

**Advanced Placement and
International Baccalaureate Exam
Results for 2003–2004**

Department of Shared Accountability

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Executive Summary

Goal 1 of the Montgomery County Public Schools (MCPS) Strategic Plan, *Our Call to Action: Pursuit of Excellence* (MCPS, 2004), is to *Ensure Success for Every Student*. One measure of success for students who plan to attend college is their preparation for college-level course work. The Advanced Placement (AP) program offers MCPS students an opportunity to take college-level courses while enrolled in high school. The growing number of MCPS students taking AP exams and doing well, earning a 3 or higher, along with the continued growth of the International Baccalaureate (IB) program speaks to MCPS students' interest in taking advantage of academic opportunities.

During the 2003–2004 school year, 9,702 MCPS students took at least one AP exam; this is an increase from 4,597 students in 1999–2000. The percentage of all high school students taking at least one AP exam during an academic year has grown from 12.5% in 1999–2000 to 22.7% in 2003–2004. There has been an increase in the participation rate of students taking the AP exams for all races/ethnicities. African American student participation more than doubled, increasing from 3.6% in 1999–2000 to 8.7% in 2003–2004. AP exam participation for Asian American students rose from 18.9% to 35.4%. For Hispanic students, the participation rate more than doubled, increasing from 5.1% to 11.0%. The participation rate for White students taking at least one AP exam increased from 16.2% in 1999–2000 to 29.3% in 2003–2004, and for students who qualify for Free and Reduced Price Meals System (FARMS) services the participation rate more than doubled, increasing from 3.0% in 1999–2000 to 8.4% in 2003–2004. Participation of students who receive limited English proficiency (LEP) services also more than doubled. There also has been an increase in the participation rate of students receiving special education services from 2.1% in 1999–2000 to 3.5% in 2003–2004. Many students take more than one exam.

Another opportunity available for MCPS students to take advanced coursework is the International Baccalaureate (IB) program. This 2-year comprehensive program includes curriculum and rigorous exams, which may be accepted by colleges for credit or advanced placement. A total of 518 students took 1,289 IB exams, a mean of 2.5 exams per student. IB also offers diplomas to students who complete the program successfully. In 2003–2004, 177 of 190 candidates (93.2%) qualified for the IB diploma.

Beginning in January 2005, the College Board began to report AP exam results for graduating classes. When MCPS graduates were reviewed, it was determined that almost half (48.6%) of all graduating seniors from the class of 2004 had taken at least one AP exam during their high school years (see Table 10). Almost 40% of graduating seniors (39.4%) of the class of 2004 scored a 3 or higher on at least one AP exam while in high school. This is three times the national average of 13 percent and double the Maryland average of 19.4 percent (College Board, 2005).

For African American seniors, the percentage of students who have taken an AP exam during high school has doubled, increasing from 11.1% in 2000 to 23.3% in 2004. The percentage of graduating African American students who have scored a 3 or higher has almost doubled, increasing from 8.0% in 2000 to 14.7%. Asian American seniors who took at least one AP exam increased from 47.8% in 2000 to 66.9% for the graduating class of 2004. Asian American

students who earned at least one 3 increased from 38.7% for the class of 2000 to 52.6% for the class of 2004. Participation of Hispanic seniors increased from 16.9% for the class of 2000 to 29.5% for the class of 2004. Hispanic seniors earning at least one 3 on an AP exam increased from 15.5% for the class of 2000 to 23.4% for the class of 2004. White seniors also increased in participation and success. Forty three percent of White seniors took an AP exam in 2000 compared to 58.5% of the class of 2004. White seniors scoring at least one 3 increased from 37.0% for the class of 2000 to 49.8% for the class of 2004.

To honor outstanding students, the College Board awards certificates to students who receive a 3 or higher on three or more AP exams (College Board, 2004). These students are considered AP Scholars. For the MCPS graduating class of 2000, there were 1,000 seniors designated as AP scholars. For the class of 2004, the number had doubled to 2,037. Growth is also seen for each racial/ethnic group as the number of AP scholars doubled for most student groups, while tripling for African American students. This number also doubled for students who are in the Free and Reduced-price Meals System and students receiving special education services.

Students must have a strong academic background and good study skills to be successful in college. The growing number of MCPS students earning a 3 or more on one AP exam demonstrates that MCPS continues to encourage students to take advantage of rigorous course work, and students continue to be successful when doing so. The continued growth of the IB program speaks to students' interest in identifying these academic opportunities and taking advantage of them.

Colleges and universities look at students' transcripts for both AP and IB course work and exam scores. As MCPS continues to offer more rigorous courses to high school students and continues to encourage the growth of the IB program, MCPS is going far in providing the academic rigor needed to meet MCPS Goal 1.

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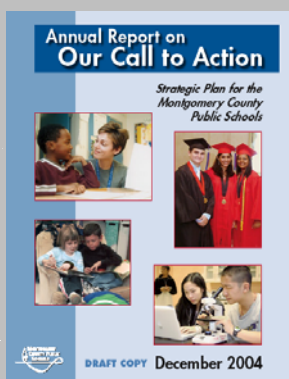
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Advanced Placement and International Baccalaureate Exam Results for 2003-2004

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Background



AP course and exam participation and performance are data points that measure MCPS' attainment of the first goal of *Our Call to Action*—ensure success for every student.

Goal 1 of the Montgomery County Public Schools (MCPS) Strategic Plan, *Our Call to Action: Pursuit of Excellence* (MCPS, 2004), is to ensure success for every student. One measure of success for students who plan to attend college is the student's preparation for college-level course work. The Advanced Placement (AP) program offers MCPS students an opportunity to take college-level courses while enrolled in high school. Another venue for students to potentially earn college credit is through the International Baccalaureate program (IB).

Students may opt to take an AP course and, at the conclusion, take the designated AP exam. AP exams are administered by the College Board; the College Board does not provide high schools with actual college curricula. AP students may earn college credit by scoring well on an end-of-course exam (U.S. Department of Education, 2004). Colleges and universities establish their own criteria for offering credit or advanced placement in a course.

The International Baccalaureate (IB) program is administered by the International Baccalaureate Organization; IB offers a liberal arts program for students in their junior and senior years of high school. Students take end-of-course exams that are required for students to earn an IB diploma and may qualify them for college credit. (U.S. Department of Education, 2004).

A Description of the AP Program

The AP program began in the 1950s by the Educational Testing Service (ETS) to offer rigorous college-level courses to high school students in an effort to improve high school instruction. During 1956–1957, the College Board took over administration of the AP program. In the 1960s, a teacher-training component was developed to better prepare secondary school teachers to teach these college-level courses (College Board, 2004).

AP Courses

As a new course is developed, an AP Development Committee is assembled. Currently, there are 22 committees that are responsible for 34 courses and exams. Committees meet about three times a year to discuss and develop a course and exam. All committee members have advanced degrees in the content. They develop course description booklets, sample syllabi, and sample exam questions. Each AP course now has its own course home page (College Board, 2004). The most popular courses from 2002 are listed in Table 1.

Table 1

20 Most Popular AP Exams Taken Nationally in 2002

Exam	<i>N</i>
U.S. History	224,757
English Literature and Composition	215,313
Calculus AB	157,524
English Language and Composition	156,193
Biology	97,762
U.S. Government and Politics	90,937
Spanish Language	74,240
European History	68,876
Chemistry	61,584
Psychology	51,831
Statistics	49,824
Calculus BC	41,785
Physics B	37,447
Macroeconomics	32,184
Environmental Science	24,376
Microeconomics	23,108
World History	20,955
Physics C: Mechanics	19,252
French Language	17,372
Computer Science A	15,660

Source: Collins, 2004.

AP Exams

AP exams are designed by the AP Development Committee. Each AP exam consists of multiple-choice questions and free-response questions. Multiple-choice questions are written by college and university faculty. The questions are reviewed by content experts to ensure they meet fairness standards, quality, and editorial preferences. Questions are re-used in exams for exam reliability (College Board, 2004).

Free-response questions offer students an opportunity to demonstrate their knowledge of the material. The development of free-response questions includes a discussion of what students should know, the type of response that is appropriate, the suitability of the question to elicit the response desired, and whether the question would serve better as a multiple-choice question. Free-response questions are not re-used and are released to the public after use (College Board, 2004).

Committees have one member who is designated as a chief reader. This individual is a college or university faculty member who is responsible for grading the free-response section of each exam. The committee reviews individual items and the final exam as a whole and agrees to the correct answers for all multiple-choice questions and drafts some responses and grading criteria for the free-response questions (College Board, 2004).

In the final review process, the committee agrees to the correct answers for multiple-choice questions. Scoring of multiple-choice questions is completed by computer. Free-response questions are graded under the direction of the chief reader. The preliminary responses are used as a guide for training thousands of readers nationally. Many are AP teachers in high schools and college faculty who teach that course. A random sample of responses is selected prior to grading for the chief reader and reading leaders to determine that the criteria are complete and accurate. Readers are trained and practice grading as a team and as individuals until consistency is established. Then individual scoring begins, but multiple opportunities exist to ask additional questions with responses that are problematic. Reviews are conducted to ensure that difficulty and grading is consistent with prior years (College Board, 2004).

How AP Scores Are Used

The free-response and multiple-choice questions are both used to create a composite score ranging from 5 to 1.

- 5 Extremely well qualified*
- 4 Well qualified*
- 3 Qualified*
- 2 Possibly qualified*
- 1 No recommendation**

* Qualified to receive college credit or advanced placement.

** No recommendation to receive college credit or advanced placement (College Board, 2004).

Colleges and universities may chose to accept AP exam scores for course placement or for college credit.

Beginning in January 2005, the College Board released AP data for graduating cohorts. Nationally 13 percent of graduating seniors earned at least one 3 on an AP exam during their high school careers. For comparison, 19.4% of Maryland seniors earned at least one 3 (College Board, 2005).

