

# MEASURING UP



WAKE COUNTY  
PUBLIC SCHOOL SYSTEM

EVALUATION AND RESEARCH DEPARTMENT

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## GRADUATION RATES OF THE 1998-99 9TH-GRADE COHORT WAKE COUNTY PUBLIC SCHOOL SYSTEM

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### ABSTRACT

*A study of 6,037 first-time Wake County Public Schools (WCPSS) 1998-99 9th-grade students found that their overall four-year graduation rate was 80% and a five-year graduation rate was 83%. Female students (87%) were more likely to graduate than male students (79%). Asian (92%) and White (88%) students were more likely to graduate than Black/African American (68%) and Hispanic/Latino (72%) students. Black/African American male students were least likely to graduate (60%). The 1998 rate is six percentage points higher than a comparable 1995 rate. All ethnic subgroups improved, with Hispanic/Latino students increasing four points, Black/African American students increasing eight points, and Asian students increasing nine points.*

### SUMMARY

#### BACKGROUND

The Elementary and Secondary Education Act of 2001 titled “No Child Left Behind” requires that states report a graduation rate not only by system, but also by school. Due to difficulties in record keeping, most attempts at reporting graduation rates have used enrollment numbers in 9th-grade compared to graduation numbers four years later. Movement in and out of a school may vary in ways that prevent these “retention” rates from accurately reflecting the percent of students that graduated.

To appropriately meet the federal requirement of reporting a graduation rate, the North Carolina Department of Public Instruction (DPI) is now requiring all schools to maintain a database of 9th-grade students each year as a cohort that will be followed for four years, and then used to calculate a four-year graduation rate. Until data have been collected for four years (Spring 2006), an “Annual Yearly Progress”(AYP) graduation rate is being reported on North Carolina School Report Cards that is defined as all graduates of a school that completed the graduation requirements in four years. This definition returns very high rates (usually greater than 95%) but has been publicly criticized as inaccurate; although it reports what it is defined to report. The “AYP” graduation rate is much larger than estimated “retention” rates that are also reported as graduation rates.

This study is an effort to give a more accurate measure of the number of students who enter WCPSS in 9th-grade who actually graduate four or five years later. A specific cohort of 6,037 students who were in 9th grade for the first time in the 1998-99 school year, and who had been in WCPSS in 8th grade, were analyzed using six years of enrollment and withdrawal data. The results of the 1998-99 cohort were compared to the results of a previous study of a 1995-96 9th grade cohort (see *Graduation Rates WCPSS: A Study of the 1995 9th-Grade Cohort* E&R Report No. 03.07).

## MAJOR FINDINGS

After removing transferred students and making a statistical adjustment for missing data, graduation rates for subgroups were calculated. The main findings are:

- The overall four-year graduation rate was 80% for students who entered WCPSS high schools from a WCPSS middle school.
- The overall five-year graduation rate was 83% for students who entered WCPSS high schools from a WCPSS middle school.
  - Female students (87%) were more likely to graduate than male students (79%).
  - Asian students (92%) and White students (88%) were more likely to graduate than Black/African American students (68%) and Hispanic/Latino students (72%).
  - Black/African American male students were least likely to graduate (60%).
  - The overall graduation rate increased six percentage points from the 1995-96 cohort to the 1998-99 cohort.
  - The gap between Black/African American students and White students was reduced from 23 percentage points to 20 points.

**GRADUATION RATES OF THE 1998-99 9TH-GRADE COHORT**

**STUDENTS IN THE 9TH-GRADE COHORT**

In 1998-99, 7,906 students enrolled in 9th-grade. Of these students, 6,037 (76%) were first-time 9th grade students who had been enrolled in a WCPSS 8th-grade class the prior year, 1,015 (13%) were repeating 9th-grade, and 854 (11%) were new to WCPSS. Since more information was available for students enrolled in WCPSS the prior year, these three cohort groups were analyzed separately for this study.

**NINTH-GRADE STUDENTS ENTERING FROM WCPSS MIDDLE SCHOOLS**

Table 1 gives a breakdown of the cohort by gender and ethnicity:

**Table 1**  
**First-Time 9th-Grade 1998-99 Cohort of Prior WCPSS Students**

Ethnicity	Female		Male		Total	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
Asian	97	1.6	94	1.6	191	<b>3.2</b>
Black	761	12.6	737	12.2	1,498	<b>24.8</b>
Am. Indian	4	0.1	6	0.1	10	<b>0.2</b>
Hispanic/Latino	71	1.2	72	1.2	143	<b>2.4</b>
White	2,013	33.3	2146	35.5	4,159	<b>68.8</b>
Multiracial	24	0.4	12	0.2	36	<b>0.6</b>
<b>Total</b>	<b>2,970</b>	<b>49.2</b>	<b>3067</b>	<b>50.8</b>	<b>6,037</b>	<b>100.0</b>

