

## **Final Report**

SOL Test Scores and School Calendar/Teaching Days for Virginia School Divisions Receiving Waivers to Begin the School Year Prior to Labor Day

Submitted to the Virginia Hospitality and Travel Association  
January 25, 2015

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## Executive Summary

The purpose of this research was to examine academic outcome differences that may exist between Virginia school divisions starting school prior to Labor Day (waiver divisions) and Virginia school divisions starting school after Labor Day. The more specific aim was to use longitudinal Standards of Learning (SOL) English/reading and mathematics test score data for grades 3, 5, 8, and high school, both for all school divisions as well as those with enrollment less than 5,000 students, for four years (2009-2013). Statistical differences between waiver and non-waiver divisions for SOL scores for 2012-2013 were computed, with adjustments made for the percentages of students on free and reduced price lunch and enrollment. Additional academic outcome indicators were also compared, including attendance, graduation rates, and instructional days for the 2012-2013 year.

It was found that waiver divisions ( $n = 71$ ; though there is some variation year to year) have a greater number of small enrollment localities compared to non-waiver divisions ( $n = 61$ ), as well as a slightly higher percentage of students eligible for free and reduced price lunch. Almost all waiver divisions are located west of I-95. Non-waiver divisions include a disproportionately higher number of large, urban localities, though there is little relationship between size and academic outcomes.

Major findings from the analyses include:

- Few longitudinal SOL score differences exist between waiver and non-waiver divisions from 2009 to 2013, for all grade levels, whether for all divisions or a subset of smaller enrollment divisions.
- Few statistically significant differences exist comparing waiver to non-waiver divisions on mathematics and English/reading SOL scores at all grade levels for 2012-2013.
- Elementary and middle school mathematics SOL scores were higher in non-waiver as compared to waiver divisions, while mathematics high school scores were higher in waiver divisions.
- There were very minor differences between waiver and non-waiver divisions on graduation rates, percentages of students obtaining an advanced studies diploma, instructional days, and attendance.

The preponderance of evidence suggests that there is no relationship between school division start date (before or after Labor Day) and student achievement when examining SOL

scores for aggregate data of all students or a subgroup of smaller divisions with enrollment less than 5000.

## **Introduction**

In November, 2014, the Virginia Hospitality and Travel Association (VHTA) contracted with Dr. James McMillan to complete a study that examines Virginia Standards of Learning (SOL) test scores and instructional days for Virginia divisions that have received waivers to start school prior to Labor Day. The study that is reported in this document, as contracted, focuses on the nature of waiver/non-waiver school divisions, multiple measures of student achievement, and instructional days. The intended audience for the study, in addition to VHTA, is policy-makers, as well as business and educational professionals. The findings are intended to provide data that will be useful as part of a more comprehensive analysis of the impact of starting school prior to Labor Day on student achievement, instructional days, and attendance.

## **Purpose**

The primary purpose of this research is to conduct statistical analyses of selected student achievement outcomes to compare waiver to non-waiver school divisions in Virginia. The aim is to use these data as representative of evidence that can be used to determine if there is a relationship between school start date (before or after Labor Day), and student achievement, for school divisions in the aggregate. More specific objectives of the study included the following:

1. Determine the waiver status of Virginia school divisions, examining socioeconomic and size characteristics of each type.
2. Determine longitudinal SOL data trends for divisions that have been granted waivers as compared to similar divisions that have not been granted waivers.
3. Compare measures of student achievement and accomplishment of waiver to non-waiver school divisions on SOL and graduation rate data, adjusting for the effect of socioeconomic status and division size.
4. Examine the number of school year calendar instructional days of waiver divisions compared to non-waiver divisions.

## **Methodology**

The overall goal of the methodology was to use longitudinal and comparison data on a meaningful sample of student achievement outcome indicators to determine whether, when considered as an aggregate group, there is a relationship between waiver status and outcome variables for different grade levels and subject areas, while accounting for differences in division socioeconomic status and size. Secondary data analyses have been employed to reach this goal.

### **Waiver Status Determination**

The identification of waiver status for each Virginia school division was based on information obtained from the Virginia Department of Education. Waiver status refers to whether a school division received permission to begin the school year prior to Labor Day. This information indicated one of four waiver status categories for each of the 132 divisions each year: 1) no waiver; 2) weather-related waiver and waiver based on previous year; 3) waiver based on dependency on other surrounding divisions; and 4) waiver based on implementing an experimental or innovative program. For the 2013-2014 school year, 59 divisions did not request a waiver, 55 divisions were granted a waiver based on weather, 15 divisions were granted a waiver based on dependency on other divisions, and three divisions were granted a waiver based on experimental or innovative programs. The total number of school divisions requesting a waiver for 2013-2014, then, was 73 (55%). Figure 1, from the Virginia Department of Education website, illustrates which divisions fall into these four categories for 2012-2013, and Table 1 shows waiver requests over the past five years. Waiver request designation has remained consistent over many years for all but a few divisions. Only 13 divisions changed their waiver request between 2009 and 2013.

