Montgomery County Public Schools

Evaluation Brief

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Evaluation of the Implementation of the Algebra 1 Curriculum in Montgomery County Public Schools: 2003–2004

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Background

The Montgomery County Public Schools (MCPS) Office of Curriculum and Instructional Programs (OCIP) introduced changes to the high school curriculum to support student mastery of the Maryland Core Learning Goals in each of the subject areas covered by the Maryland High School Assessment (HSA). One of these subject areas was Algebra/Data Analysis, corresponding to Algebra 1.

Although the new curriculum standardizes course content, text, and many supplementary materials, Algebra 1 in MCPS has been delivered in multiple formats for many years. The "standard" format uses a 45- or 50-minute instructional block without added support periods. Other formats include a double class period of Algebra. The single period format for Algebra 1 instruction was the focus for this evaluation.

Methodology

The following questions guided this evaluation:

1. To what extent has the new curriculum been implemented?
2. What refinements need to occur in curriculum content, teacher training, Instructional Guide (IG) and course materials, classroom practices, or other factors?
3. What were student academic outcomes for report card grades, final exams, and state assessments for all students taking Algebra 1?

To evaluate the implementation of the Algebra 1 curriculum during the 2003–2004 school year, the Department of Shared Accountability (DSA) relied on multiple methods including classroom observations, interviews, a survey, and analysis of student outcome data. Observations were conducted in 32 high school classrooms and 18 middle school classrooms to determine the extent to which the curriculum was implemented as designed and whether teachers utilized curriculum strategies and materials included in the IG. The schools were selected based on student demographic and academic characteristics, geography, and Algebra 1 enrollment. Additionally, DSA staff interviewed the observed Algebra 1 teachers and mathematics resource teachers in the seven high schools and six middle schools included in the study. Interviews addressed experiences using the new curriculum and identified concerns associated with the curriculum.

All MCPS Algebra 1 teachers (approximately 300) were invited to participate in a Web-based survey to share their experiences about the IG and teaching Algebra 1 during 2003–2004. The overall response rate for the survey was 41%, with 36% of high school teachers and 50% of middle school teachers responding.

Finally, DSA analyzed data on final mathematics grades prior to entering Algebra 1, course passing rates of Algebra 1 students, passing rates on Algebra 1 final exam, passing rates on Algebra/Data Analysis HSA, and course enrollment following Algebra 1.

Findings

Challenges to Implementation

Observational evidence from this evaluation indicated that implementation was incomplete. More than one year of implementation would be needed to determine a relationship between curriculum changes and outcomes.

Professional development was another area of concern expressed by teachers. Only half of the teachers assigned to teach Algebra 1 during 2003–2004 attended the "mandatory" summer training. Teachers who attended expressed dissatisfaction with the training. One high school resource teacher (RT) expressed, "I don't know who went. Most of the trainings are useless. We just need to read the material, not be trained. Teachers who do go to trainings share their materials." In several schools,

teacher assignments were not yet firm at the time professional development was offered, and those schools did not send any teachers. According to a middle school RT, "[Two of us] took the summer training. Others didn't know ahead of time that they would be teaching algebra until after the closing date for registration for the training."

Placement of Students in Algebra 1

Interviews with OCIP staff indicated that students with minimal math skills can be successful in MCPS Algebra 1. According to the interview data, teachers expressed *major* tensions between the increased difficulty of the new Algebra 1 curriculum and the system initiative to place increasing numbers of middle school students into Algebra 1. Teachers saw evidence that the threshold of benefit from this initiative already has been reached. Teachers perceived pressure on schools to place students into algebra before they are ready. Teachers said students are less prepared each subsequent year.

The role of parents in the placement of students in Algebra 1 was perceived to be a major issue. While MCPS policy states that parent requests are only one in a series of considerations for class placement, teachers were concerned that it had become the overriding factor. Parents increased pressure on schools to place students in Algebra 1 who are not recommended by teachers. During the interviews, teachers said parents perceive that taking Algebra 1 in high school (rather than in middle school) will stigmatize their child and place them in an undesirable peer group for math.