**A graduation rate for the cohort**

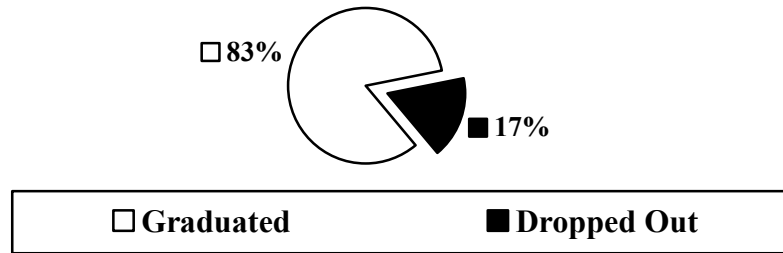
The graduation rate for the cohort was defined as the number of first-time 1998-99 9th-grade students who graduated (with a diploma or certificate) from a WCPSS by Spring 2003 divided by the total number of students remaining in the cohort after removing transfers to other school systems. Students who transferred out of the system were removed from the cohort because their graduation status could not be determined.

$$\text{Graduation Rate} = \frac{\text{\# of graduates}}{\text{\# in cohort} - \text{\# of transfers}}$$

A statistical estimate was added to the number of transfer students to account for missing data (see *Graduation Rates WCPSS: A Study of the 1995 9th-Grade Cohort* E&R Report No. 03.07 for a detailed description of the methodology). This estimate was based on the records of the students with complete data (93.2%). The missing data (6.8%) was the result of erroneous coding or failure to update exit codes of students who did not return after the summer break.

The rates found for the overall group and ethnic/gender breakouts are in Figures 1-4 and Table 2. American Indian and Multiracial groups are not reported separately due to low numbers. Accurate data on Limited English Proficiency (LEP) and participation in the Free or Reduced-Price Lunch (FRL) program were not available for this report.

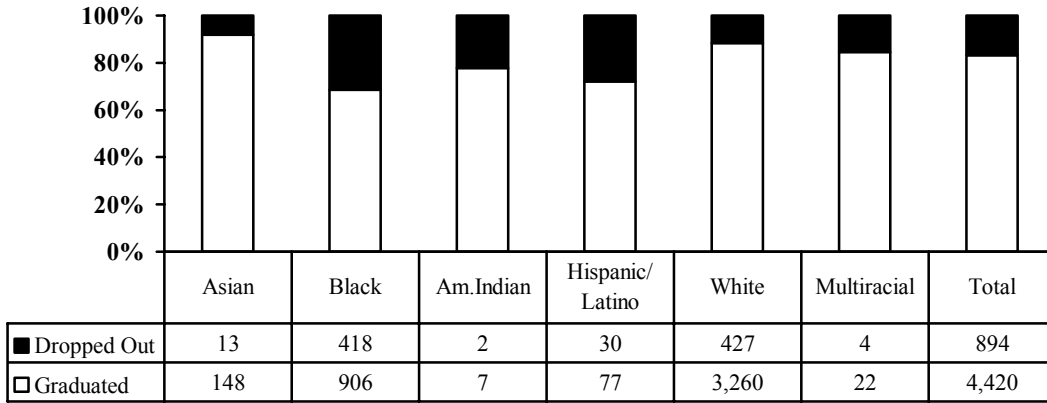
**Figure 1**  
**Five-year Graduation and Dropout Rate: 1998-99 First-Time 9th Grade Students Enrolled in WCPSS in 8th-grade**



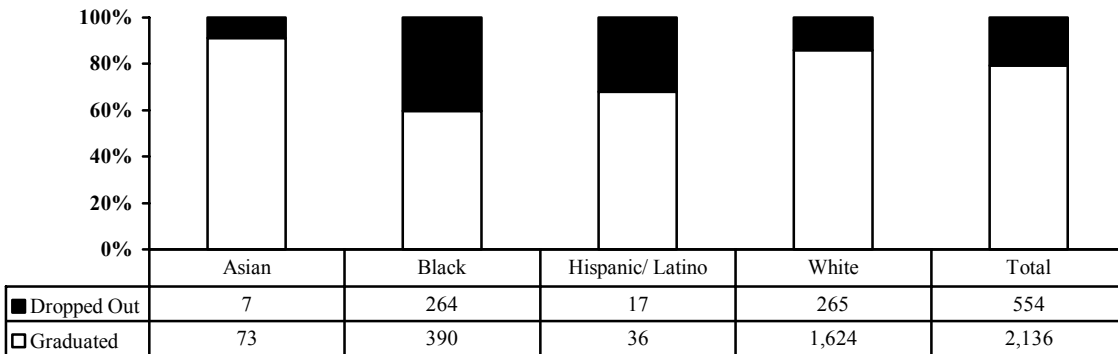
**Table 2**  
**Five-year Graduation/Dropout Rates for the 1998-99 Cohort\***

Ethnicity	Female		Male		Total	
	<i>Graduation Rate</i>	<i>Dropout Rate</i>	<i>Graduation Rate</i>	<i>Dropout Rate</i>	<i>Graduation Rate</i>	<i>Dropout Rate</i>
Asian	93%	7%	91%	9%	<b>92%</b>	<b>8%</b>
Black	77%	23%	60%	40%	<b>68%</b>	<b>32%</b>
Hispanic/Latino	76%	24%	70%	30%	<b>72%</b>	<b>28%</b>
White	91%	9%	86%	14%	<b>88%</b>	<b>12%</b>
<b>Total</b>	<b>87%</b>	<b>13%</b>	<b>79%</b>	<b>21%</b>	<b>83%</b>	<b>17%</b>