International Baccalaureate Program

The International Baccalaureate (IB) program began in 1965, as an international education program based on three principles: the need for a broad base of knowledge and critical thinking skills; the development of international understanding and awareness; and the creation of a curriculum that could adapt to students' areas of interest (IBO, 2004a). The IB program also offers detailed curriculum guidelines, teacher training, and procedures for school-based assessment of student work. All exams are criterion-referenced to ensure understanding of the material (IBO, 2004a). As of October 2004, the liberal arts program works with 1,426 schools in 117 countries serving approximately 200,000 students (IBO, 2004b).

IB is different from the AP program in that it is offered as a 2-year comprehensive program to students in Grades 11 and 12. The passing score is a 4 or better on a scale of 1 to 7. By passing a specified series of courses students may earn an IB diploma or certificate. Additionally, colleges and universities may offer college credit or advanced course placement for predetermined scores.

Currently, five MCPS schools provide IB instruction. Richard Montgomery High School has offered IB since 1987. Bethesda-Chevy Chase (B-CC) High School had their first graduating class in 1999, and Springbrook High School had their first graduating class in 2001. Watkins Mill and Albert Einstein high schools began offering the IB program to their juniors in the 2004–2005 school year. Richard Montgomery High School is the countywide IB program; students are selected as incoming 9th graders after a competitive, highly selective process. The IB programs at Bethesda-Chevy Chase and Springbrook are open to all students in the school or consortium respectively.

Methodology

This report provides a descriptive examination of the results of AP exam takers in the 2003–2004 school year. This section describes the key research questions addressed in this report and the data used in the analysis.

Key Research Questions

1. How many students took an AP exam and who were they? Has it changed over time?
2. How many students take multiple exams?
3. What AP exams do MCPS students take?
4. How did students perform on the exams?
5. Do students who have not taken the course take the exam? How do they do?
6. How many MCPS students took the IB exams? How did they do?
7. For the graduating Class of 2004, how many exiting seniors took an AP exam and how did they do?

Data Used for Analysis

AP data are reported by the College Board to MCPS for students who identify themselves as MCPS students. These students are compared with official MCPS enrollment files and demographic and course-taking history added to the file for analyses. IB exam data were provided by IB program staff at the school level. MCPS transcript data are extracted from the Student Information Data System.

Graduating seniors are defined as those students who are enrolled in June of the year of graduation and expected to receive a diploma that June. Participation rates are calculated by dividing the number of AP exam takers by the number of Grade 12 students who were enrolled in MCPS in June of that academic year. The numbers and percentages in this report may not match those reported by the College Board as we are unaware of how the College Board identifies students in the graduating cohort.

For 2003–2004, the scoring company lost a number of AP exams for one of the high schools. No information on these exams is included in this report.

Results

This section provides descriptive information on students who took the AP exam in 2003–2004, the number of exams taken, the subject matter of the exams, and performance on the exams. It is organized to respond to the research questions identified in the Methodology section.

AP Exam Takers

During the 2003–2004 school year, 9,702 MCPS students took at least one AP exam. This is an increase from 4,597 students in 1999–2000. The percentage of students taking at least one AP exam during an academic year has grown from 12.5% to 22.7% of all high school students (see Table 2.) Females have participated at a greater rate than males for each of the 5 years reported and increased at a slightly higher rate than for males. A total of 19.6% of males took at least one exam in 2003–2004, an increase from 10.7% in 1999–2000.

Table 2
Number and Percentage of Students Taking at Least One AP Exam
by Gender, Grade, Race/Ethnicity, and Receipt of Special Services

	1999–2000		2000–2001		2001–2002		2002–2003		2003–2004	
	<i>N</i>	% HS	<i>N</i>	% HS	<i>N</i>	% HS	<i>N</i>	% HS	<i>N</i>	% HS
Female	2,596	14.4	3,067	16.5	3,739	19.2	4,971	24.3	5,426	25.9
Male	2,001	10.7	2,501	12.8	3,031	14.9	3,844	18.4	4,276	19.6
Grade 9	7	0.1	10	0.1	65	0.6	149	1.3	249	2.1
Grade 10	315	3.4	381	3.8	615	6.0	1,546	14.6	1,868	16.9
Grade 11	1,888	21.8	2,371	26.6	2,888	30.3	3,543	36.3	3,802	37.9
Grade 12	2,387	28.9	2,806	32.6	3,202	36.0	3,577	37.9	3,783	39.0
African American	272	3.6	374	4.8	501	6.0	726	8.4	814	8.7
American Indian	11	11.7	12	12.2	10	9.3	13	13.7	10	10.0
Asian American	998	18.9	1,224	22.3	1,503	25.8	1,962	32.3	2,207	35.4
Hispanic	250	5.1	322	6.1	410	7.1	560	9.0	757	11.0
White	3,066	16.2	3,636	18.7	4,346	21.9	5,554	27.4	5,914	29.3
FARMS	160	3.0	167	3.2	264	4.8	389	6.6	533	8.4
Special Education	89	2.1	98	2.2	120	2.6	170	3.6	172	3.5
LEP	60	2.4	36	1.5	69	2.6	103	3.9	164	5.9
MCPS	4,597	12.5	5,568	14.6	6,770	17.0	8,815	21.3	9,702	22.7

Students in Grade 9 have increasingly taken AP exams. In 1999–2000, seven Grade 9 students, (0.1%), took an AP exam. In 2003–2004, 249 Grade 9 students (2.1%) took at least one AP exam. This growth has taken place in each grade over the 5 years. Each subsequent grade also reports a higher rate of AP exam taking than the previous. Students in Grade 11 are participating at a rate closer to that of students in Grade 12. In 1999–2000 there was a 7.1 percentage-point difference, and in 2003–2004 there is a 1.1 percentage-point difference.



Figure 1. Percentage of students taking at least one AP exam by gender and receipt of special services from 1999–2000 through 2003–2004.

The percentage of students taking at least one AP exam has increased for students receiving special services. The number of students who qualify for FARMS services and took one or more AP exams more than doubled, increasing from 3.0% in 1999–2000 to 8.4% in 2003–2004. The number of students who receive ESOL services and took one or more AP exam also more than doubled, increasing from 2.1% to 5.9% (see Figure 1). Limited English Proficiency (LEP) students primarily took AP exams for foreign languages. For 2003–2004, of the 553 exams taken by students receiving ESOL services, 336, (61.0%) were in Spanish and French. Students receiving special education services also increased participation, going from 2.1% to 3.5% in 2003–2004.

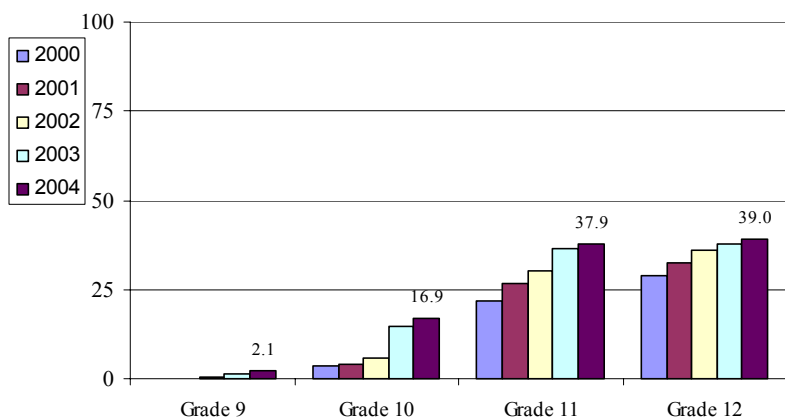


Figure 2. Percentage of students taking at least one AP exam by grade from 1999–2000 through 2003–2004.

There has been an increase in the participation rate of students taking the AP exams for all races/ethnicities (see Figure 3). African American student participation more than doubled, increasing from 3.6% in 1999–2000 to 8.7% in 2003–2004. Asian American student participation rose from 18.9% to 35.4%. For Hispanic students, the percentage more than doubled, increasing from 5.1% to 11.0%. White students taking at least one AP exam increased from 16.2% in 1999–2000 to 29.3% in 2003–2004. The percentage of American Indians is not included in Figure 3, since the small number of students makes the percentages less meaningful.

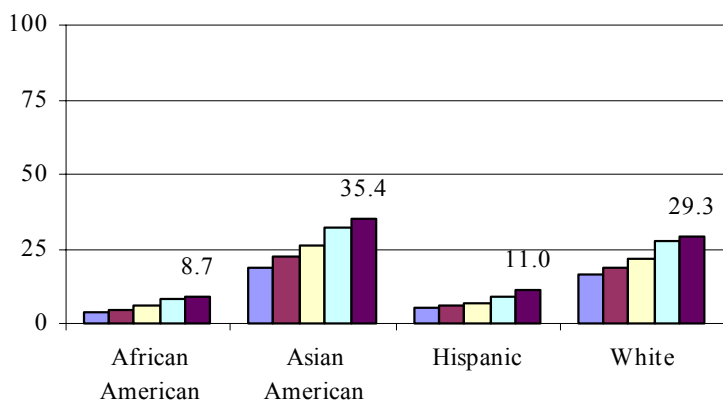


Figure 3. Percentage of students taking at least one AP exam by race/ethnicity from 1999–2000 through 2003–2004

Students Taking Multiple Exams

Of the 9,702 MCPS AP exam takers in 2003–2004, 4,556 (47.0%) took only one AP exam. Of the remaining students 26.0% took two, 16.5% took three, 6.8% took four, and 3.8% took five or more. Male and female students' exam-taking patterns are similar. Most students in Grades 9 and 10 took only one exam, 98.8% and 92.9% respectively. Some seniors (18.1%) took four or more AP exams, and 8.9% of juniors took four or more (see Table 3).