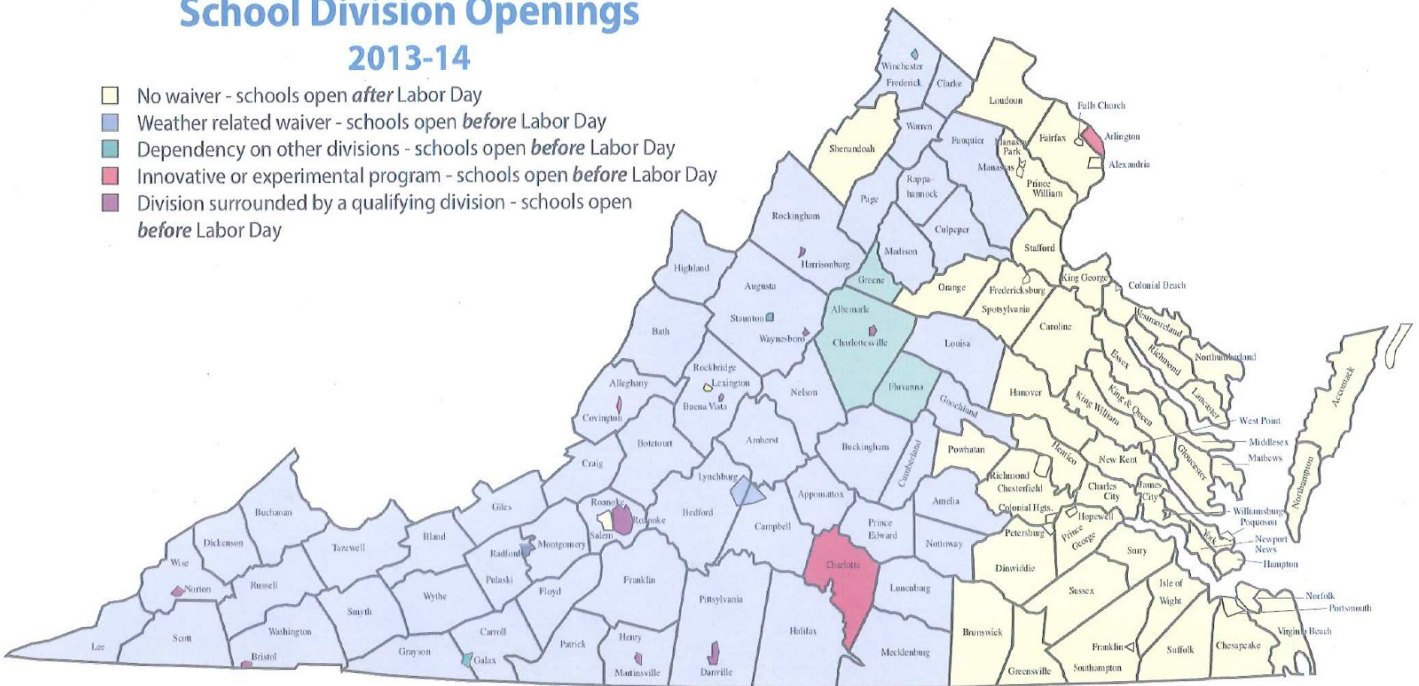
**Table 1****Number and Percentage of School Divisions Requesting Waivers, 2009 -2013.**

<b><u>Request Status</u></b>	<b><u>Year</u></b>				
	<b><u>2009</u></b>	<b><u>2010</u></b>	<b><u>2011</u></b>	<b><u>2012</u></b>	<b><u>2013</u></b>
Weather-Related/Previous Year	59 (35%)	53 (40%)	57 (43%)	59 (45%)	55 (42%)
Experimental/Innovative	4 (3%)	4 (3%)	4 (3%)	3 (2%)	4 (3%)
Dependent on Surrounding Divisions	13 (10%)	17 (13%)	16 (12%)	15 (11%)	14 (11%)
Non-Waiver	56 (42%)	58 (44%)	55 (42%)	55 (42%)	59 (49%)

Upon further examination of school division websites for those requesting waivers for dependency on other divisions or for experimental/innovative programs, it was clear that those in category 2 (dependency) did in fact begin school before Labor Day, while those in category 4 may or may not have started school prior to Labor Day, or may have had some year-round schools. For example, Arlington County requested waivers for experimental/innovative programs each year from 2009 to 2012, some years for a small number of year-round schools, but actually started school after Labor Day. This was also true for Fairfax County in 2009, Richmond City in 2012, and Virginia Beach in 2008. Consequently, for data analysis purposes, the school calendars for divisions using the experimental/innovative designation were examined for these years, when available, to determine whether in fact the division began prior to Labor Day. Those that did were coded as waiver school divisions; those that did not were coded as non-waiver school divisions. In addition, while starting prior to Labor Day for most waiver divisions translates to a two week period, some divisions with a waiver begin school one week prior to Labor Day. Likewise, school year end dates for waiver divisions varies, typically some time between mid-May and early June.