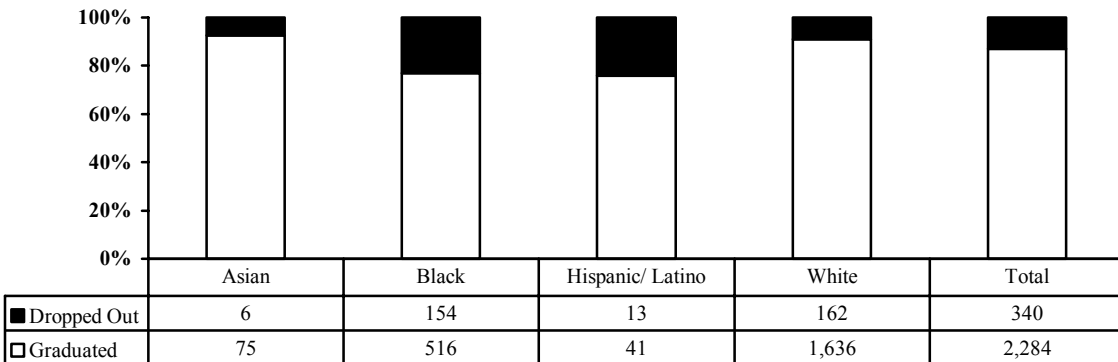
**Figure 2**  
**Five-year Graduation and Dropout Rates by Ethnicity,**  
**1998-99 Cohort\***



**Figure 3**  
**Five-year Graduation and Dropout Rates by Ethnicity,**  
**1998-99 Cohort Male Students\***



**Figure 4**  
**Five-year Graduation and Dropout Rates by Ethnicity,**  
**1998-99 Cohort Female Students\***



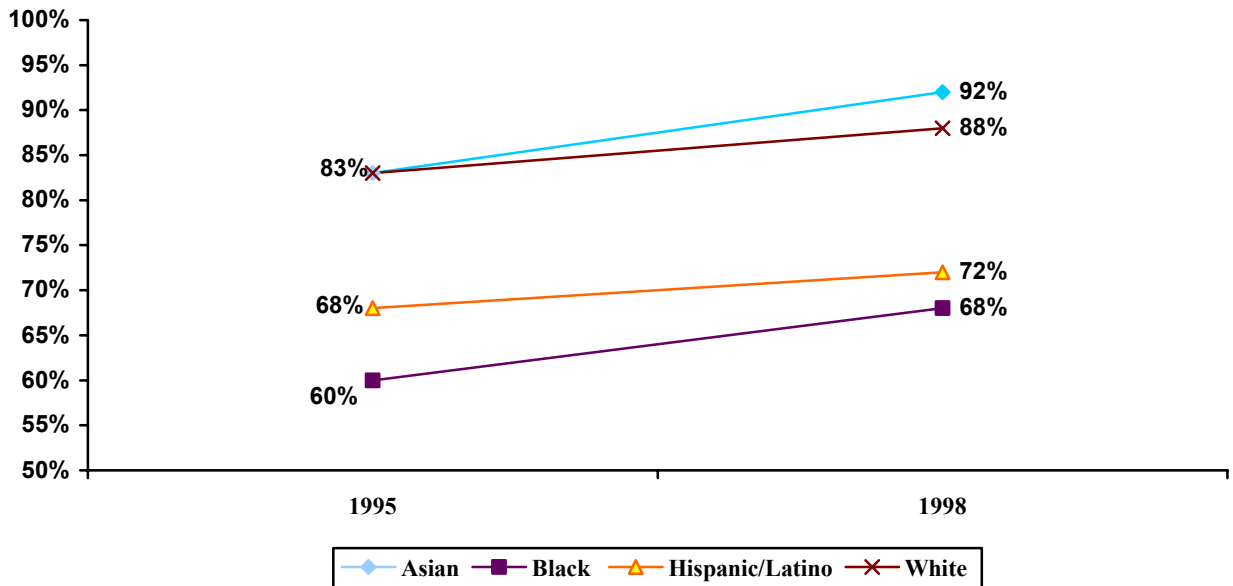
\*Note: Totals include American Indian and Multiracial students