Table 3
Number and Percentage of 2003–2004 AP Exam Takers
in MCPS High Schools by Number of AP Exams Taken

	One		Two		Three		Four		Five or More	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Male	2,591	47.8	1,463	27.0	883	16.3	341	6.3	148	2.7
Female	1,965	46.0	1,056	24.7	714	16.7	316	7.4	225	5.3
Grade 9	246	98.8	3	1.2	0	0.0	0	0.0	0	0.0
Grade 10	1,736	92.9	112	6.0	16	0.9	4	0.2	0	0.0
Grade 11	1,364	35.9	1,351	35.5	747	19.6	228	6.0	112	2.9
Grade 12	1,210	32.0	1,053	27.8	834	22.0	425	11.2	261	6.9
African American	465	57.1	229	28.1	87	10.7	24	2.9	9	1.1
American Indian	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Asian American	894	40.5	511	23.2	432	19.6	198	9.0	172	7.8
Hispanic	467	61.7	175	23.1	79	10.4	25	3.3	11	1.5
White	2,725	46.1	1,602	27.1	997	16.9	409	6.9	181	3.1
FARMS	306	57.4	134	25.1	59	11.1	21	3.9	13	2.4
Special Education	105	61.0	33	19.2	27	15.7	5	2.9	2	1.2
LEP	131	79.9	28	17.1	4	2.4	1	0.6	0	0.0
MCPS	4,556	47.0	2,519	26.0	1,597	16.5	657	6.8	373	3.8

n/a —fewer than five students.

Approximately one quarter of all students take two exams; 28.1% of African American, 23.2% of Asian American, 23.1% of Hispanic, and 27.1% of White students. The majority of Asian American (59.5%) and White (53.9%) students took two or more exams.

Mean Number of AP Exams Taken

Over the four recent graduating classes, the mean number of exams taken rose from 3.0 to 3.7 for those students taking at least one. The mean number of AP exams taken by students who earned a 3 or better rose from 2.4 for the graduating class of 2001 compared with 2.8 for the class of 2004, (see Table 4.)

Table 4
Mean Number of AP Exams Taken for MCPS Exam Takers in the Graduating Classes of 2001 Through 2004 by Race/Ethnicity

		Graduating Class			
		2001	2002	2003	2004
		Mean	Mean	Mean	Mean
African American	All AP Exams Taken	2.0	2.1	2.5	2.6
	Score of 3 or Better	1.1	1.1	1.3	1.4
Asian American	All AP Exams Taken	3.5	3.7	3.9	4.5
	Score of 3 or Better	2.8	2.9	2.9	3.3
Hispanic	All AP Exams Taken	2.3	2.4	2.4	2.5
	Score of 3 or Better	1.6	1.6	1.6	1.6
White	All AP Exams Taken	3.0	3.2	3.4	3.7
	Score of 3 or Better	2.5	2.6	2.7	3.0
All MCPS	All AP Exams Taken	3.0	3.1	3.3	3.7
	Score of 3 or Better	2.4	2.5	2.5	2.8

Each race/ethnicity also saw an increase in the mean number of AP exams taken for those students who took at least one exam. As seen in Figure 4, Hispanic and African American students trail Asian American and White students. Asian American students had the highest mean number of exams taken for the graduating class of June 2004 with 4.5, followed by Whites with 3.7, and African American and Hispanic students who had 2.6 and 2.5 respectively.

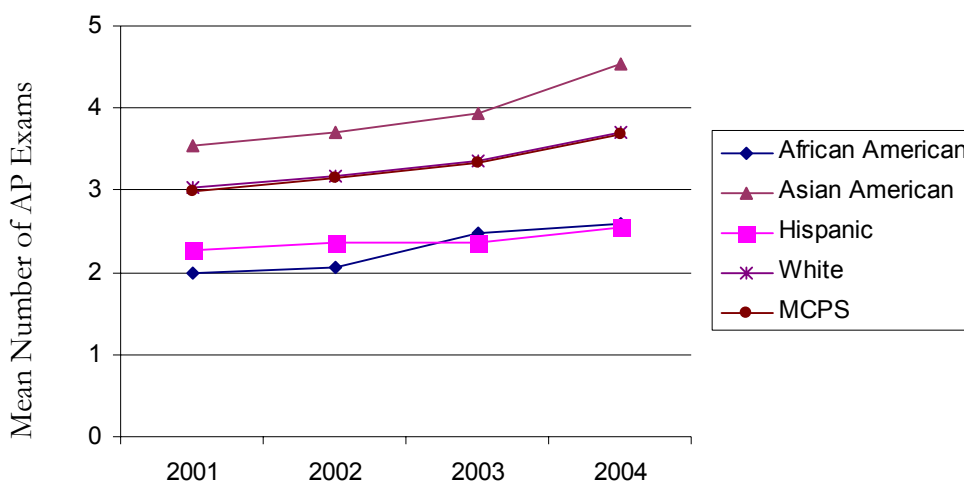


Figure 4. Mean number of AP exams taken by MCPS graduates from the classes of 2001 through 2004 by race/ethnicity.

The mean number of AP exams on which students scored 3 or higher also increased districtwide. For the graduating class of 2001, an average of 2.4 exams had scores of 3 or higher. For the graduating class of 2004, that number rose to 2.8. African American students increased from an average of 1.1 to 1.4 with a score of 3 or higher. Asian American students rose from a mean of 2.8 to 3.3. Hispanic students remained flat reporting a mean of 1.6 for the graduating class of 2001 and continuing to report a mean of 1.6 for each graduating class thereafter. White students saw an increase from a mean of 2.5 exams earning a 3 or better for the graduating class of 2001 to a mean of 3.0 for the graduating class of 2004.

AP Exams Taken

For the most popular AP exam in MCPS in 2003–2004, English Language and Composition, the number of exams taken increased from 1,019 in 1999–2000 to 2,214 in 2003–2004. The second most popular course in 2003–2004, Psychology, increased from 1,011 in 1999–2000 to 2,016 in 2003–2004 (see Table 5).

English Language-Composition and Psychology together represent 22.2% of all AP exams taken in MCPS in 2003–2004. They represent 11.6% and 10.6% respectively. The third most popular MCPS AP exam is World History. The addition of World History expanded students' opportunity to take an AP exam, because taking the course satisfies a graduation requirement. English Literature represents 9.5% of exam taking and U.S. Government has increased its representation from 3.4% of all exams taken in 1999–2000 to 9.4% in 2003–2004. Math Calculus BC (a full year of college calculus) has decreased from 6.9% to 5.0% of all exams taken. Math Calculus AB (comparable to a semester of college calculus) continues to represent 3.9% of exams taken in MCPS from 1999–2000 through 2003–2004. See Appendix A for the number and percentage of students taking the 25 most popular MCPS AP Exams in 2003–2004 by race/ethnicity.

Table 5
Number and Percentage of Students Taking the 25 Most Popular MCPS
AP Exams from 1999–2000 Through 2003–2004

	1999–2000		2000–2001		2001–2002		2002–2003		2003–2004	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
English Lang.-Comp.	1,019	12.0	1,283	12.1	1,581	11.5	2,152	12.7	2,214	11.6
Psychology	1,011	11.9	1,420	13.3	1,558	11.4	2,026	12.0	2,016	10.6
World History	0	0.0	0	0.0	1,358	9.9	1,639	9.7	1,958	10.3
English Lit.-Comp.	872	10.3	1,193	11.2	1,471	10.7	1,648	9.7	1,805	9.5
U.S. Govt & Politics	289	3.4	367	3.4	538	3.9	1,529	9.0	1,788	9.4
Math Calculus BC	585	6.9	675	6.3	775	5.7	819	4.8	957	5.0
American History	761	9.0	752	7.1	816	6.0	849	5.0	853	4.5
Biology	370	4.4	629	5.9	625	4.6	619	3.7	852	4.5
Statistics	376	4.4	525	4.9	602	4.4	645	3.8	825	4.3
Math Calculus AB	294	3.5	406	3.8	473	3.5	717	4.2	737	3.9
Spanish Language	379	4.5	411	3.9	459	3.4	600	3.5	682	3.6
Chemistry	385	4.5	423	4.0	518	3.8	530	3.1	551	2.9
European History	453	5.3	479	4.5	418	3.1	376	2.2	501	2.6
Environ Sci	118	1.4	210	2.0	217	1.6	359	2.1	443	2.3
Physics C Mech.	192	2.3	266	2.5	295	2.2	382	2.3	442	2.3
French Language	225	2.6	160	1.5	253	1.8	242	1.4	272	1.4
Economics Micro	128	1.5	110	1.0	158	1.2	190	1.1	277	1.5
Economics Macro	116	1.4	109	1.0	160	1.2	197	1.2	276	1.4
Physics C Elec.Mag.	107	1.3	165	1.6	171	1.2	204	1.2	245	1.3
Comparative Govt	251	3.0	305	2.9	455	3.3	235	1.4	205	1.1
Computer Science AB	219	2.6	263	2.5	231	1.7	245	1.4	210	1.1
Physics B	107	1.3	119	1.1	110	0.8	139	0.8	174	0.9
Spanish Literature	26	0.3	33	0.3	48	0.4	119	0.7	161	0.8
Human Geography	0	0.0	29	0.3	66	0.5	136	0.8	157	0.8
Computer Science A	47	0.6	44	0.4	70	0.5	65	0.4	116	0.6
MCPS	8,496	100	10,644	100	13,690	100	16,925	100	19,042	100

Student Performance

In 2003–2004 the mean score for all MCPS AP exams declined from 3.6 to 3.4, a mean still above the 3.0 college accepted pass level. Table 6 contains information about the top 25 most popular exams. See Appendix B for all AP exam information by name of exam.