Virginia Department of Education  
**School Division Openings**  
**2013-14**

- No waiver - schools open *after* Labor Day
- Weather related waiver - schools open *before* Labor Day
- Dependency on other divisions - schools open *before* Labor Day
- Innovative or experimental program - schools open *before* Labor Day
- Division surrounded by a qualifying division - schools open *before* Labor Day



**Figure 1. 2013-2014 School Divisions Opening Prior To or After Labor Day.**

**Outcome Variables**

SOL scaled test scores, SOL pass rate percentages, graduation rates, and other outcome variable data were obtained from the publically available Virginia Department of Education website for 2009-2013. This included average SOL test scores for reading and mathematics in grades 3, 5, 8, and high school end-of-course scores in English and mathematics, as well as high school graduation rates, rates of students graduating with the advanced diploma, average daily attendance, and number of instructional days during the academic year.

### **Data Analyses**

Descriptive statistics, including means, frequencies, and percentages, with some inferential tests of significance, were used to characterize waiver and non-waiver school divisions. These descriptions used all school divisions from 2012-2013 except one, Alexandria City, since the start date for this division for 2012-2013 was not confirmed.

Longitudinal graphs were constructed to show how waiver divisions compare with non-waiver divisions each year, from 2009-2010 to 2012-2013, on SOL test scores, using both scaled scores and pass rates. The average scores for all divisions of each type, for each year, were calculated and used in the figures. Thus, for each year, the confirmed numbers of divisions either starting before Labor Day or after Labor Day were used to calculate averages. Additional longitudinal figures are used to show differences for divisions with less than 5,000 students. These graphs exclude large divisions, represented disproportionately in greater numbers in the non-waiver group.

Statistical significance tests were used to determine whether meaningful differences exist between the waiver and non-waiver divisions on outcome variables for 2012-2013. While 2013-2014 data were available for analysis, there were significant weather-related school cancellations, which could have had a unique effect on student outcomes compared to other years. The designation of waiver/non-waiver for these analyses was based on having four consecutive years of clear waiver or non-waiver designation, from 2009-2013. This was done to establish a meaningful trend for each division that has consistently started school before or after Labor Day for four years. This procedure eliminated four divisions (Alexandria City, Covington City, Danville City, and Harrisonburg City), either because they clearly changed from starting school



before to after Labor Day, or, for those requesting an experimental/innovative waiver, they were excluded if it could not be determined from inspecting division websites actual start dates for these years. These calculations, also completed for divisions with student membership under 5,000, used 2013 school division size data, and the 2013 percentage of elementary students on free and reduced price lunch data as covariates in the analysis. This was done to help adjust for the impact of size of school division and socioeconomic status on outcome variables.

## **Findings**

### **Waiver/Non-Waiver Division Characteristics**

The characteristics of all clearly identified waiver and non-waiver school divisions for 2013-2014 are summarized in Tables 2 and 3. Table 2 shows the approximate distribution of waiver and non-waiver divisions by size. Size was determined by use of the 2013 fall membership figures reported for each division on the Virginia Department of Education website. It shows that there is a slightly greater number and percentage of large divisions that started school after Labor Day, while waiver divisions have a greater percentage of medium sized divisions. The average membership for waiver divisions was 4,570; for non-waiver divisions 12,305 (excluding Fairfax since it is an outlier with a very high number of students). This reflects the greater number of very large non-waiver school divisions.

**Table 2**

**Number and Percentage of 2013 Different Size Waiver and Non-Waiver School Divisions.<sup>4</sup>**

<u>Request Status</u>	<u>Size</u>		
	<u>Small</u> <sup>1</sup>	<u>Medium</u> <sup>2</sup>	<u>Large</u> <sup>3</sup>
Waiver	24 (34%)	28 (38%)	20 (28%)
Non-Waiver	20 (34%)	17 (28%)	24 (38%)

<sup>1</sup>From 206 to 2,293 students.

<sup>2</sup>From 2,347 to 5,512 students.

<sup>3</sup>From 5,527 to 181,922 students.

<sup>4</sup> Alexandria City is not included since the school year start date could not be confirmed.

The data used to indicate socioeconomic status were taken from the Virginia Department of Education website. Specifically, the percentages of students eligible for free and reduced price lunch, for 2013, were used as a proxy for socioeconomic status. The number and percentages of waiver and non-waiver division socioeconomic data are summarized in Table 3. These data show that waiver divisions had a statistically significant lower percentage of low poverty schools as compared to non-waiver divisions, with a higher percentage of low socioeconomic divisions (Pearson chi-square = 7.741,  $p < .02$ ). That is, 24% of waiver divisions had less than 40% of students eligible for free and reduced price lunch, while 44% percentage of non-waiver divisions had less than 40% of students eligible for free and reduced price lunch. This is reflected in the slightly higher mean percentage of students eligible for free and reduced price lunch for waiver divisions (51%) as compared to non-waiver divisions (48%).