**Comparison to the 1995-96 cohort**

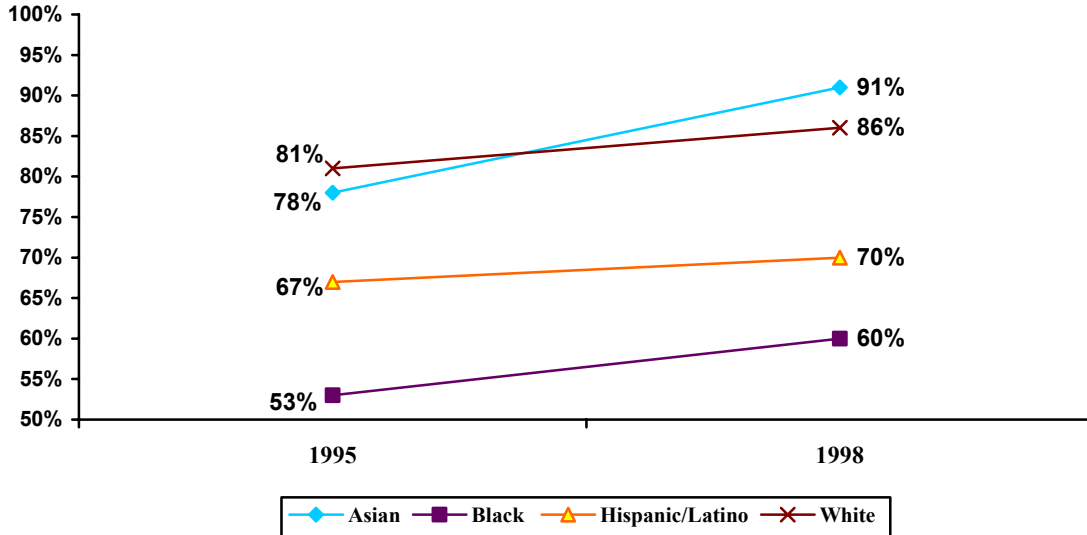
The four-year and five-year graduation rates of the 1998-99 cohort were six percentage points higher than the rates of a comparable 1995-96 cohort previously studied (see *Graduation Rates WCPSS: A Study of the 1995 9th-Grade Cohort* E&R Report No. 03.07). The four-year rate improved from 74% to 80% and the five-year rate from 77% to 83%.

Figures 5-7 compare the subgroup graduation rates of the 1998-99 cohort with those of the 1995-96 cohort. All subgroups have improved. Both Asian students and White students had graduation rates of 83% in the 1995-96 cohort, but the 1998-99 cohort of Asian students had a graduation rate four percentage points higher than the rate for White students, who had improved by five percentage points. The gap between Black/African American students and White students went from 23 points to 20 points. Black/African American students continued to have the lowest graduation rates, even though the overall rate improved by eight percentage points. Black/African American male students had a seven-point increase and Black/African American female students had an eleven-point increase. Hispanic/Latino students showed the lowest gains, moving up only four points.

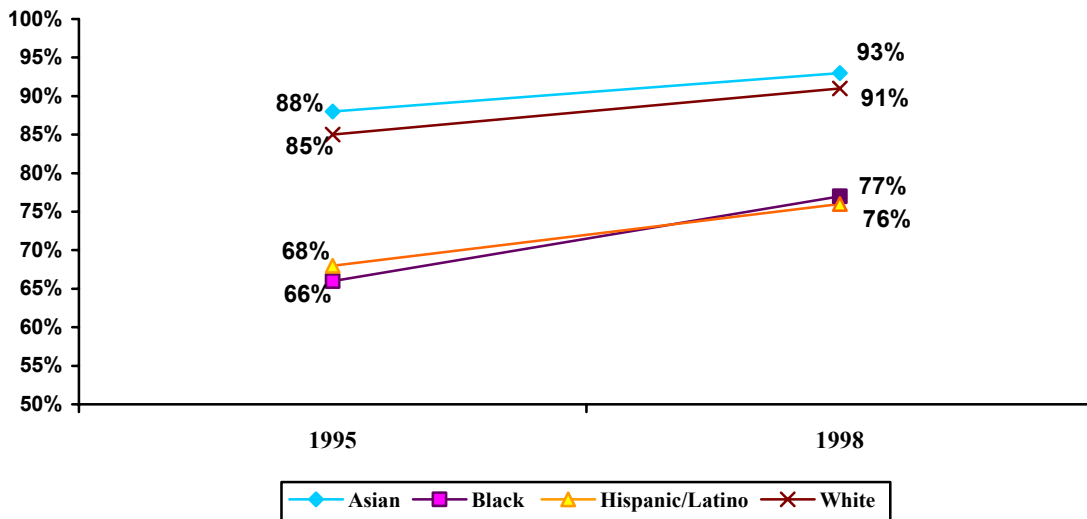
**Figure 5**  
**Five-year Graduation Rates Comparing the 1995-96 Cohort**  
**to the 1998-99 Cohort**



**Figure 6**  
**Male Five-year Graduation Rates Comparing the 1995-96 Cohort**  
**to the 1998-99 Cohort**



**Figure 7**  
**Female Five-year Graduation Rates Comparing the 1995-96 Cohort**  
**to the 1998-99 Cohort**



**NEW 9TH-GRADE STUDENTS ENTERING WCPSS SCHOOLS**

In the school year 1998-99, WCPSS enrolled 854 students into 9th-grade who had not attended WCPSS schools in 1997-98. Five years later (Fall 2003), these students had a graduation rate of 61%. The percent of students from this subgroup who transferred out of WCPSS (22%) was twice the percentage for the overall group (11%). Fifteen percent of these students transferred at the end of 1998-99. The mobility of this group may be related to the lower graduation rate.

Fifty-four percent of the new enrollees were White students, with 28% Black/African American students, 8% Hispanic/Latino students, and 7% Asian students. Table 3 contains the race by gender distribution of the new enrollees.