Implementation of the New Curriculum

A summary of the major findings for the strategies and practices included in the IG is presented below.

Lesson and Instructional Block Structure: Observers noted which of the lesson components were utilized by teachers (e.g. warm-up, focus lesson, independent practice, closure) and the number of minutes spent on each component. In the majority of cases, the suggested lesson structure was not followed, due primarily to lack of a closure activity or a lack of clarity about the focus lesson. Much of the instructional time was spent reviewing homework that had been assigned the night before. More time was spent on "guided practice" than on teaching. The observed lessons could not be characterized as "exploratory" or "discovery learning." Although objectives or lesson plans were generally posted, essential questions generally were not.

Grouping Strategies: Despite large class sizes, Algebra 1 teachers made very little use of grouping strategies. In the few classes where there was grouping, students were assigned to work together on problems. These were not teacher-led groups. Just 2 of the 50 observed classrooms (both in middle schools) had small groups led by a teacher.

Vocabulary: To see whether vocabulary support was being provided, observers looked for behaviors that had been outlined in the IG for teaching vocabulary related to the math lesson. More than 60% of teachers in both high schools and middle schools emphasized the specific vocabulary words related to the lesson. Evidence of student use of correct math vocabulary was less common, but in almost half of the classes, there was an opportunity for students to use vocabulary correctly.

Strategies for Warm-up and/or Independent Practice: Most of the observed classes (92%) included a "warm-up." However, the warm-ups did not all pertain to the lesson being taught that day; and some were homework reviews. The IG offered examples of activities that teachers can use for warm-ups and practice. Two high school teachers used one of the suggested strategies from the IG for their warm-up; two others used one of the strategies for practice. The IG strategies were not observed for either warm-up or for independent practice in any middle school classes.

Strategies for Formative Assessment: According to the "Curriculum Quick Reference," teachers were to use a variety of strategies to check for student understanding and to use assessment to guide instruction. A written assessment of some kind was evident in about 40% of observed classrooms. Generally, this was a single exercise, such as a set of problems being worked on during class by all students. A majority of classrooms did not use written assessments, exit cards, or every-pupil responses. (Observers purposely did not visit classes on days when teachers had scheduled in-class written assessments.)

Most teachers (75%) asked questions to check for understanding. These were generally not questions requiring detailed or lengthy responses from students (yes/no or one-word responses). Asking students for more detailed comments, such as justification or clarification was less frequent. In 40% of classes, no questioning was observed.

High school teachers were much more likely than middle school teachers to repeat instructions to students—nearly three fourths of the high school

classes (72%), but less than half (44%) of the middle school classes. High school Algebra 1 classes were more likely to include students receiving English for Speakers of Other Languages (ESOL) and special education services. Observers noted that a few teachers walked around during written class exercises to check on student work (seven high school and two middle school classes).

Multiple Problem Solving Strategies: Teachers did not take advantage of this aspect of the new curriculum and accompanying materials. Two thirds of teachers in high schools and middle schools did not present multiple strategies for solving problems. The same proportion did not apply "real world" concepts to the material being presented. A majority did not make connections to prior learning.

Though most teachers talked positively in interviews about the use of graphing calculators, there was little evidence of use in the observed lessons, with a focus on arithmetic functions rather than algebraic functions. The use of algebra tiles was encouraged in the curriculum and was central to the last several units of teacher training. Most observed teachers did not use algebra tiles nor did they refer to them as a resource for students.

Lesson Closure: There was very little evidence of closure of the Algebra 1 lessons.