**Table 3**

**Number and Percentage of 2013 Waiver and Non-Waiver School Divisions  
Categorized By Percentage of Students Eligible for Free and Reduced Price  
Lunch.<sup>4</sup>**

<b><u>Request Status</u></b>	<b><u>Free and Reduced Price Lunch</u></b>		
	<b><u>Low<sup>1</sup></u></b>	<b><u>Medium<sup>2</sup></u></b>	<b><u>High<sup>3</sup></u></b>
Waiver	17 (24%)	29 (42%)	24 (34%)
Non-Waiver	27 (44%)	14 (23%)	20 (33%)

<sup>1</sup>From 7 to 40 percent of students.

<sup>2</sup>From 42 to 57 percent of students.

<sup>3</sup>From 58 to 81 percent of students.

<sup>4</sup> Alexandria City is not included since the school year start date could not be confirmed

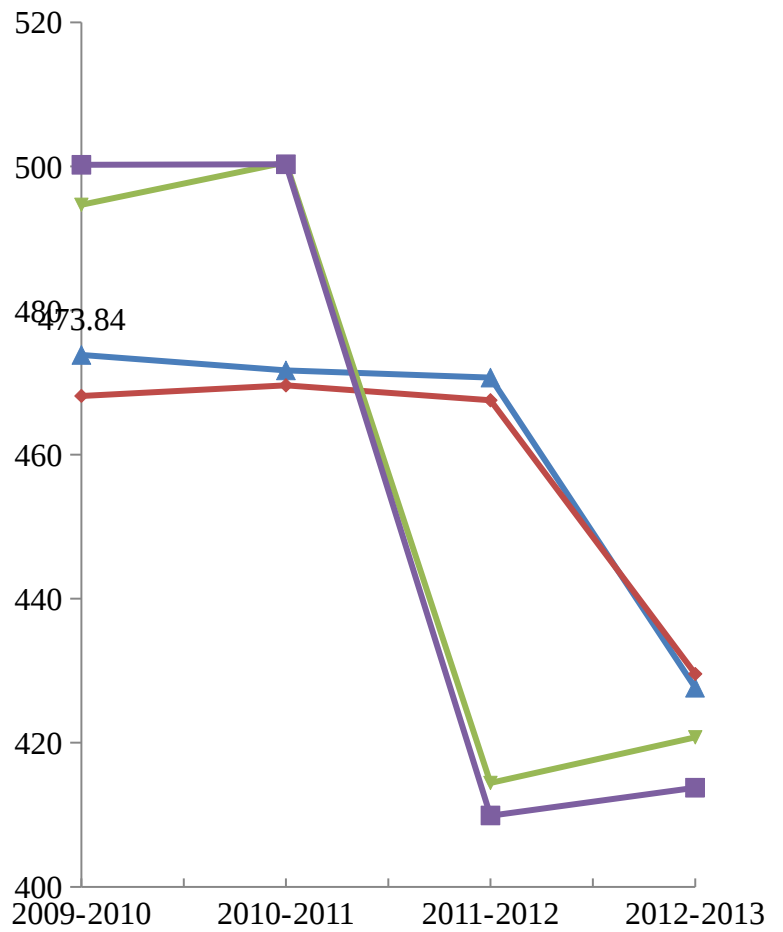
**Longitudinal Trend Analyses**

**Elementary School Longitudinal Trend Data**

Elementary-level longitudinal trend data for waiver and non-waiver school divisions for reading and mathematics are illustrated in Figures 2-5. For grade three, whether using average SOL scale scores or SOL pass rates, it is clear that while there are some changes from year-to-year for both waiver and non-waiver divisions in reading, there are few differences between each type of division. This trend was the same when examining divisions with enrollments less than 5,000 students. The trend for third grade math shows that after 2010-2011, which showed no differences between waiver and non-waiver divisions, non-waiver divisions scored somewhat higher. This was the case for both SOL average scale scores and SOL pass rates. The precipitous drops in SOL scores for mathematics in 2011-2012 and reading in 2012-2013 reflect the administration of new SOL tests.

For fifth grade reading and mathematics (Figures 6-9), similar trends are reported. There are clearly no differences between waiver and non-waiver divisions with respect to both reading and mathematics, for both samples (all divisions and those with less than 5,000 students), and for both SOL scale scores and SOL pass rates.