**Table 3  
Distribution of WCPSS New Enrollees  
in the 1998-99 9th-Grade Class**

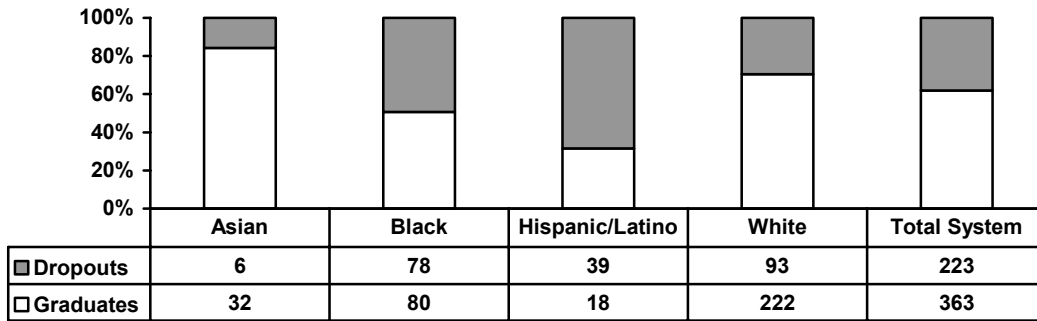
Ethnicity	Female		Male		Total	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
1. Asian	27	3.2	34	4.0	61	<b>7.1</b>
2. Black	119	13.9	119	13.9	238	<b>27.9</b>
3. Am. Indian	3	0.4	0	0	3	<b>0.4</b>
4. Hispanic/Latino	37	4.3	35	4.1	72	<b>8.4</b>
5. White	199	23.3	259	30.3	458	<b>53.6</b>
6. Multiracial	12	1.4	10	1.2	22	<b>2.6</b>
<b>Total</b>	<b>397</b>	<b>46.5</b>	<b>457</b>	<b>53.5</b>	<b>854</b>	<b>100.0</b>

The 1998-99 cohort of 9th-grade new enrollees was analyzed to determine the percentage of students who had graduated by Fall 2003 (five school years later). After removing the 22% of students who transferred out of WCPSS and using a statistical estimate to account for missing data, the following graduation rates were found (see Table 4 and Figure 8).

**Table 4  
Percentage of WCPSS 1998-99 9th-Grade New Enrollees Who Graduated**

Ethnicity	Female <i>%</i>	Male <i>%</i>	Total <i>%</i>
Asian	100	76	<b>83</b>
Black	54	47	<b>51</b>
Hispanic/Latino	45	15	<b>32</b>
White	71	69	<b>70</b>
<b>Total</b>	<b>63</b>	<b>59</b>	<b>61</b>

**Figure 8**  
**Graduation Rates: 1998-99 9th-Grade New Enrollees**



These graduation rates are lower than the rates for the first-time 9th-grade students who had been in 8th-grade in WCPSS the prior year for every racial subgroup (21 percentage points overall with a 40 percentage point difference for Hispanic/Latino students).

Since the new students were not enrolled in WCPSS in their 8th grade year, it can be assumed that some of these students were not first-time 9th-grade students. The 478 (56%) of new students who had a birthday on or after October 15, 1983 were assumed to be first-time 9th-grade students (a sample of 45 of these students showed all of these students to be first-time 9th-grade students). The permanent records of 52 (14%) of the remaining 372 students were investigated to determine when they started 9th-grade. Nineteen of the 52 (37%) were first-time 9th-grade students.

If all of the new students were included in the calculation of the five-year graduation rate, it would drop from 83% to 81%. If only the new students with birthdays on or after October 15, 1983 are included, the rate does not change.

**1998-99 REPEATERS**

In the school year 1998-99, WCPSS enrolled 1,015 students into 9th-grade who had been enrolled in WCPSS as 9th-grade students in 1997-98. Five years later (Fall 2003), only 26% of these students had graduated.

Fifty-six percent of the repeaters were Black/African American students, 36% White students, and 6% Hispanic/Latino students. Sixty percent of the repeaters were male students with the largest subgroup being Black/African American male students at 33%. Table 5 contains the race by gender distribution of the repeaters.

**Table 5**  
**Distribution of WCPSS 1998-99 Repeaters in the 9th-Grade Class**

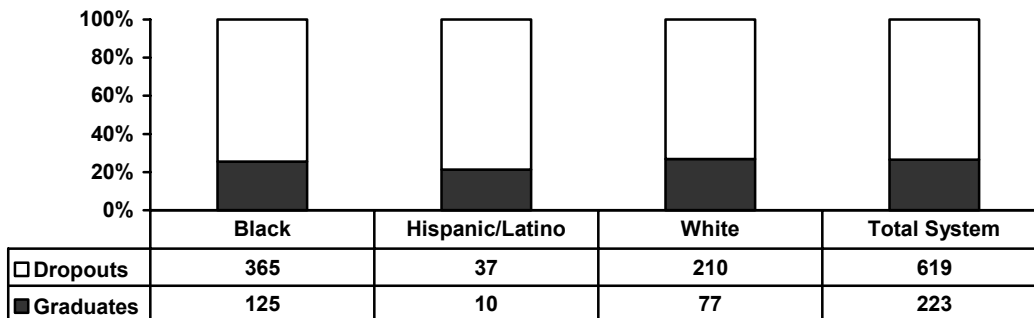
Ethnicity	Female		Male		Total	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
1. Asian	7	0.7	8	0.8	15	<b>1.5</b>
2. Black	232	22.9	336	33.1	568	<b>56.0</b>
3. Am. Indian	0	0	1	0.1	1	<b>0.1</b>
4. Hispanic/Latino	30	3.0	30	3.0	60	<b>5.9</b>
5. White	132	13.0	235	23.2	367	<b>36.2</b>
6. Multiracial	1	0.1	3	0.3	4	<b>0.4</b>
<b>Total</b>	<b>402</b>	<b>39.7</b>	<b>613</b>	<b>60.4</b>	<b>1015</b>	<b>100.0</b>