Table 6
Mean Scores and Number of Exam Takers for MCPS Students in the
25 Most Popular Exams in 2003-2004 from 1999-2000 Through 2003-2004

	1999-2000		2000-2001		2001-2002		2002-2003		2003-2004	
	\bar{x}	<i>N</i>	\bar{x}	<i>N</i>	\bar{x}	<i>N</i>	\bar{x}	<i>N</i>	\bar{x}	<i>N</i>
English Lang.-Comp.	3.6	1,019	3.4	1,283	3.4	1,581	3.2	2,152	3.2	2,214
Psychology	3.6	1,011	3.5	1,420	3.6	1,558	3.5	2,026	3.6	2,016
World History	.	0	.	0	3.4	1,358	3.4	1,639	3.4	1,958
English Lit.-Comp.	3.5	872	3.3	1,193	3.3	1,471	3.0	1,648	3.2	1,805
U.S. Govt & Politics	3.3	289	3.1	367	3.1	538	3.1	1,529	3.2	1,788
Math Calculus BC	3.7	585	3.9	675	3.8	775	3.7	819	3.8	957
American History	3.6	761	3.5	752	3.6	816	3.3	849	3.4	853
Biology	3.7	370	3.2	629	3.5	625	3.5	619	3.7	852
Statistics	3.5	376	3.4	525	3.3	602	3.3	645	3.3	825
Math Calculus AB	3.6	294	3.5	406	3.6	473	3.5	717	3.3	737
Spanish Language	3.8	379	3.6	411	3.7	459	3.9	600	4.0	682
Chemistry	3.7	385	3.4	423	3.5	518	3.4	530	3.6	551
European History	3.5	453	3.7	479	3.5	418	3.5	376	3.5	501
Environ Sci	3.7	118	3.1	210	3.3	217	2.9	359	2.8	443
Physics C Mech.	3.8	192	3.8	266	3.5	295	3.7	382	3.6	442
Economics Micro	3.4	128	3.9	110	3.6	158	3.8	190	3.6	277
Economics Macro	3.5	116	3.7	109	3.6	160	3.8	197	3.5	276
French Language	3.2	225	3.3	160	3.4	253	3.1	242	3.4	272
Physics C Elec.Mag.	3.4	107	3.7	165	3.7	171	3.6	204	3.6	245
Computer Science AB	3.9	219	3.6	263	3.8	231	4.0	245	3.6	210
Comparative Govt	3.4	251	3.0	305	3.4	455	3.3	235	3.6	205
Physics B	3.3	107	3.4	119	3.3	110	3.0	139	3.1	174
Spanish Literature	3.6	26	3.6	33	3.5	48	2.9	119	3.0	161
Human Geography	.	0	3.1	29	3.4	66	3.4	136	3.7	157
Computer Science A	3.1	47	3.0	44	3.1	70	3.3	65	3.4	116
All MCPS AP Exams	3.6	8,496	3.4	10,644	3.5	13,690	3.4	16,925	3.4	19,042

For the ten most popular exams, the highest mean score was a 4.0 in Spanish Language (682 exam takers). Other high scores are a 3.8 in Math Calculus BC (957 exam takers), a 3.7 in Biology (852 exam takers), and a 3.7 in Human Geography (157 exam takers). Several exams had a mean of 3.6, including (listed in decreasing number of exam takers): Psychology (2,016 exam takers), Chemistry (551 exam takers), Physics C–Mechanics (442 exam takers), Microeconomics (277 exam takers), Physics C–Elec./Mag. (245 exam takers), Computer Science AB (210 exam takers), and Comparative Government (205 exam takers).

Table 7
Students Scoring 3 or Higher on at Least One AP Exam

	1999–2000		2000–2001		2001–2002		2002–2003		2003–2004		% Increase in Number of Students
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	
Female	2,185	84.2	2,426	79.1	2,987	79.9	3,782	76.1	4,207	77.5	92.5
Male	1,734	86.7	2,075	83.0	2,538	83.7	3,105	80.8	3,466	81.1	99.9
Grade 9	7	100.0	10	100.	51	78.5	111	74.5	205	82.3	2828.6
Grade 10	290	92.1	324	85.0	531	86.3	1,126	72.8	1,390	74.4	379.3
Grade 11	1,621	85.9	1,890	79.7	2,371	82.1	2,866	80.9	3,107	81.7	91.7
Grade 12	2,001	83.8	2,277	81.1	2,572	80.3	2,784	77.8	2,971	78.5	48.5
African American	190	69.9	203	54.3	294	58.7	412	56.7	481	59.1	153.2
Asian American	850	85.2	994	81.2	1,205	80.2	1,514	77.2	1,691	76.6	98.9
Hispanic	218	87.2	239	74.2	311	75.9	413	73.8	594	78.5	172.5
White	2,653	86.5	3,055	84.0	3,707	85.3	4,537	81.7	4,899	82.8	84.7
FARMS	118	73.8	110	65.9	165	62.5	256	65.8	360	67.5	205.1
Special Education	68	76.4	64	65.3	101	84.2	122	71.8	125	72.7	83.8
LEP	51	85.0	32	88.9	56	81.2	87	84.5	143	87.2	180.4
MCPS	3,919	85.3	4,501	80.8	5,525	81.6	6,887	78.1	7,673	79.1	95.8

The College Board defines a score of 3 on an AP exam as “Qualified to receive college credit or advanced placement” (College Board, 2004). The number of students who scored at least one 3 on an AP exam has increased from 3,919 in 1999–2000 to 7,673 in 2003–2004. The percentage of students receiving a 3 or higher decreased from 85.3% to 79.1%. While the number of students receiving at least one 3 or higher almost doubled, the number of students participating more than doubled (4,597 in 1999–2000 to 9,702 in 2003–2004). See Appendix C for the number and percentage of MCPS taking AP exams and earning a 3 or higher by high school.

The increase in the number of students earning 3 or more occurred for students in all grades. The percentage increase in the number of African American students was 153.2%, Asian American students had a 98.9% increase, Hispanic students had a 172.5% increase, and White students had a 84.7% increase. Students receiving FARMS services increased by 205.1%, students receiving special education increased 83.8% and students receiving ESOL services increased 180.4%.

The increased number of students scoring at least one 3 on an AP exam also can be seen geographically (see Figure 5). In 1999–2000 nine high schools did not have 100 or more students earning at least one score of 3. By 2003–2004 all 23 high schools had at least 100 students earning at least one 3. In addition, the number of schools with 300 or more students earning at least a 3 increased from six to nine, making this achievement more visible throughout the county.

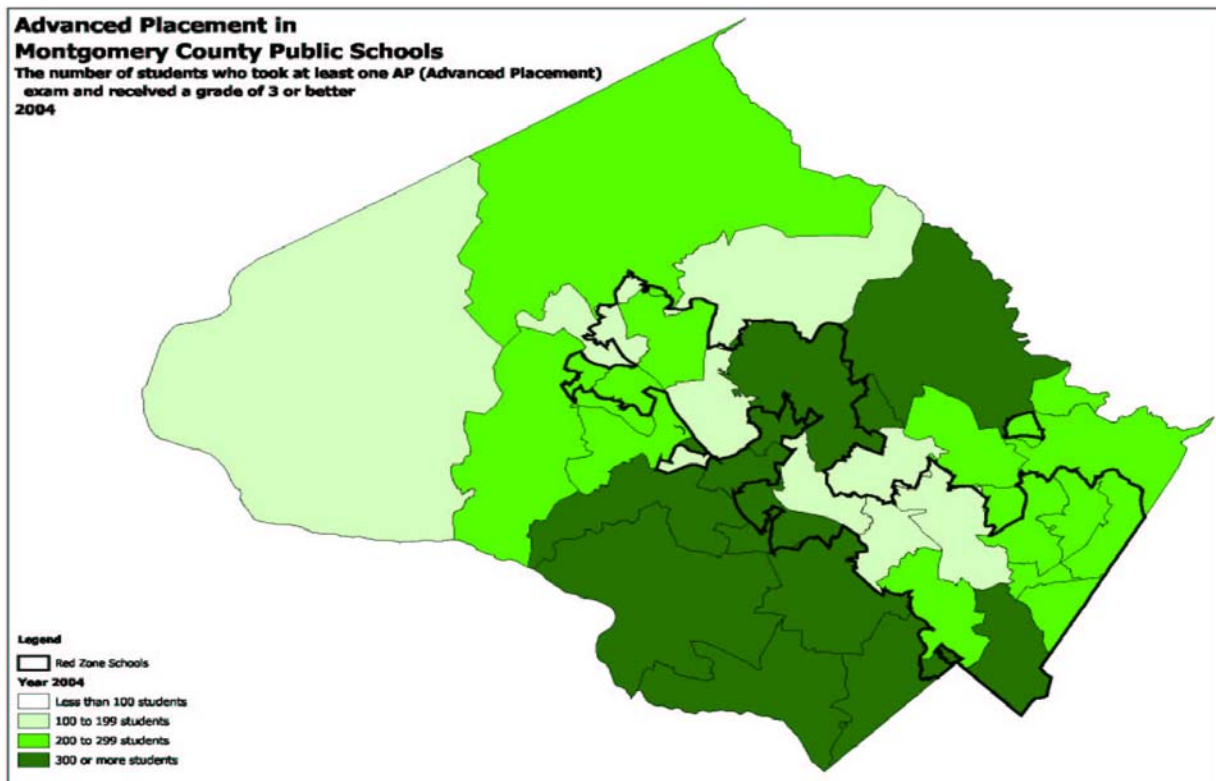
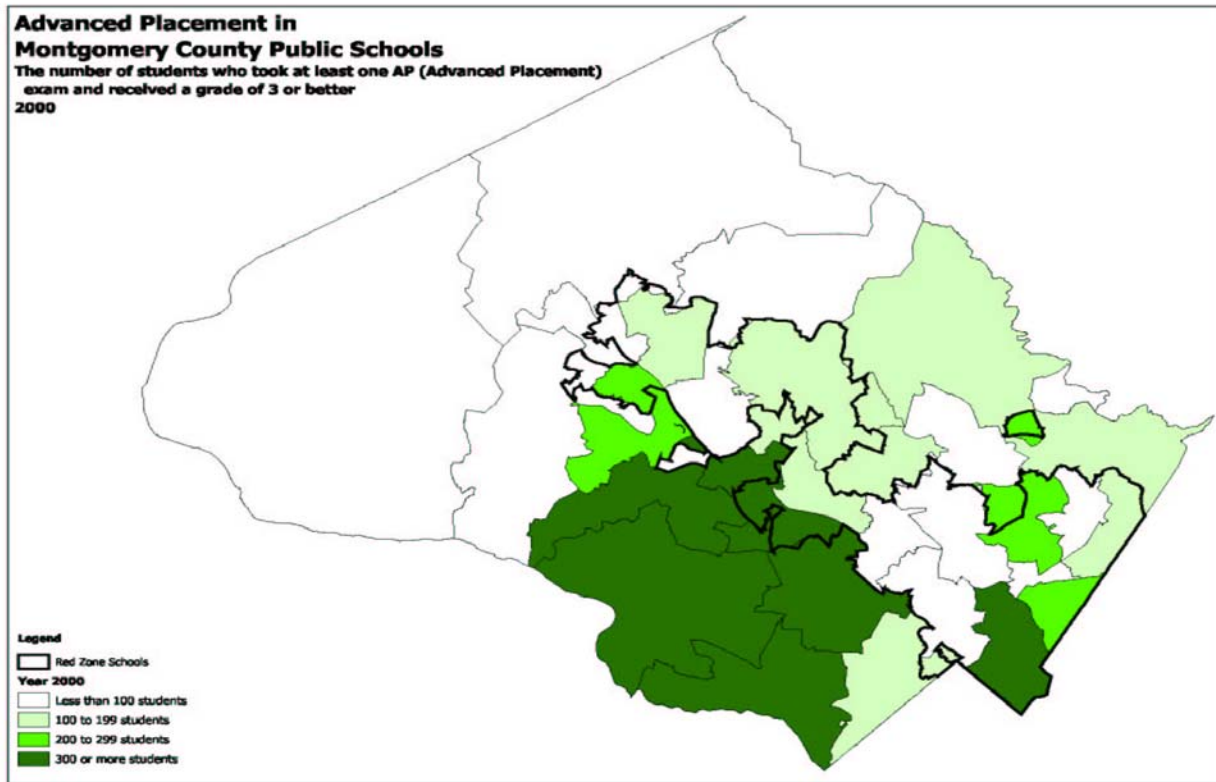