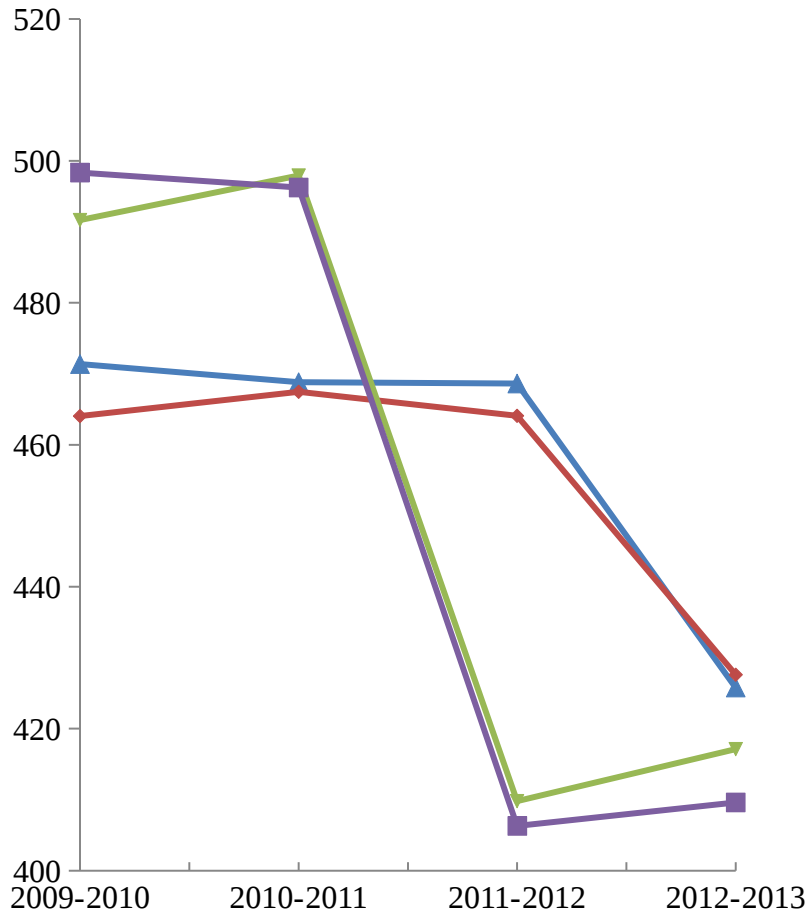
Average school district score on SOL exam



<i>N</i> - waiver	69	67	70	71
<i>N</i> - non-waiver	59	60	57	57

Figure 2. Average school division SOL exam score on Grade 3 mathematics and reading exams, comparing school divisions with pre-Labor Day opening waiver to those without a waiver.

**Average school district score on SOL exam**

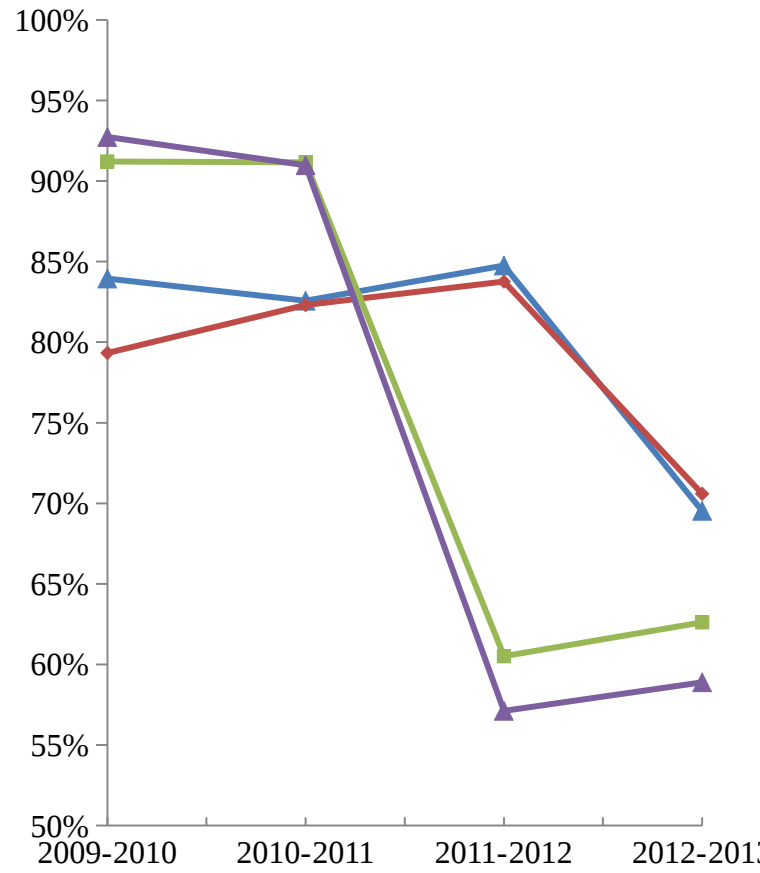


<i>N</i> - waiver	47	46	47	49
<i>N</i> - non-waiver	34	34	33	33

**Figure 3. Average school division SOL exam score on Grade 3 mathematics and reading exams, comparing school divisions with pre-Labor Day opening waiver to those without a waiver.**

<sup>1</sup>Only school divisions with enrollments less than 5000 are considered here.