Teachers' Perceptions of the New Curriculum

Overall, teachers reported during the interviews that they found the new curriculum to be extremely thorough and well-designed. Teachers also liked the accompanying Glencoe text. According to teachers, the new curriculum helped them plan lessons and helped prepare students for the HSA. According to a middle school teacher, "I use the HSA rubric for grading questions. I use anchor papers to show the kids examples of various grades. I do a lot of pushing them back to read the question." A high school RT also stated, "Last year students were upset about the brief constructed responses and extended constructed responses. This year…we include at least one of each on each quiz, and several on each test."

Teachers saw a need to differentiate the Algebra 1 curriculum, even as it became more standardized. Middle school teachers reported utilizing a range of enrichment and extension activities within the curriculum. In contrast, high school teachers, who are often teaching students with weaker basic skills in math, said their students cannot take advantage of the enrichment aspects of the curriculum.

Teachers were unclear about whether and how to use the formative assessments supplied with the curriculum. Similarly, the pre-assessment features of the curriculum were not widely used.

Use of the Instructional Guide

The Web-based survey results identified the IG features that teachers considered helpful, and that they used most often. Most helpful features for high school teachers were the Content Outline, Instructional Sequence, Review information, and Suggestions for Essential Problems. For middle school teachers, the most helpful features were the Content Outline, Instructional Sequence, Suggestions for Essential Problems, and the Instructional Focus.

The Instructional Sequence, which teachers said was one of the IGs most helpful features, was "used most often" by 40% of the high school respondents and over half of the middle school respondents. Close to half of the teachers surveyed said they used the guide "to a great extent" or "for nearly everything" they taught. (It should be noted that more survey respondents than interview respondents indicated that they had participated in training.)

Countywide Final Exam and Course Grades

In middle schools, some students enter Algebra 1 directly following Math B, some following Math C, and some following Investigations in Mathematics (IM). The large majority of students who preceded Algebra 1 with IM, Math B (in Grade 6) or Magnet Math 6—presumed to be highly skilled students—received an A or a B in math prior to entering Algebra 1. (See Table 1 in the Appendix.) Nearly all of these students passed the Algebra 1 final exam. Students who took Math B in Grade 7 or later were not as successful. Just three quarters (78%) passed the Algebra 1 final exam. Seventy-one percent of the Algebra 1 "repeaters" passed the exam. (See Table 2 in the Appendix.)

Math C students had a more mixed experience. Sixty percent achieved a final grade of A or B in Math C, but another 35% received a C or D and a small group did not pass. (See Table 1 in the Appendix.) Just half of the students who took Math C before Algebra 1 passed the Algebra 1 final exam (51%). (See Table 2 in the Appendix.)

Seventy percent of students who took Algebra 1 in high school passed the course. (See Table 3 in the

Appendix.) Middle school students' grades reflected stronger course performance, with two thirds receiving an A or a B as their final course grade. Nearly all middle school students (98%) passed the Algebra 1 course. (See Table 4 in the Appendix.)

Schools ranged widely in the number of students who passed the Algebra 1 final exam. High school performance was not strong; only 36% of students passed. No high school had an 80% passing rate; five high schools achieved a 60% passing rate. (See Table 5 in the Appendix.) Most students at all middle schools passed the Algebra 1 exam, with most middle schools having at least 80% of students that passed. (See Table 6 in the Appendix.)

In 2004, most MCPS students enrolled in a geometry course after Algebra 1. Among MCPS students enrolled in a fall 2004 math course, 70% were in geometry or Honors Geometry. An additional 11% took Principles of Geometry and Algebra (PGA). (See Table 7 in the Appendix.)

HSA Outcomes

The Algebra 1 curriculum is intended to support preparation for the HSA. Teachers indicated that the curriculum does make that preparation easier.

More than twice as many middle school students as high school students passed the Algebra/Data Analysis HSA in from 2003 to 2005. In 13 out of 23 MCPS high schools, the number of students who passed the HSA in Algebra/Data Analysis increased from 2003 to 2004. From 2004 to 2005, the number of students passing declined in nineteen high schools. While the overall pass rate in high schools increased from 40% in 2003 to 46% in 2004, it declined to 41% in 2005. (See Table 8 in the Appendix.)