Figure 5. Map of MCPS schools coded by number of students earning a 3 or more on at least one AP exam.

Taking the Exam but not the Course

Some students may take the AP exam without enrolling in the corresponding AP course that year. To capture this, a transcript analysis was conducted for the three most popular exams compared with 2003–2004 course enrollment. Some students had taken the AP course for the specified exam, some students had taken a comparable IB course, some were re-taking the exam while not currently re-enrolled in the course, and a very small number were taking the exam without a concurrent enrollment in an AP course or prior AP exam taking.

Table 8
Number, Percentage, and Mean Score of AP Exam Takers by Prior Course Taking

Prior Course Taking	English Lang. and Comp. AP Exam			Psychology AP Exam			World History AP Exam		
	<i>n</i>	%	mean	<i>n</i>	%	mean	<i>n</i>	%	mean
AP Course	2,063	93.2	3.2	1,946	96.5	3.6	1,947	99.4	3.4
IB Course	96	4.3	4.2	49	2.4	4.2	0	0.0	--
Re-taking Exam	19	0.9	3.0	n/a	n/a	n/a	0	0.0	--
Other	36	1.6	3.1	20	1.0	3.1	11	0.6	3.2
All	2,214	100	3.2	2,016	100	3.6	1,958	100	3.4

n/a fewer than five students.

The majority of AP exam takers are enrolled in the AP course, 93.2% of English Language and Composition exam takers, 96.5% of Psychology exam takers, and 99.4% of World History AP exam takers. Students enrolled in comparable IB courses scored higher than students enrolled in the AP exams for English Language and Composition and Psychology. This higher score may be due to a sample selection bias (i.e., the strongest IB students take the exam).

International Baccalaureate Program

The IB program is another option available to MCPS students to do college-level work during high school. It is a 2-year comprehensive curriculum offering exams that may earn college credit or advanced college course placement. IB courses and exams on a transcript are seen as an asset during the college application process. Currently, IB courses are offered in five high schools in MCPS. In 2003–2004, Bethesda-Chevy Chase, Springbrook, and Richard Montgomery high schools had graduating seniors and, for the 2004–2005 school year, Watkins-Mills and Einstein high schools have introduced programs for students in Grade 11. Richard Montgomery High School is the countywide IB program; these students are selected as incoming 9th graders after a competitive, highly selective process. The IB programs at Bethesda-Chevy Chase and Springbrook are open to all students in the school or consortium respectively.

A total of 518 MCPS students took 1,289 IB exams during 2003–2004. This is a mean of 2.5 exams per student. Of these, 226 students were from Bethesda–Chevy Chase and took 439 exams (a mean of 1.9 exams per student), 98 students were from Springbrook and took 288

exams (a mean of 2.9 exams per student), and 194 students took 562 exams at Richard Montgomery High School (a mean of 2.9 exams per student) (see Table 9).

Table 9
Number and Mean Score of IB Exams Taken at
Bethesda-Chevy Chase, Springbrook, and Richard Montgomery High Schools

Subject	Level*	B-CC (n=439)		Springbrook (n=288)		Richard Montgomery (n=562)		World Mean
		N	Mean	N	Mean	N	Mean	
English A1	HL	70	5.26	46	4.80	100	5.59	4.87
French B	HL	16	5.56	8	5.13	n/a	n/a	5.32
French B	SL	9	4.67	11	4.70	32	5.56	4.99
Mandarin	SL	n/a	n/a			n/a	n/a	5.95
Spanish AB	SL			n/a	n/a			5.02
Spanish B	HL	17	5.47	5	6.00	5	6.40	5.84
Spanish B	SL	22	5.36	22	4.77	47	5.47	4.94
Economics	SL					34	5.56	4.98
History: Europe	HL	66	5.24	46	4.98	102	5.29	5.06
ITGS	SL			21	5.33			4.21
Psychology	SL	48	4.40			19	4.29	4.32
Biology	HL	12	4.67	16	4.94	26	4.54	4.37
Biology	SL	n/a	n/a					
Chemistry	SL	29	2.79	6	4.40	9	5.22	4.46
Physics	HL	19	3.84	20	4.50	53	4.32	4.66
Physics	SL	n/a	n/a	28	4.19	15	4.67	4.38
Environ. Systems	SL					7	6.00	4.83
Computer Science	HL			n/a	n/a			4.12
Computer Science	SL			n/a	n/a	8	6.43	4.13
Math (no calculus)	SL	91	6.20	44	5.14	44	5.91	4.58
Math (with calculus)	HL					35	6.0	4.85
Mathematics	HL					n/a	n/a	4.72
Theatre Arts	HL							
Theatre Arts	SL	n/a	n/a	n/a	n/a	n/a	n/a	3.69
Music	HL	6	4.17			n/a	n/a	4.60
Music- Group	SL					n/a	n/a	4.55
Music - Solo	SL					n/a	n/a	4.39
Visual Arts	HL	15	3.93	n/a	n/a	17	5.06	4.62
Visual Arts	SL	n/a	n/a	5	4.60	n/a	n/a	3.36
Percent of Exams Scoring 4 or Above			88.4		90.3		97.0	83.0

Source: IB program coordinators from Bethesda-Chevy Chase, Springbrook, and Richard Montgomery high schools.

n/a— fewer than five students examined

* Standard level (SL) courses are 1-year courses, higher level (HL) courses are 2-year courses, each followed by an exam.

IB exams are scored on a scale of 1 to 7. Scores of 4 or higher are required for certification from the program. The percentage of a high school's exams with a score of 4 or better ranges from 88.4% at Bethesda-Chevy Chase to 90.3% at Springbrook, to 97.0% at Richard Montgomery. All three MCPS programs had higher percentages of students earning a score of 4 or higher than the world average of 83.0%.

IB also offers diplomas to students who complete the program successfully by completing course work and earning a 4 or better on required exams. In 2003–2004, 177 of 190 candidates (93.2%) qualified for the IB diploma. Almost all MCPS candidates earned their IB diploma. At Bethesda-Chevy Chase, 44 of 44 students (100%) earned their diplomas. At Springbrook High School 36 of 46 students (78.3%) earned diplomas, while 97 of 100 students (97.0%) received their IB diplomas at Richard Montgomery.

Graduating Class of 2004

Beginning in January 2005, the College Board began to report AP exam results for graduating classes. When MCPS graduates were reviewed, it was determined that almost half (48.6%) of all graduating seniors from the class of 2004 had taken at least one AP exam during their high school years (see Table 10). Almost 40% of graduating seniors (39.4%) of the class of 2004 scored a 3 or higher on at least one AP exam while in high school. This is three times the national average of 13 percent and double the Maryland average of 19.4 percent (College Board, 2005).

Table 10

Number and Percentage of MCPS Graduating Seniors Earning at Least One 3
On an AP Exam in Their High School Careers

	Graduating Class of 2000				Graduating Class of 2004			
	Took an AP		Earned 3 or Higher		Took an AP		Earned 3 or Higher	
	N	%	N	%	N	%	N	%
African American	182	11.1	133	8.1	448	23.3	281	14.6
Asian American	600	47.8	485	38.7	963	66.9	758	52.7
Hispanics	153	16.9	141	15.5	385	29.5	305	23.4
Whites	1,822	43.3	1,556	37.0	2,777	58.5	2,365	49.8
MCPS	2,757	34.4	2,315	28.9	4,573	48.6	3,709	39.4

Over the last four years, levels of participation have increased as well as success. The percentage of graduating seniors who took an AP exam at any time during their high school career grew from 34.4% for the class of 2000 to 48.6% in 2004. Seniors who have earned a 3 or

higher increased from 28.9% to 39.4%. Student performance on AP exams has improved for each racial/ethnic group in terms of percentage of graduating seniors who attained at least one score of 3 or better during their high school career.

For African American seniors, the percentage of students taking an AP exam has doubled, increasing from 11.1% in 2000 to 23.3% in 2004. The percentage of graduating African American students who have scored a 3 or higher has almost doubled, increasing from 8.0% in 2000 to 14.7%. Asian American seniors who took at least one AP exam increased from 47.8% in 2000 to 66.9% for the graduating class of 2004. Asian American students who earned at least one 3 increased from 38.7% for the class of 2000 to 52.6% for the class of 2004. Participation of Hispanic seniors increased from 16.9% for the class of 2000 to 29.5% for the class of 2004. Hispanic seniors earning at least one 3 on an AP exam increased from 15.5% for the class of 2000 to 23.4% for the class of 2004. White seniors also increased in participation and success. Forty three percent of White seniors took an AP exam in 2000 compared to 58.5% of the class of 2004. White seniors scoring at least one 3 increased from 37.0% for the class of 2000 to 49.8% for the class of 2004.