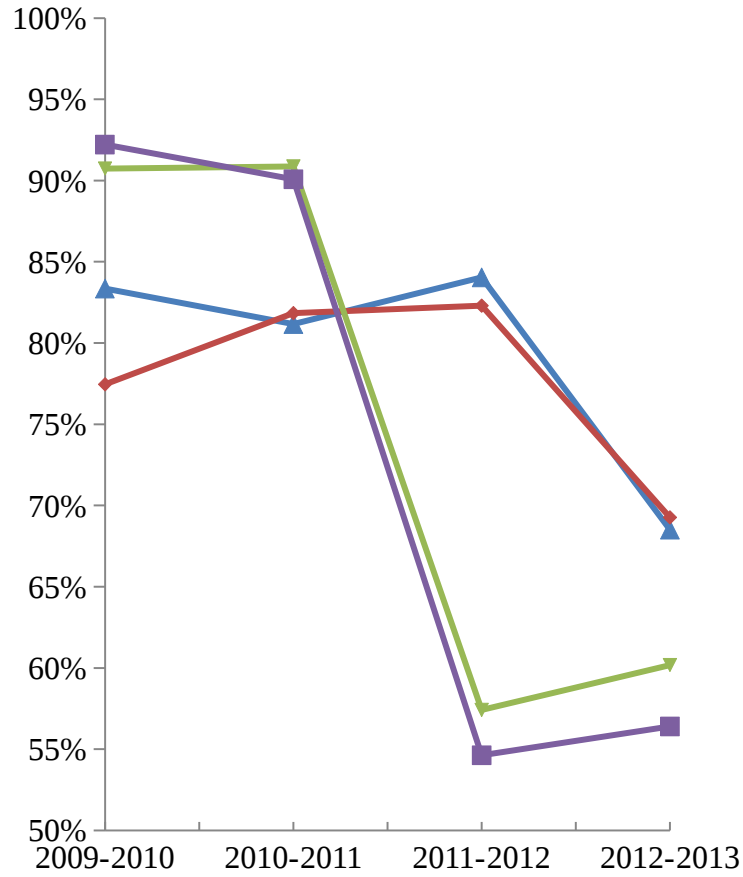
**Average school district pass rate on SOL exam**



<i>N</i> - waiver	69	67	70	71
<i>N</i> - non-waiver	59	60	57	57

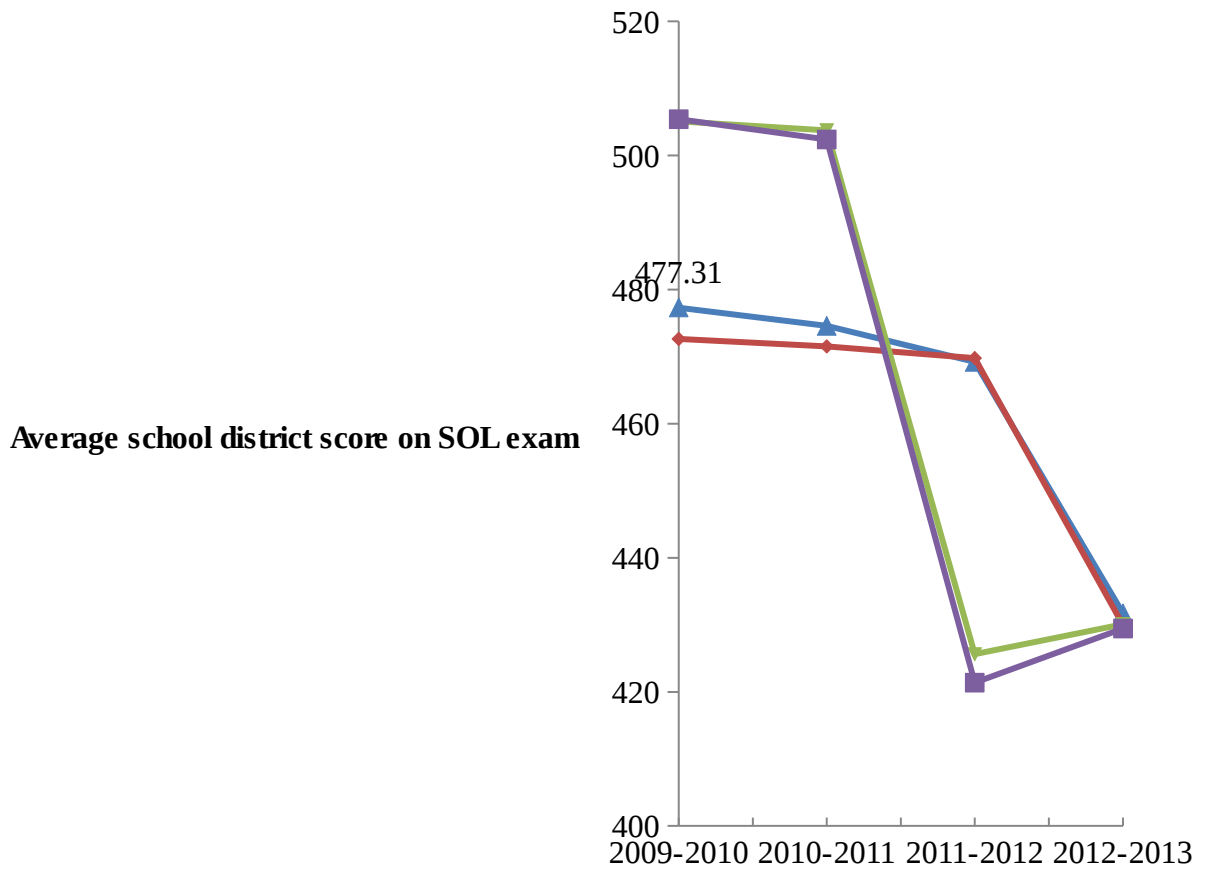
**Figure 4. Average school division SOL pass rate on mathematics and reading Grade 3 exams, comparing school divisions with a Day opening waiver to those without a waiver.**