The 1998-99 cohort of 9th-grade repeaters was analyzed to determine the percentage of students who had graduated by Fall 2003 (five school years later). After removing the 14% of students who transferred out of WCPSS and using a statistical estimate to account for the 15% of data that was missing, the following graduation rates were found (see Table 6 and Figure 9).

**Table 6**  
**Percentage of 1998-99 9th-Grade Repeaters Who Graduated.**

Ethnicity	Female	Male	Total
	<i>%</i>	<i>%</i>	<i>%</i>
Black	32	21	<b>26</b>
Hispanic/Latino	22	21	<b>21</b>
White	31	24	<b>27</b>
<b>Total</b>	<b>32</b>	<b>23</b>	<b>26</b>

**Figure 9**  
**Graduation Rates-WCPSS 1998-99 9th-Grade Repeaters**



**DISCUSSION**

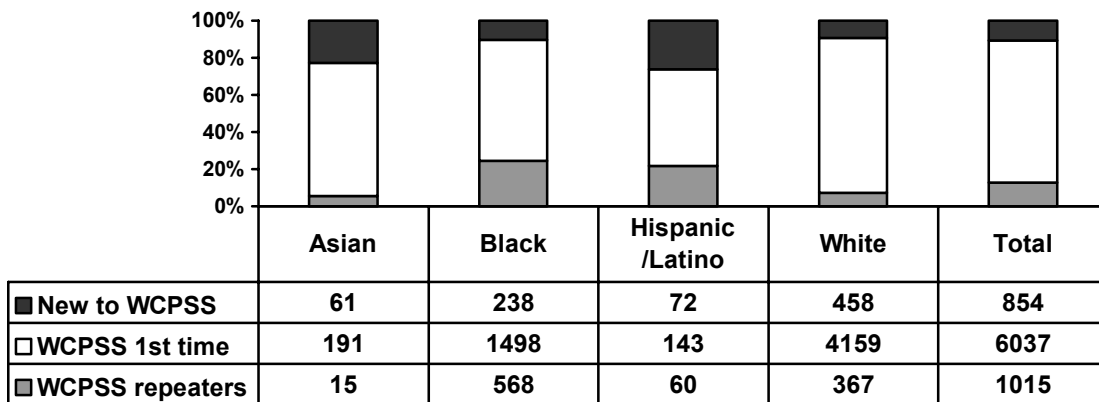
The graduation rate for WCPSS was higher for the Class of 2002 than the Class of 1999. The five-year graduation rate for students who entered 9th grade from a WCPSS middle school, for whom data was most reliable, went from 77% to 83% with all racial subgroups improving and the gap between Black/African American and White students decreasing by three percentage points when compared to the 1995-96 cohort studied previously.

Ninth-grade classes in WCPSS can be divided into three distinct groups:

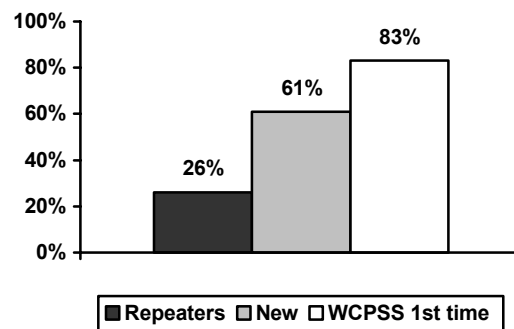
- first-time 9th-grade students who attended 8th-grade in WCPSS
- new students to WCPSS
- repeaters

The ethnic composition and the graduation rates vary greatly between these groups (see Figures 10 and 11). Repeaters and students new to WCPSS had much lower graduation rates.

**Figure 10**  
**WCPSS 1998-99 9th grade**



**Figure 11**  
**Graduation Rates for 1998-99 9th-Grade Students**



The new DPI cohort graduation rates (reporting begins in Summer 2006) will include all first-time 9th-grade students, both those entering from WCPSS 8th-grade schools and those new to the school district who have not previously been in 9th grade. The 1998-99 new student cohort that was studied for this report preceded the new record keeping requirements; so there was no central source to indicate whether the new students were first-time 9th-grade students. An analysis of student birth dates and a sampling of student cumulative folders found about 72% of the new students to be first-time 9th-grade students and their graduation rate to be 79%. When these students were added to the WCPSS first-time 9th-grade cohort, the five-year rate of 83% did not change.