In 21 out of 36 middle schools, the proportion of students who passed the HSA in Algebra/Data Analysis increased from 2003 to 2004. In eighteen middle schools, the proportion of students passing decreased from 2004 to 2005. In four middle schools, 100 percent of the students passed during at least two of the years from 2003 to 2005. The overall pass rate in middle schools remained stable at approximately 95% from 2003 to 2005. (See Table 9 in the Appendix.)

Recommendations

The following recommendations are based on findings from the data collection activities:

- **Review the role of professional development in implementing the curriculum.** Examine the relatively low level of teacher engagement with the new curriculum, coupled with large numbers of teachers who did not receive Tier I summer training and large numbers of teachers who did not attend unit trainings.

- **Review the design of course prerequisites and student preparation requirements associated with Algebra 1.** Student preparedness for Algebra 1 varies. Teachers may need to review the indicators in middle school math courses that prepare students for Algebra 1. A related issue is the tension between the increased difficulty of the revised Algebra 1 curriculum and the district's priority to place increasing numbers of middle school students into Algebra 1.

- **Review the process for using the Algebra 1 curriculum materials to prepare students for the final exam.** Many students performed poorly on the Algebra 1 final exam. Anecdotal comments from RTs indicated that teachers may need to give students more orientation to comprehensive assessments, in part by making more extensive use of formative assessment tools that align with curriculum units.

- **Consider additional research to establish any significant relationship between the level of implementation of the new Algebra 1 curriculum and student performance on the HSA.** Several years of implementation, coupled with in-depth study of student performance, would be needed to determine if causality exists. Research would include an analysis of performance in the test content areas.

Evaluation of the Implementation of the Algebra 1 Curriculum in Montgomery County Public Schools: 2003–2004

Appendix

Table 1
Pre-Algebra 1 Final Math Grade, 2003–2004 Algebra 1 Students*

Mathematics Course In 2002–2003:	Total	Final Math Grade** A %	B %	C %	D %	E/Other %
Algebra 1 (repeaters in 2003–2004)	(270)	*N/A*	3	32	41	21
Math C	(4,086)	22	38	26	9	3
Math IM	(3,162)	45	41	10	1	*N/A*
Math B	(1,440)	48	39	9	2	1
Math B for Grade 6	(420)	69	24	5	*N/A*	2
Magnet Math 6	(86)	74	23	2	0	0

N/A Less than .5%.
* 2003–2004 Algebra 1 students with a final math course grade in the marking period prior to the start of Algebra 1.
** Some percentages do not add to 100 due to rounding.

Table 2
Comparison of Pre-Algebra Class Placement
with Algebra 1 Final Exam Grade, 2003–2004 Algebra 1 Students*

Mathematics Course In 2002–2003:	Total	Final Exam Grade for Algebra 1** A %	B %	C %	D %	E/Other %
Algebra 1 (repeaters in 2003–2004)	(279)	2	14	28	27	28
Math C	(4,531)	2	8	17	24	45
Math IM	(3,168)	21	31	29	15	4
Math B	(1,440)	5	15	29	29	20
Math B for Grade 6	(420)	18	32	28	16	7
Magnet Math 6	(86)	37	43	13	6	1

*2003–2004 Algebra 1 students with a final math course grade in the marking period prior to the start of Algebra 1 *and* a final exam grade in Algebra 1.
**Some percentages do not add to 100 due to rounding.