Another area of growth for MCPS graduating seniors is in the identification of AP Scholars. They are defined by the College Board as students who receive a 3 or higher on three or more AP exams (College Board, 2004). For the MCPS graduating class of 2000, there were 1,000 seniors designated as AP scholars, for the class of 2004 the number had doubled to 2,037 (see Table 11).

Table 11
Number of AP Scholars in the MCPS Graduating Classes of 2000 and 2004

	Graduating Class of	
	2000	2004
African American	30	94
Asian American.	249	497
Hispanic	28	66
White	692	1379
FARMS	19	43
ESOL	5	n/a
Special Ed.	8	28
All MCPS	1,000	2,037

Growth is also seen for each racial/ethnic group as the number of AP scholars doubled for most student groups, tripling for African American students. This number also doubles for students who are in the Free and Reduced-price Meals System and students receiving special education services. See Appendix D for the number and percentage of graduating seniors from the classes of 2000 and 2004 who took an AP exam and scored a 3 or higher for each MCPS high school.

Discussion

During the 2003–2004 school year, 9,702 MCPS students took at least one AP exam; this is an increase from 4,597 students in 1999–2000. The percentage of all high school students taking at least one AP exam during an academic year has grown from 12.5% to 22.7%. Females continue to participate at higher rates than males. For students receiving special services, each subgroup also has increased the percentage of students taking at least one AP exam. Participation of students who qualify for FARMS services more than doubled, increasing from 3.0% in 1999–2000 to 8.4% in 2003–2004. The number of students who receive ESOL services also more than doubled, from 2.1% to 5.9%. LEP students primarily took AP exams for foreign languages. For 2003–2004, of the 553 exams taken by students receiving LEP services, 336 (60.8%) were in Spanish and French. Participation of students receiving special education services increased from 2.1% to 3.5% in 2003–2004.

The increase also is seen when participation rates are examined by race/ethnicity. African American student participation more than doubled, increasing from 3.6% in 1999–2000 to 8.7% in 2003–2004. Asian American students participation rose from 18.9% to 35.4% and Hispanic student participation more than doubled, increasing from 5.1% to 11.0%. White students taking at least one AP increased from 16.2% in 1999–2000 to 29.3% in 2003–2004.

Fifty-three percent of AP exam takers take more than one exam. For 2003–2004, the majority of African American (57.1%) and Hispanic (61.7%) students took only one exam. The majority of Asian American (59.5%) and White (53.9%) students took two or more. This race/ethnicity pattern is seen in the mean number of exams taken during a high school career. For the past four MCPS graduating classes, the mean number of exams taken rose from 3.0 to 3.7.

The most popular AP exam in MCPS in 2003–2004 is English Language and Composition, with the number of exams taken increasing from 1,019 in 1999–2000 to 2,214 in 2003–2004. The second most popular exam, Psychology, increased from 1,011 in 1999–2000 to 2,016 in 2003–2004. English Language-Composition and Psychology together represent 22.2% of all AP exams taken in MCPS in 2003–2004.

The third most popular exam in MCPS is World History. World History satisfies a graduation requirement and currently accounts for 10.3% of all exams taken. English Literature accounts for 9.5% of exam taking, and U.S. Government has increased its representation from 3.4% of all exams taken in 1999–2000 to 9.4% in 2003–2004. Math Calculus BC decreased from 6.9% to 5.0% of all exams taken. Math Calculus AB continues to represent 3.9% of exam taking in MCPS from 1999–2000 through 2003–2004.

The increase in the number of students earning a score of 3 or more occurred for students in all grades. The percentage increase in the number of African American students was 153.2%, for Asian American students it was 98.9%, for Hispanic students it was 172.5%, and for White students it was 84.7%. The number of students scoring a 3 or higher who receive FARMS services increased by 205.1%. For students receiving special education, it was an 83.8% increase; and for students receiving ESOL services, it was an increase of 180.4%. The percentage of students earning a 3 or higher decreased; however, this may be due to the fact that

as more students scored 3 or higher, an even larger number took AP exams. The only student group that did not decline as a percentage was students receiving ESOL services. These students more than doubled in their participation and increased slightly in the percentage scoring a 3 or higher, increasing from 85.0% to 87.2%. These students primarily take foreign language AP exams.

The highest mean score in 2003–2004 was a 4.0 in Spanish Language (682 exam takers) and 3.8 in Math Calculus BC (957 exam takers). Two exams had a mean of 3.7, Biology (852 exam takers) and Human Geography (157 exam takers). Several exams had a mean of 3.6, including (listed in decreasing number of exam takers): Psychology (2,016 exam takers), Chemistry (551 exam takers), Physics C–Mechanics (442 exam takers), Microeconomics (277 exam takers), Physics C–Elec./Mag. (245 exam takers), Computer Science AB (210 exam takers), and Comparative Government (205 exam takers).

The IB program offers MCPS students an opportunity to take a 2-year liberal arts curriculum and exams that may offer college credit. A total of 518 students took 1,289 IB exams, a mean of 2.5 exams per student. IB also offers diplomas to students who complete the program successfully. In 2003–2004, 177 of 190 candidates (93.2%) qualified for the IB diploma.

Starting in January 2005, the College Board provided summary reports for cohorts of graduating seniors. This was an attempt by the College Board to introduce a “best single measure” for reporting student results. Schools or teachers could not artificially inflate pass rates by encouraging only strong students to take the test or encouraging them to take multiple tests, counting for several pass rates (College Board, 2005). This change in reporting from exams administered in an academic year to a cumulative capture of exams taken by graduating seniors, provides a different picture from those seen previously. As a result, MCPS reported that almost half (48.6%) of all graduating seniors from the class of 2004 have taken at least one AP test during their high school years. Also, almost 40% of graduating seniors (39.4%) of the class of 2004 scored a 3 or higher on at least one AP exam while in high school. This is three times the national average of 13 percent and double the Maryland average of 19.4 percent (College Board, 2005).

For African American seniors, the percentage of students taking an AP exam has doubled, increasing from 11.1% in 2000 to 23.3% in 2004. The percentage of graduating African American students who have scored a 3 or higher has almost doubled, increasing from 8.0% in 2000 to 14.7%. Asian American seniors who took at least one AP exam increased from 47.8% in 2000 to 66.9% for the graduating class of 2004. Asian American students who earned at least one 3 increased from 38.7% for the class of 2000 to 52.6% for the class of 2004. Participation of Hispanic seniors increased from 16.9% for the class of 2000 to 29.5% for the class of 2004. Hispanic seniors earning at least one 3 on an AP increased from 15.5% for the class of 2000 to 23.4% for the class of 2004. White seniors also increased in participation and success. Forty three percent of White seniors took an AP exam in 2000 compared to 58.5% of the class of 2004. White seniors scoring at least one 3 increased from 37.0% for the class of 2000 to 49.8% for the class of 2004.

The College Board also identifies some students to be AP Scholars. These are students who receive a 3 or higher on 3 or more AP exams (College Board, 2004). For the MCPS graduating class of 2000, 1,000 seniors were AP scholars, for the class of 2004 the number had doubled to 2,037(see Table 11). Growth is also seen for each racial/ethnic group as the number of AP scholars doubled for each group, tripling for African American students. This number also doubles for students who are in the Free and Reduced-price Meals System and students receiving special education services.

Students must have a strong academic background and good study skills to be successful in college. The growing number of MCPS students earning a 3 or more on one AP exam demonstrates that MCPS continues to encourage students to take advantage of rigorous course work, and students continue to be successful when doing so. The continued growth of the IB program speaks to students' interest in identifying these academic opportunities and taking advantage of them.

Colleges and universities look at students' transcripts for both AP and IB course work and exam scores. MCPS continues to offer more rigorous courses to high school students, especially AP courses and exams, and continues to encourage the growth of the IB program. Expanding both of these opportunities while maintaining current levels of success will contribute to MCPS's ability to meet Goal 1.

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**Appendix A: Number and Percentage of Students Taking the 25 Most Popular MCPS
AP Exams in 2003–2004 by Race /Ethnicity**

	2003–2004 All		African American		Asian American		Hispanic		White	
	<i>N</i>	%								
English Lang.-Comp.	2,214	11.6	218	16.4	541	10.9	88	7.2	1,364	11.8
Psychology	2,016	10.6	155	11.7	448	9.1	88	7.2	1,324	11.5
World History	1,958	10.3	165	12.4	520	10.5	101	8.3	1,168	10.1
English Lit.-Comp.	1,805	9.5	172	13.0	414	8.4	79	6.5	1,139	9.9
U.S. Govt & Politics	1,788	9.4	109	8.2	430	8.7	97	8.0	1,149	10.0
Math Calculus BC	957	5.0	32	2.4	351	7.1	14	1.2	559	4.8
American History	853	4.5	60	4.5	189	3.8	29	2.4	574	5.0
Biology	852	4.5	68	5.1	344	7.0	32	2.6	407	3.5
Statistics	825	4.3	55	4.1	240	4.9	26	2.1	504	4.4
Math Calculus AB	737	3.9	35	2.6	182	3.7	28	2.3	492	4.3
Spanish Language	682	3.6	18	1.4	56	1.1	356	29.3	251	2.2
Chemistry	551	2.9	44	3.3	215	4.3	19	1.6	273	2.4
European History	501	2.6	15	1.1	89	1.8	21	1.7	376	3.3
Environ Sci	443	2.3	17	1.3	89	1.8	32	2.6	304	2.6
Physics C Mech.	442	2.3	20	1.5	180	3.6	12	1.0	230	2.0
French Language	272	1.4	9	0.7	99	2.0	11	0.9	158	1.4
Economics Micro	277	1.5	9	0.7	102	2.1	11	0.9	154	1.3
Economics Macro	276	1.4	65	4.9	43	0.9	9	0.7	155	1.3
Physics C Elec.Mag.	245	1.3	7	0.5	119	2.4	3	0.2	116	1.0
Comparative Govt	205	1.1	2	0.2	90	1.8	1	0.1	116	1.0
Computer Science AB	210	1.1	10	0.8	33	0.7	5	0.4	157	1.4
Physics B	174	0.9	6	0.5	55	1.1	8	0.7	105	0.9
Spanish Literature	161	0.8	2	0.2	4	0.1	104	8.6	51	0.4
Human Geography	157	0.8	5	0.4	34	0.7	10	0.8	108	0.9
Computer Science A	116	0.6	4	0.3	26	0.5	8	0.7	78	0.7
MCPS	19,042		1,327		4,947		1,214		11,535	