**Average school district pass rate on SOL exam**



<i>N</i> - waiver	47	46	47	49
<i>N</i> - non-waiver	34	34	33	33

**Figure 5. Average school division SOL exam pass rate on mathematics and reading Grade 3 exams, comparing school divisions with pre-Labor Day opening waiver to those without a waiver. Only school divisions with less than 5000 students are considered here.**

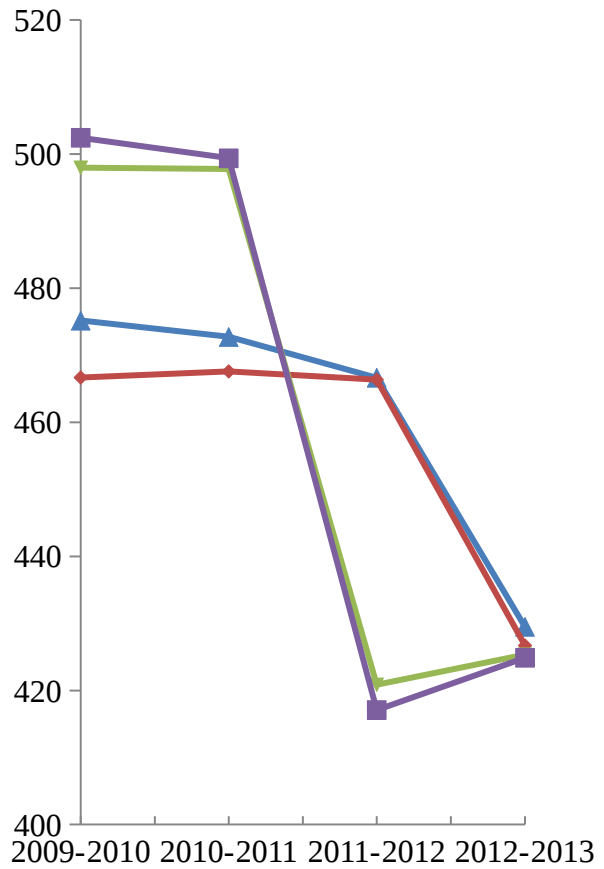


<i>N</i> - waiver	69	67	70	71
<i>N</i> - non waiver	59	60	57	57

**Figure 6. Average school division SOL scores on mathematics and reading Grade 5 exams, comparing school divisions with pre-Labor Day opening waiver to those without.**



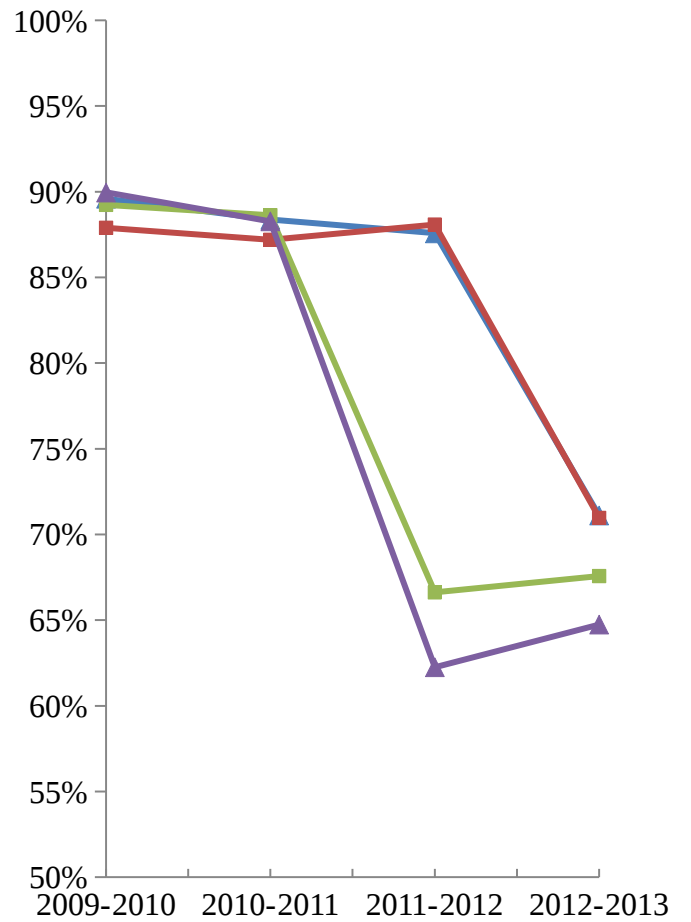
**Average school district score on SOL exam**



<i>N</i> - waiver	47	46	48	49
<i>N</i> - non waiver	34	34	33	33

**Figure 7. Average school division SOL scores on mathematics and reading Grade 5 exams, comparing school divisions with pre-Labor Day opening waiver to those without. Only school divisions with memberships less than 5000 students are considered here.**