Table 3
Final Course Grades for High School Students Who Took
Algebra 1 Semester B Spring 2004, by School

High School	Number Of Students Taking Course	Percentage Receiving Final Course Grade* A %	B %	C %	D %	E %
Bethesda-Chevy Chase	168	12	27	35	15	7
Montgomery Blair	513	3	7	12	6	5
James Hubert Blake	253	5	28	28	22	12
Winston Churchill	165	6	29	35	18	13
Damascus	234	5	21	39	25	9
Albert Einstein	439	3	13	19	18	15
Gaithersburg	334	5	19	26	21	15
Walter Johnson	191	6	26	26	21	11
John F. Kennedy	374	4	15	32	22	21
Col. Zadok Magruder	342	5	23	35	16	18
Richard Montgomery	236	10	24	28	19	7
Northwest	364	5	13	25	25	19
Paint Branch	305	6	14	34	19	20
Poolesville	70	3	29	33	26	4
Quince Orchard	277	7	22	31	21	14
Rockville	149	0	6	24	40	25
Seneca Valley	364	3	9	22	24	25
Sherwood	334	10	20	28	24	18
Springbrook	284	5	14	26	29	20
Wheaton	319	4	14	36	24	11
Walt Whitman	199	14	32	28	14	11
Watkins Mill	440	4	15	26	21	23
Thomas S. Wootton	169	11	32	27	12	12
Total	6,629	5%	18%	27%	20%	16%

* At the time these data were compiled, final exam and final course grades were not reported for students in extended time algebra. Therefore, percentages may not add to 100.

Table 4
Final Course Grades for Middle School Students Who Took
Algebra 1 Semester B Spring 2004, by School

Middle School	Number Of Students Taking Course	Percentage Receiving Final Course Grade* A %	B %	C %	D %	E %
Argyle	89	18	45	23	7	7
John T. Baker	196	19	51	24	6	1
Benjamin Banneker	207	15	30	32	14	9
Briggs Chaney	145	16	37	30	15	3
Cabin John	242	41	38	16	3	2
Roberto Clemente	126	18	28	29	21	4
Eastern	166	20	38	24	11	6
William H. Farquhar	148	16	42	35	7	1
Forest Oak	174	14	51	27	7	1
Robert Frost	292	34	41	21	4	0
Gaithersburg	206	30	50	18	2	1
Herbert Hoover	268	37	43	17	3	*N/A*
Francis Scott Key	145	8	36	39	15	1
Martin Luther King Jr.	157	28	38	29	5	1
Kingsview	212	27	48	21	3	0
E. Brooke Lee	81	31	43	20	6	0
Montgomery Village	98	30	44	22	2	0
Neelsville	117	21	42	29	7	1
Newport Mill	127	40	44	10	2	4
North Bethesda	188	29	40	17	6	1
Parkland	183	13	34	26	16	9
Rosa Parks	159	26	48	20	6	0
John Poole	89	34	44	19	2	1
Thomas W. Pyle	258	60	32	7	*N/A*	0
Redland	212	34	33	26	7	1
Ridgeview	242	29	46	18	6	1
Rocky Hill	126	16	44	32	8	0
Shady Grove	165	26	45	26	4	0
Silver Spring Int'l	155	15	40	32	12	1
Sligo	98	18	40	29	9	3
Tilden	193	44	38	13	3	3
Takoma Park	203	31	43	16	6	2
Julius West	213	31	52	16	1	0
Westland	269	23	35	22	15	5
White Oak	217	18	44	27	7	4
Earle B. Wood	212	15	30	38	11	6
Total	6,379	27%	41%	23%	7%	2%

N/A Less than .5%.
**Some percentages do not add to 100 due to rounding.

Table 5
High School Students Who Took and Passed Algebra 1 Final Exam Spring 2004, by School

