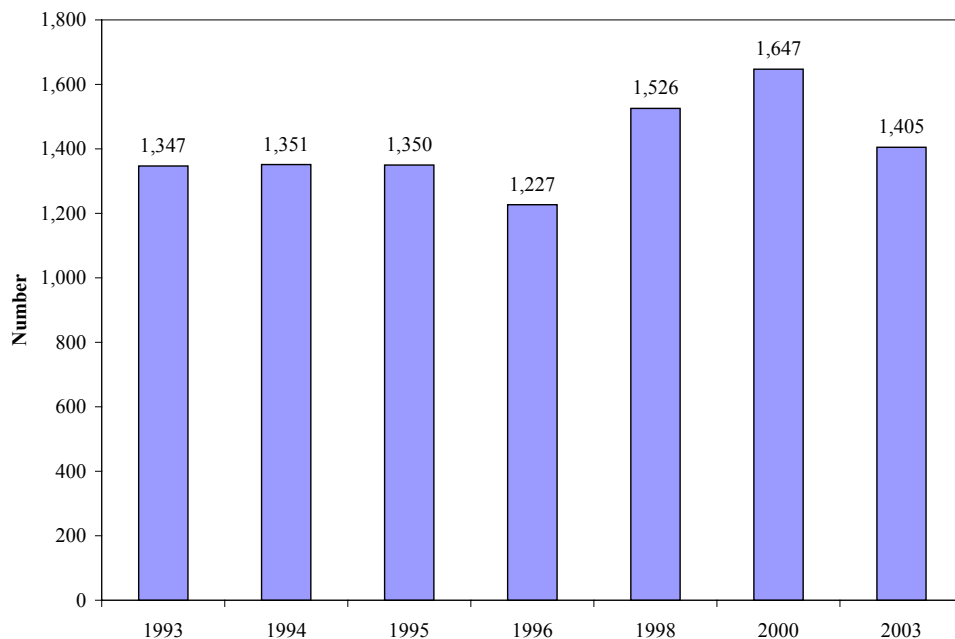


Regardless of the methodologies one uses to estimate high school graduation and dropout rates in the Boston public schools, nearly all observers would agree that far too many young students leave high school each year without obtaining a regular high school diploma. The official reported annual number of high school dropouts from Boston public schools for selected

<sup>15</sup> The 2002-2003 dropout rates for Boston English and South Boston high schools reported by the Department of Education were sharply higher than those reported in the BPS study.

years over the 1993-2003 period are displayed in Chart 8. Over the past decade, the annual number of dropouts has ranged from a low of 1,227 in 1996 to nearly 1,650 in the 1999-2000 school year. In the 2002-2003 school year, there were more than 1,400 dropouts, a disproportionate number of whom were male, Black or Hispanic, and low income. In the labor market and economic environment of today, these young high school dropouts face bleak economic and social futures in the absence of intensive intervention on their behalf. A more detailed knowledge based on the post-high school educational, labor market, criminal justice, parenting, and social service experiences of these young dropouts is needed for effective program planning, design, and administration.

Chart 8:  
Annual Adjusted Number of Reported High School Dropouts in Boston  
Public Schools, Selected Years 1993 – 2003



Future research in each of the following areas also would be helpful in guiding the work of the Boston Youth Transitions Planning Group.

(a) An analysis of school dropout problems among students in junior high schools, especially recent immigrants, low income youth, and minority males. Evidence for other central cities, including Chicago, New Orleans, and DC, show high dropout rates among junior high students.

(b) An analysis of the fairly large discrepancies between the graduation rate estimates for Boston public high schools based on the BCR and CPI methodologies with the dropout rates based on the four-year projected dropout methodology of the Massachusetts Department of Education and the Ninth Grade Cohort Dropout Rates of the Boston Public Schools. Some analysis of school-by-school differences in reported data on dropouts is required.

(c) A better understanding of the factors influencing the dropout behavior of students is needed, including poor academic performance, high absenteeism, concerns about safety criminal justice involvement, teen parenting, and lack of peer and family supports. The large gender gaps in high school graduation rates need to be better understood. Why do men continue to dropout at rates well above those of their female counterparts, especially among Blacks and Hispanics.

(d) How has the MCAS examine requirement contributed to the decline the number of high school graduates in Boston since 2002? What other factors underlie the share drop in the number of entering high school seniors who obtain their diploma at the end of the school year? What strategies for boosting MCAS performance appear to be effective in enabling Boston high school students to pass the exam and graduate from high school?

(e) How many and which high school dropouts have entered alternative high schools or community-based educational programs to obtain a GED or regular high school diploma? Which approaches seems to be most effective in assisting former dropouts to return to school and obtain a GED or regular high school diploma?