DPI will report a four-year rate. This study had a four-year rate of 80%. Note an additional 3% of the students graduated in a fifth year.

It is recommended that system wide identification and intervention procedures be developed to increase the graduation rate of new enrollees and repeaters, since these two groups had significantly lower graduation rates than the students who entered 9th grade from a WCPSS middle school.

## ATTACHMENT

The following tables and figures give detailed results for the 1998-99 first time 9th-grade cohort.

**Table A1**  
**Completed High School in WCPSS<sup>2</sup>**

Ethnicity	Female		Male		Total	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
1. Asian	75	1.7	73	1.65	148	3.3
2. Black	516	11.7	390	8.82	906	20.5
3. Am. Indian	3	0.1	4	0.1	7	0.2
4. Hispanic/Latino	41	0.9	36	0.8	77	1.7
5. White	1636	37.0	1624	36.7	3260	73.8
6. Multiracial	13	0.3	9	0.2	22	0.5
<b>Total</b>	<b>2284</b>	<b>51.7</b>	<b>2136</b>	<b>48.3</b>	<b>4420</b>	<b>100.0</b>

**Table A2**  
**Transferred out of WCPSS**

Ethnicity	Female		Male		Total	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
1. Asian	11	2.1	11	2.1	22	4.1
2. Black	65	12.2	64	12.0	129	24.2
3. Am. Indian	0	0	1	0.2	1	0.2
4. Hispanic/Latino	13	2.4	15	2.8	28	5.3
5. White	154	28.9	190	35.7	344	64.7
6. Multiracial	5	0.9	3	0.6	8	1.5
<b>Total</b>	<b>248</b>	<b>46.6</b>	<b>284</b>	<b>53.4</b>	<b>532</b>	<b>100.0</b>

**Table A3**  
**Dropped Out**

Ethnicity	Female		Male		Total	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
1. Asian	4	0.6	5	0.7	9	1.3
2. Black	111	16.6	204	30.5	315	47.2
3. Am. Indian	1	0.1	1	0.1	2	0.3
4. Hispanic/Latino	10	1.5	14	2.1	24	3.6
5. White	116	17.4	199	29.8	315	47.2
6. Multiracial	3	0.4	0	0	3	0.4
<b>Total</b>	<b>245</b>	<b>36.7</b>	<b>423</b>	<b>63.3</b>	<b>668</b>	<b>100.0</b>

<sup>2</sup>Table A1 includes students receiving diplomas or certificates

**Table A4  
Died**

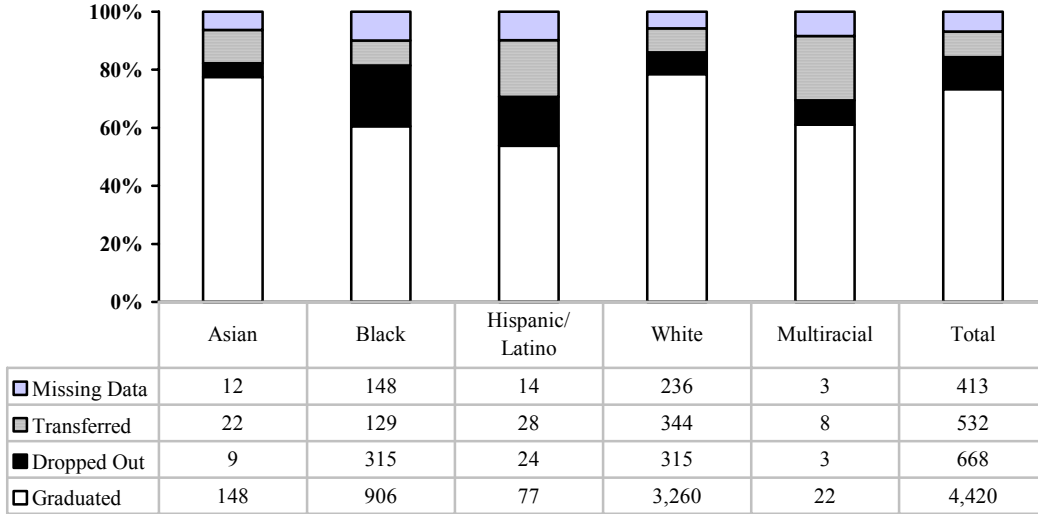
Ethnicity	Female		Male		Total	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
1. Asian	0	0	0	0	0	0
2. Black	0	0	0	0	0	0
3. Am. Indian	0	0	0	0	0	0
4. Hispanic/Latino	0	0	0	0	0	0
5. White	1	25	3	75	4	100.0
6. Multiracial	0	0	0	0	0	0
<b>Total</b>	<b>1</b>	<b>25</b>	<b>3</b>	<b>75</b>	<b>4</b>	<b>100.0</b>