High School	Passing Exam %	Number Of Students Taking Exam*	Percentage Receiving Final Exam Grade A %	B %	C %	D %	E %
Bethesda-Chevy Chase	73	168	5	17	27	25	21
Thomas S. Wootton	67	169	4	11	28	24	31
Walt Whitman	63	199	3	11	26	24	36
Winston Churchill	62	165	1	9	22	30	36
Poolesville	60	70	0	10	19	31	40
Walter Johnson	53	174	1	7	22	23	44
James Hubert Blake	51	235	0	4	21	26	49
Sherwood	49	312	1	11	18	19	48
Damascus	47	234	*N/A*	3	13	31	53
Watkins Mill	43	410	2	4	13	24	55
Northwest	43	364	1	5	15	22	56
Rockville	43	106	0	1	14	28	56
Springbrook	33	247	*N/A*	3	7	23	60
John F. Kennedy	31	357	0	3	7	21	65
Paint Branch	28	286	1	4	9	15	68
Richard Montgomery	28	195	0	2	6	20	65
Montgomery Blair	27	488	*N/A*	3	9	15	51
Quince Orchard	27	274	1	3	7	17	70
Gaithersburg	26	334	0	2	8	16	70
Col. Zadok Magruder	23	271	*N/A*	1	6	15	71
Seneca Valley	21	289	0	2	6	14	76
Wheaton	20	313	0	1	6	12	77
Albert Einstein	18	439	0	1	6	12	59
Total	36%	6,183	1%	4%	12%	20%	58%

N/A Less than .5%. Passing = Percent receiving grade of A, B, C or D.
* Includes eligible students who did not receive final exam grade by June 2004. Therefore, percentages may not add to 100.

Table 6
Middle School Students Who Took and Passed Algebra 1 Final Exam Spring 2004, by School

Middle School	Passing Exam %	Number Of Students **Taking Exam**	Percentage Receiving Final Exam Grade A %	B %	C %	D %	E %
Argyle	84	89	9	23	34	19	15
John T. Baker	96	196	11	34	36	15	4
Benjamin Banneker	74	207	6	18	23	28	26
Briggs Chaney	98	145	12	36	30	19	2
Cabin John	94	242	21	29	25	19	6
Roberto Clemente	76	126	10	14	21	32	24
Eastern	75	166	5	19	36	15	25
William H. Farquhar	98	148	10	28	41	20	2
Forest Oak	99	174	30	39	22	9	1
Robert Frost	98	292	28	29	29	12	2
Gaithersburg (MS)	91	206	4	20	38	28	9
Herbert Hoover	98	268	29	31	24	13	2
Francis Scott Key	55	145	3	6	19	27	43
Martin Luther King Jr.	94	157	13	28	29	25	5
Kingsview	97	212	13	27	35	21	2
E. Brooke Lee	99	81	27	43	21	7	1
Montgomery Village	94	98	8	21	30	35	4
Neelsville*	100	117	6	34	41	18	0
Newport Mill	95	73	15	27	32	21	6
North Bethesda	90	187	29	28	25	8	3
Parkland	74	183	4	16	30	24	24
Rosa Parks	98	159	16	38	31	12	2
John Poole	97	89	19	34	32	12	3
Thomas W. Pyle*	100	258	50	35	13	1	0
Redland	88	212	14	21	34	20	12
Ridgeview	88	242	8	22	31	26	11
Rocky Hill	94	126	6	29	44	15	6
Shady Grove	97	165	19	28	33	17	3
Silver Spring Int'l	67	155	0	8	20	39	33
Sligo	94	98	13	39	29	13	5
Takoma Park	93	203	25	32	19	17	6
Tilden	97	193	25	34	26	12	3
Julius West	94	213	13	24	32	26	6
Westland	81	269	12	23	29	16	19
White Oak	83	216	2	18	23	41	17
Earle B. Wood	84	212	7	19	32	26	16
Total	90%	6,323	16%	26%	29%	20%	10%

Passing = Percent receiving grade of A, B, C or D.
* Does not include grades of F/X.