Appendix B: Number and Mean Score by AP Exam Name for 1999–2000 Through 2003–2004

	1999–2000		2000–2001		2001–2002		2002–2003		2003–2004	
	mean	N	mean	N	mean	N	mean	N	mean	N
English Lang.-Comp.	3.6	1,019	3.4	1,283	3.4	1,581	3.2	2,152	3.2	2,214
Psychology	3.6	1,011	3.5	1,420	3.6	1,558	3.5	2,026	3.6	2,016
English Lit.-Comp.	3.5	872	3.3	1,193	3.3	1,471	3.0	1,648	3.2	1,805
World History	.	0	.	0	3.4	1,358	3.4	1,639	3.4	1,958
U.S. Govt & Politics	3.3	289	3.1	367	3.1	538	3.1	1,529	3.2	1,788
American History	3.6	761	3.5	752	3.6	816	3.3	849	3.4	853
Math Calculus BC	3.7	585	3.9	675	3.8	775	3.7	819	3.8	957
Biology	3.7	370	3.2	629	3.5	625	3.5	619	3.7	852
Statistics	3.5	376	3.4	525	3.3	602	3.3	645	3.3	825
Math Calculus AB	3.6	294	3.5	406	3.6	473	3.5	717	3.3	737
Spanish Language	3.8	379	3.6	411	3.7	459	3.9	600	4.0	682
Chemistry	3.7	385	3.4	423	3.5	518	3.4	530	3.6	551
European History	3.5	453	3.7	479	3.5	418	3.5	376	3.5	501
Physics C Mech.	3.8	192	3.8	266	3.5	295	3.7	382	3.6	442
Comparative Govt	3.4	251	3.0	305	3.4	455	3.3	235	3.6	205
Environ Sci	3.7	118	3.1	210	3.3	217	2.9	359	2.8	443
Computer Science AB	3.9	219	3.6	263	3.8	231	4.0	245	3.6	210
French Language	3.2	225	3.3	160	3.4	253	3.1	242	3.4	272
Physics C Elec.Mag.	3.4	107	3.7	165	3.7	171	3.6	204	3.6	245
Economics Micro	3.4	128	3.9	110	3.6	158	3.8	190	3.6	277
Economics Macro	3.5	116	3.7	109	3.6	160	3.8	197	3.5	276
Physics B	3.3	107	3.4	119	3.3	110	3.0	139	3.1	174
Human Geography	.	0	3.1	29	3.4	66	3.4	136	3.7	157
Spanish Literature	3.6	26	3.6	33	3.5	48	2.9	119	3.0	161
Computer Science A	3.1	47	3.0	44	3.1	70	3.3	65	3.4	116
Art History	3.2	46	3.0	92	3.1	73	3.8	65	3.2	50
Art Studio Drawing	4.4	37	4.2	27	3.7	75	4.0	52	3.7	80
Art Studio 2d	4.1	53	3.6	60	3.7	41	3.8	41	3.4	51
French Literature	3.4	15	3.5	55	3.1	26	3.2	66	3.0	68
Music Theory	3.8	10	3.7	16	3.5	25	3.6	25	3.5	61
Latin Vergil/Catulus	.	0	1.7	13	2.1	7	.	0	2.0	5
Latin Lit	.	0	3.0	2	1.5	12	2.6	7	1.5	2
German Language	5.0	5	4.3	3	5.0	2	4.8	4	4.5	2
Art Studio 3-D	.	0	.	0	2.3	3	2.0	3	3.3	6
Total	3.6	8,496	3.4	10,644	3.5	13,690	3.4	16,925	3.4	19,042

Appendix C: Number and Percentage of MCPS Students Taking AP Exams and Scoring a 3 or Higher by High School

	2000–2001				2001–2002				2002–2003				2003–2004			
	Students	Exams	Exams 3 or Greater		Students	Exams	Exams 3 or Greater		Students	Exams	Exams 3 or Greater		Students	Exams	Exams 3 or Greater	
	N	N	N	%	N	N	N	%	N	N	N	%	N	N	N	%
B.C.C.	256	377	284	75.3	323	467	382	81.8	452	740	568	76.8	556	968	770	79.5
M. Blair	378	794	755	95.1	487	1,142	1,047	91.7	511	1,288	1,166	90.5	586	1,540	1,339	86.9
J. Hubert Blake	163	297	192	64.6	202	375	267	71.2	323	571	404	70.8	364	647	490	75.7
Churchill	424	836	737	88.2	489	1,059	935	88.3	619	1,271	1,121	88.2	667	1,512	1,305	86.3
Damascus	161	279	207	74.2	248	427	343	80.3	279	536	420	78.4	297	584	418	71.6
Einstein	157	273	148	54.2	153	315	200	63.5	244	492	326	66.3	326	636	390	61.3
Gaithersburg	159	292	169	57.9	236	435	254	58.4	361	677	354	52.3	289	506	294	58.1
Walter Johnson	340	772	645	83.5	429	986	809	82.0	558	1,069	890	83.3	592	1,148	982	85.5
Kennedy	204	362	147	40.6	241	432	225	52.1	286	559	239	42.8	228	424	193	45.5
Magruder	232	432	366	84.7	284	540	440	81.5	358	587	465	79.2	432	789	619	78.5
R. Montgomery	442	975	847	86.9	492	1,129	946	83.8	640	1,439	1,211	84.2	758	1,689	1,350	79.9
Northwest	154	239	167	69.9	225	410	267	65.1	244	426	298	70.0	281	536	393	73.3
Paint Branch	227	410	304	74.1	274	577	437	75.7	312	594	367	61.8	339	627	414	66.0
Poolesville	113	238	194	81.5	132	249	223	89.6	141	243	207	85.2	134	262	231	88.2
Quince Orchard	283	567	435	76.7	273	576	447	77.6	313	692	546	78.9	363	763	573	75.1
Rockville	140	231	165	71.4	154	292	188	64.4	200	378	223	59.0	215	413	229	55.4
Seneca Valley	142	228	166	72.8	127	248	178	71.8	211	361	222	61.5	241	429	273	63.6
Sherwood	188	330	261	79.1	308	613	466	76.0	403	702	507	72.2	428	739	582	78.8
Springbrook	310	541	314	58.0	326	609	392	64.4	438	710	409	57.6	419	701	414	59.1
Watkins Mill	204	358	280	78.2	249	436	346	79.4	262	465	365	78.5	286	563	419	74.4
Wheaton	46	83	56	67.5	75	136	75	55.1	133	245	133	54.3	221	370	183	49.5
Whitman	441	921	814	88.4	474	1,029	944	91.7	645	1,183	1,055	89.2	663	1,161	1,049	90.4
Wootton	403	807	668	82.8	568	1,207	984	81.5	882	1,697	1,308	77.1	1,017	2,033	1,543	75.9
MCPS Total	5,567	10,642	8,321	78.2	6,769	13,689	10,795	78.9	8,815	16,925	12,804	75.7	9,702	19,040	14,453	75.9

**Appendix D Number and Percentage of Graduating Seniors From the Classes of 2000 and 2004
Who Took an AP Exam and Scored a 3 or Higher**

		Graduating Class of 2000				Graduating Class of 2004			
		Cohort Members Taking an AP Exam		Cohort Members Scoring at Least One 3		Cohort Members Taking an AP Exam		Cohort Members Scoring at Least One 3	
		N	%	N	%	N	%	N	%
B.C.C. HS	African Am.	n/a	8.3%	n/a	6.3%	17	30.9%	10	18.2%
	Asian Am.	n/a	28.6%	n/a	14.3%	18	69.2%	13	50.0%
	Hispanic	9	24.3%	9	24.3%	11	25.0%	7	15.9%
	White	86	58.5%	64	43.5%	184	77.6%	164	69.2%
	Total	101	42.3%	77	32.2%	230	63.5%	194	53.6%
M. Blair HS	African Am.	17	9.3%	16	8.8%	37	17.5%	30	14.2%
	Asian Am.	67	62.6%	59	55.1%	68	72.3%	62	66.0%
	Hispanic	n/a	4.7%	n/a	4.7%	24	16.1%	23	15.4%
	White	106	57.6%	103	56.0%	167	78.0%	156	72.9%
	Total	194	34.8%	182	32.6%	296	44.3%	271	40.6%
J. Hubert Blake HS	African Am.	n/a	n/a	n/a	n/a	40	29.0%	26	18.8%
	Asian Am.	n/a	n/a	n/a	n/a	15	55.6%	13	48.1%
	Hispanic	n/a	n/a	n/a	n/a	13	40.6%	8	25.0%
	White	n/a	n/a	n/a	n/a	103	64.4%	92	57.5%
	Total	n/a	n/a	n/a	n/a	171	47.9%	139	38.9%
Churchill HS	African Am.	9	37.5%	6	25.0%	9	28.1%	8	25.0%
	Asian Am.	74	77.9%	63	66.3%	103	82.4%	91	72.8%
	Hispanic	12	66.7%	12	66.7%	20	76.9%	19	73.1%
	White	164	56.2%	150	51.4%	212	65.8%	196	60.9%
	Total	259	60.4%	231	53.8%	344	68.1%	314	62.2%
Damascus HS	African Am.	n/a	n/a	n/a	n/a	5	17.9%	n/a	7.1%
	Asian Am.	n/a	n/a	n/a	n/a	29	82.9%	26	74.3%
	Hispanic	n/a	n/a	n/a	n/a	6	37.5%	6	37.5%
	White	70	24.6%	53	18.6%	146	42.6%	108	31.5%
	Total	76	23.6%	55	17.1%	186	44.1%	142	33.6%

n/a Fewer than 5 students.