**Table A5  
Last coded as “Expected to Return”, but Did Not Re-enroll**

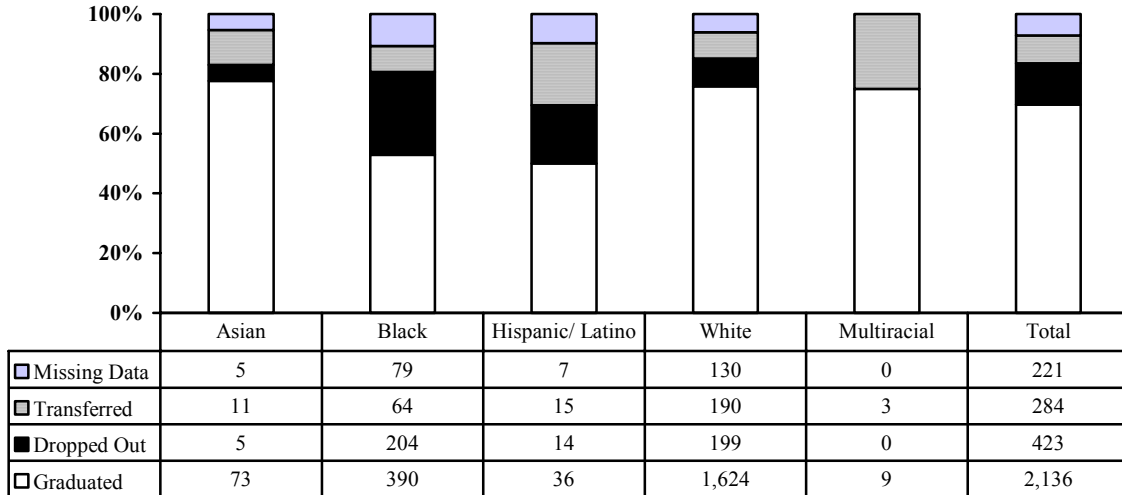
Ethnicity	Female		Male		Total	
	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>
1. Asian	7	1.7	5	1.2	12	2.9
2. Black	69	16.7	79	19.1	148	35.8
3. Am. Indian	0	0	0	0	0	0
4. Hispanic/Latino	7	1.7	7	1.7	14	3.4
5. White	106	25.7	130	31.5	236	57.1
6. Multiracial	3	0.7	0	0	3	0.7
<b>Total</b>	<b>192</b>	<b>46.5</b>	<b>221</b>	<b>53.5</b>	<b>413</b>	<b>100.0</b>

Figures A1-A3 give graphical summaries of the final exit codes by ethnicity and gender.

**Figure A1**  
**Final Exit Categories**



**Figure A2**  
**1998-99 Cohort Male Students in Final Exit Categories**



**Figure A3**  
**1998-99 Cohort Female Students in Final Exit Categories**

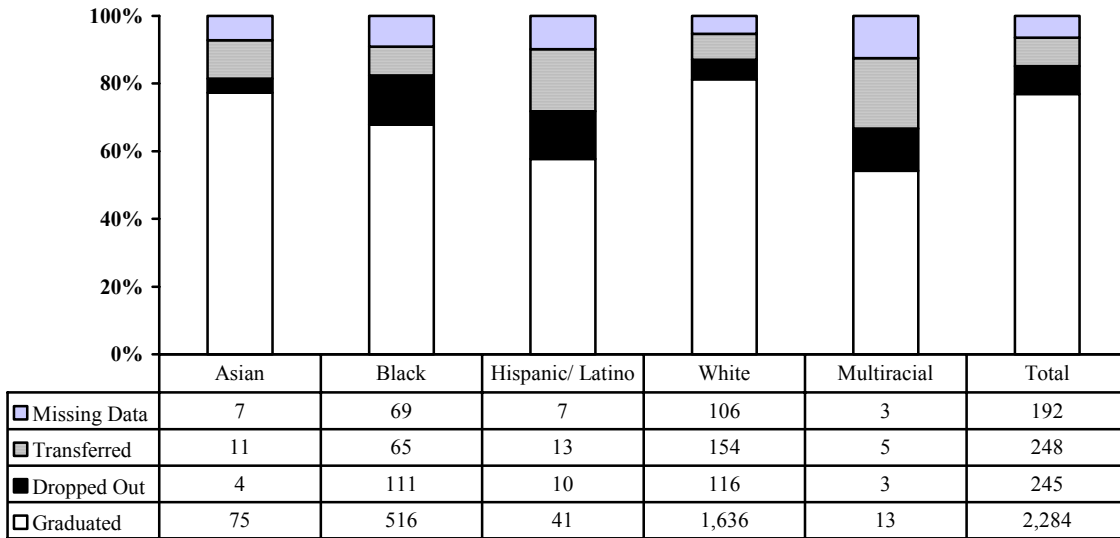


Table A4 gives the estimated predicted *missing data dropout rate* and the number of dropouts added from each group prior to calculating graduation rates for the cohort.

**Table A4**  
**Estimated Dropouts**

Ethnicity	Female		Male		Total #
	Rate	#	Rate	#	
1. Asian	0.27	2	0.31	2	4
2. Black	0.63	43	0.76	60	103
4. Hispanic/Latino	0.43	3	0.48	3	6
5. White	0.43	46	0.51	66	112
6. Multiracial	0.38	1	0.0	0	1
<b>Total</b>	<b>2.14</b>	<b>95</b>	<b>2.06</b>	<b>131</b>	<b>226</b>