Table 7
2004 Math Course Placement of Fall 2003 Algebra 1 Students (*N*=12,999)

Math Course Fall 2004	**%**
Math C	*N/A*
Algebra 1 (repeaters)	5
Math Approach to Problem Solving (MAPS)	*N/A*
Geometry	37
Honors/Magnet Geometry	33
Principles of Geometry and Algebra (PGA)	11
Consumer Math	*N/A*
Algebra 2	1
Algebra 2 with Analysis	*N/A*
Business Math	*N/A*
Pre-Calculus	*N/A*
Courses Beyond Pre-Calculus	*N/A*
Other Math Courses	*N/A*
Other	
Left MCPS before Fall 2004	5
In MCPS but not enrolled in a math course in Fall 2004	*N/A*
Not determined	1

N/A Less than .5%.
*Not all students completed the course.
Note: 157 students are enrolled concurrently in Related Math in Fall 2004.

Table 8
High School Assessment Comparison,
2005, 2004 and 2003 Results, by MCPS High School

	Percentage Passing HSA in Algebra/Data Analysis		
High School	2005	2004	2003
Bethesda-Chevy Chase	33.0	58.0	63.6
Montgomery Blair	34.0	42.1	11.6
James Hubert Blake	38.2	47.0	44.1
Winston Churchill	68.9	75.3	81.2
Damascus	42.8	49.5	67.9
Albert Einstein	24.7	38.4	40.0
Gaithersburg	35.9	45.3	34.5
Walter Johnson	54.9	61.7	63.8
John F. Kennedy	26.5	40.8	28.4
Col. Zadok Magruder	38.2	48.7	37.1
Richard Montgomery	34.0	40.2	45.9
Northwest	49.5	38.9	41.5
Northwood	36.2	*N/A*	*N/A*
Paint Branch	37.4	42.4	43.0
Poolesville	52.2	67.7	59.8
Rockville	51.7	51.6	45.3
Quince Orchard	45.7	46.9	42.3
Seneca Valley	36.9	39.0	40.4
Sherwood	53.0	53.3	47.2
Springbrook	23.7	36.7	34.8
Wheaton	34.6	30.7	17.3
Walt Whitman	75.8	81.4	62.9
Watkins Mill	33.9	42.0	16.9
Thomas S. Wootton	60.9	72.5	79.8
Total All High Schools	41.0	46.1	40.4

Table 9
High School Assessment Comparison,
2004 and 2003 Results, by MCPS Middle School

	Percent Passing HSA in Algebra/Data Analysis		
Middle School	2005	2004	2003
Argyle	80.7	90.9	92.3
John T. Baker	94.0	100.0	100.0
Benjamin Banneker	90.4	92.7	92.6
Briggs Chaney	96.4	98.6	97.5
Cabin John	99.1	97.9	100.0
Roberto Clemente	95.8	88.9	82.0
Eastern	92.4	93.6	90.2
William H. Farquhar	100.0	99.3	100.0
Forest Oak	96.9	98.3	93.5
Robert Frost	99.7	99.7	98.8
Gaithersburg	91.5	92.7	94.7
Herbert Hoover	99.4	99.6	99.7
Francis Scott Key	72.9	71.5	71.2
Martin Luther King	94.4	97.4	95.5
Kingsview	98.3	98.5	97.0
E. Brooke Lee	98.7	100.0	100.0
Montgomery Village	100.0	90.4	73.1
Neelsville	92.9	97.4	92.9
Newport Mill	89.8	92.1	96.4
North Bethesda	99.4	100.0	95.9
Parkland	90.7	88.8	87.5
Rosa Parks	100.0	99.4	98.8
John Poole	98.0	98.0	100.0
Thomas W. Pyle	100.0	100.0	99.5
Redland	94.5	94.3	96.6
Ridgeview	93.9	97.5	98.1
Rocky Hill	98.7	98.4	100.0
Shady Grove	97.6	98.8	91.1
Silver Spring Int'l	79.5	90.3	81.4
Sligo	95.7	98.0	91.7
Takoma Park	99.5	99.5	98.3
Tilden	99.5	100.0	99.4
Julius West	95.3	94.1	99.2
Westland	93.2	94.1	97.1
White Oak	94.6	94.4	89.8
Earle B. Wood	97.5	94.3	98.3
Total All Middle Schools	95.5	96.0	94.7