continued

Appendix D Number and Percentage of Graduating Seniors From the Classes of 2000 and 2004
Who Took an AP Exam and Scored a 3 or Higher *continued*

		Graduating Class of 2000				Graduating Class of 2004			
		Cohort Members Taking an AP Exam		Cohort Members Scoring at Least One 3		Cohort Members Taking an AP Exam		Cohort Members Scoring at Least One 3	
		N	%	N	%	N	%	N	%
Einstein HS	African Am.	9	9.3%	8	8.2%	28	26.2%	13	12.1%
	Asian Am.	11	24.4%	9	20.0%	31	47.0%	21	31.8%
	Hispanic	10	12.2%	9	11.0%	29	25.7%	21	18.6%
	White	37	44.0%	33	39.3%	55	58.5%	46	48.9%
	Total	67	21.8%	59	19.2%	143	37.6%	101	26.6%
Gaithersburg HS	African Am.	n/a	n/a	n/a	n/a	24	22.6%	12	11.3%
	Asian Am.	12	23.1%	6	11.5%	23	44.2%	16	30.8%
	Hispanic	5	8.3%	5	8.3%	33	31.1%	28	26.4%
	White	52	28.9%	36	20.0%	78	42.4%	49	26.6%
	Total	72	19.1%	48	12.8%	158	35.3%	105	23.4%
Walter Johnson HS	African Am.	n/a	n/a	n/a	n/a	8	27.6%	7	24.1%
	Asian Am.	19	38.0%	17	34.0%	43	70.5%	39	63.9%
	Hispanic	n/a	n/a	n/a	n/a	12	30.0%	12	30.0%
	White	156	57.4%	136	50.0%	171	58.8%	161	55.3%
	Total	180	46.0%	156	39.9%	234	55.6%	219	52.0%
Kennedy HS	African Am.	13	9.4%	7	5.1%	50	35.0%	22	15.4%
	Asian Am.	18	45.0%	6	15.0%	22	68.8%	12	37.5%
	Hispanic	15	25.9%	13	22.4%	29	36.7%	16	20.3%
	White	33	50.8%	25	38.5%	36	53.7%	23	34.3%
	Total	79	26.2%	51	16.9%	137	42.7%	73	22.7%
Magruder HS	African Am.	10	21.3%	9	19.1%	13	19.1%	11	16.2%
	Asian Am.	17	43.6%	14	35.9%	42	51.2%	34	41.5%
	Hispanic	8	19.5%	7	17.1%	16	22.2%	15	20.8%
	White	78	38.8%	68	33.8%	135	50.2%	121	45.0%
	Total	113	34.5%	98	29.9%	206	42.0%	181	36.9%

n/a Fewer than 5 students.

continued

Appendix D Number and Percentage of Graduating Seniors From the Classes of 2000 and 2004
Who Took an AP Exam and Scored a 3 or Higher *continued*

		Graduating Class of 2000				Graduating Class of 2004			
		Cohort Members Taking an AP Exam		Cohort Members Scoring at Least One 3		Cohort Members Taking an AP Exam		Cohort Members Scoring at Least One 3	
		N	%	N	%	N	%	N	%
R. Montgomery HS	African Am.	7	15.6%	6	13.3%	17	32.1%	14	26.4%
	Asian Am.	39	60.0%	34	52.3%	78	86.7%	68	75.6%
	Hispanic	n/a	n/a	n/a	n/a	25	39.1%	22	34.4%
	White	132	62.3%	124	58.5%	169	75.8%	146	65.5%
	Total	181	50.0%	167	46.1%	289	67.2%	250	58.1%
Northwest HS	African Am.	n/a	n/a	n/a	n/a	12	11.4%	7	6.7%
	Asian Am.	11	39.3%	10	35.7%	35	71.4%	25	51.0%
	Hispanic	n/a	n/a	n/a	n/a	9	31.0%	n/a	n/a
	White	27	24.3%	24	21.6%	79	47.0%	69	41.1%
	Total	44	19.6%	38	17.0%	135	38.5%	105	29.9%
Paint Branch HS	African Am.	20	13.7%	17	11.6%	35	24.5%	25	17.5%
	Asian Am.	38	43.7%	36	41.4%	60	64.5%	42	45.2%
	Hispanic	n/a	n/a	n/a	n/a	7	25.0%	5	17.9%
	White	51	37.2%	36	26.3%	60	51.3%	49	41.9%
	Total	113	28.8%	93	23.7%	162	42.5%	121	31.8%
Poolesville HS	African Am.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Asian Am.	n/a	n/a	n/a	n/a	5	71.4%	5	71.4%
	Hispanic	n/a	n/a	n/a	n/a	0	.0%	0	.0%
	White	34	30.4%	28	25.0%	85	53.5%	71	44.7%
	Total	37	28.9%	31	24.2%	91	52.0%	77	44.0%
Quince Orchard HS	African Am.	8	13.6%	7	11.9%	9	18.4%	7	14.3%
	Asian Am.	33	47.8%	29	42.0%	55	64.7%	42	49.4%
	Hispanic	5	11.9%	5	11.9%	6	13.6%	n/a	n/a
	White	113	47.9%	99	41.9%	135	56.0%	121	50.2%
	Total	159	39.2%	140	34.5%	205	48.9%	173	41.3%

n/a Fewer than 5 students.

continued

**Appendix D Number and Percentage of Graduating Seniors From the Classes of 2000 and 2004
Who Took an AP Exam and Scored a 3 or Higher *continued***

		Graduating Class of 2000				Graduating Class of 2004			
		Cohort Members		Cohort Members		Cohort Members		Cohort Members	
		Taking an AP Exam		Scoring at Least One 3		Taking an AP Exam		Scoring at Least One 3	
		N	%	N	%	N	%	N	%
Rockville HS	African Am.	5	11.9%	n/a	n/a	6	15.0%	n/a	n/a
	Asian Am.	13	37.1%	8	22.9%	22	71.0%	15	48.4%
	Hispanic	16	34.8%	15	32.6%	11	22.0%	9	18.0%
	White	64	44.1%	45	31.0%	63	60.6%	47	45.2%
	Total	98	36.6%	71	26.5%	102	45.3%	75	33.3%
Seneca Valley HS	African Am.	5	7.6%	n/a	n/a	17	19.8%	9	10.5%
	Asian Am.	13	28.3%	10	21.7%	20	42.6%	17	36.2%
	Hispanic	7	14.9%	6	12.8%	18	35.3%	16	31.4%
	White	45	27.4%	34	20.7%	71	44.7%	53	33.3%
	Total	70	21.7%	53	16.4%	126	36.7%	95	27.7%
Sherwood HS	African Am.	n/a	n/a	n/a	n/a	11	19.3%	8	14.0%
	Asian Am.	12	21.8%	10	18.2%	23	46.9%	19	38.8%
	Hispanic	7	31.8%	7	31.8%	17	42.5%	15	37.5%
	White	99	33.0%	88	29.3%	160	49.5%	135	41.8%
	Total	122	28.6%	108	25.3%	211	45.0%	177	37.7%
Springbrook HS	African Am.	32	17.8%	21	11.7%	65	34.8%	45	24.1%
	Asian Am.	53	43.8%	32	26.4%	67	68.4%	44	44.9%
	Hispanic	12	23.1%	10	19.2%	21	29.6%	15	21.1%
	White	82	48.8%	72	42.9%	86	68.3%	70	55.6%
	Total	179	34.4%	135	25.9%	239	49.6%	174	36.1%
Watkins Mill HS	African Am.	13	10.3%	9	7.1%	12	8.8%	7	5.1%
	Asian Am.	29	51.8%	24	42.9%	21	45.7%	18	39.1%
	Hispanic	n/a	n/a	n/a	n/a	15	18.8%	12	15.0%
	White	63	27.0%	52	22.3%	92	48.9%	79	42.0%
	Total	109	23.9%	89	19.5%	140	31.0%	116	25.7%

n/a Fewer than 5 students.

continued

Appendix D Number and Percentage of Graduating Seniors From the Classes of 2000 and 2004
Who Took an AP Exam and Scored a 3 or Higher *continued*

		Graduating Class of 2000				Graduating Class of 2004			
		Cohort Members Taking an AP Exam		Cohort Members Scoring at Least One 3		Cohort Members Taking an AP Exam		Cohort Members Scoring at Least One 3	
		N	%	N	%	N	%	N	%
Wheaton HS	African Am.	9	10.7%	5	6.0%	19	28.8%	7	10.6%
	Asian Am.	16	30.2%	10	18.9%	21	60.0%	11	31.4%
	Hispanic	n/a	n/a	n/a	n/a	36	34.3%	30	28.6%
	White	14	18.2%	12	15.6%	21	32.8%	10	15.6%
	Total	42	13.9%	29	9.6%	97	35.9%	58	21.5%
Whitman HS	African Am.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Asian Am.	42	53.8%	35	44.9%	37	63.8%	31	53.4%
	Hispanic	16	57.1%	15	53.6%	10	38.5%	8	30.8%
	White	173	64.1%	147	54.4%	228	66.3%	208	60.5%
	Total	234	60.6%	199	51.6%	279	62.6%	250	56.1%
Wootton HS	African Am.	n/a	n/a	n/a	n/a	9	52.9%	n/a	n/a
	Asian Am.	75	70.1%	69	64.5%	125	87.4%	94	65.7%
	Hispanic	6	50.0%	6	50.0%	17	77.3%	11	50.0%
	White	141	54.9%	125	48.6%	241	81.1%	191	64.3%
	Total	226	56.9%	203	51.1%	392	81.8%	299	62.4%
Special Schools	African Am.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Asian Am.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Hispanic	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	White	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Total	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total	African Am.	182	11.1%	133	8.1%	448	23.3%	281	14.6%
	Asian Am.	600	47.8%	485	38.7%	963	66.9%	758	52.7%
	Hispanic	153	16.9%	141	15.5%	385	29.5%	305	23.4%
	White	1,822	43.3%	1,556	37.0%	2,777	58.5%	2,365	49.8%
	Total	2,757	34.4%	2,315	28.9%	4,573	48.6%	3,709	39.4%

n/a Fewer than 5 students.