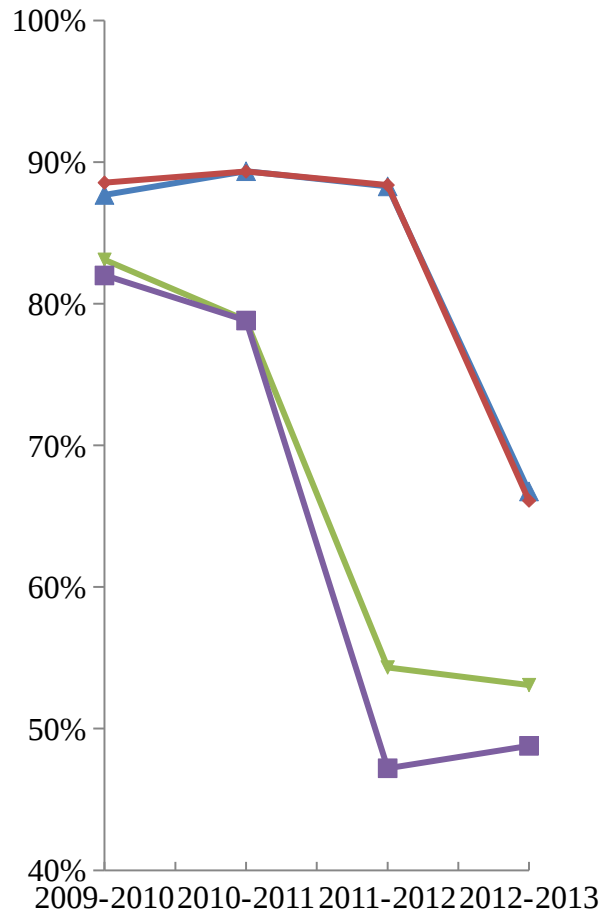
**Average school district pass rate on SOL exam**



<i>N</i> - waiver	69	67	70	71
<i>N</i> - non-waiver	59	60	57	57

**Figure 8. Average school division SOL pass rate on mathematics and reading Grade 5 exams, comparing school divisions with pre-Labor Day opening waiver to those without a waiver.**

**Average school district pass rate on SOL exam**



N - waiver  
N - Non-waiver

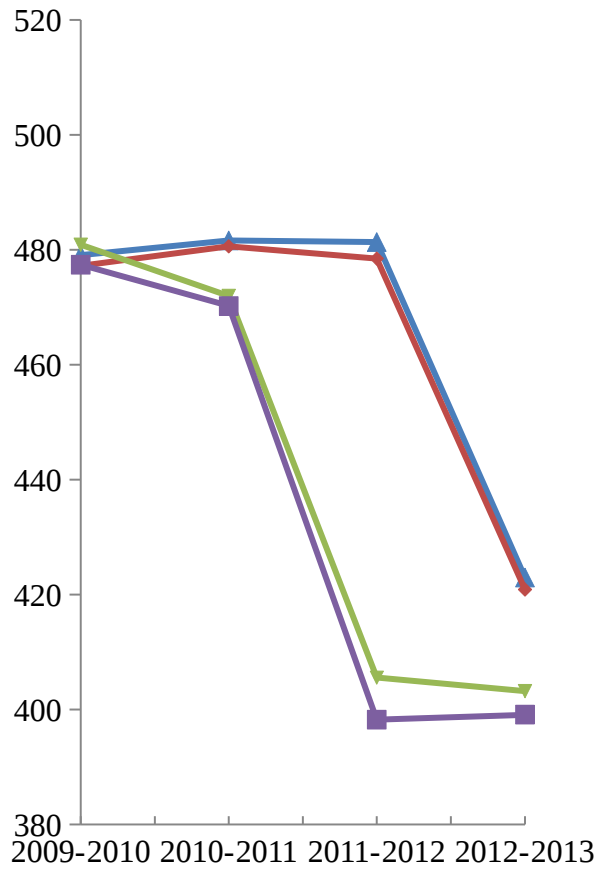
N - waiver	47	46	47	49
N - Non-waiver	34	34	33	33

**Figure 9. Average school division SOL exam pass rate on mathematics and reading Grade 5 exams, comparing school divisions with pre-Labor Day opening waiver to those without a waiver. Only school divisions with less than 5000 students are considered here.**

### Middle School Longitudinal Trend Data

Middle-level longitudinal trend data for waiver and non-waiver school divisions for reading and mathematics are illustrated in Figures 10-13. Similar to the fifth grade results, the trends for reading show no differences across time, indicating that reading achievement is the same for the waiver compared to non-waiver divisions. Mathematics also shows a pattern that is similar to grade five results. For 2009-2010 and 2010-2011 there are no differences in math achievement between waiver and non-waiver divisions. However, in both 2011-2012 and 2012-2013, non-waiver divisions show significantly higher math pass rates than waiver divisions. Interestingly, this difference becomes apparent with the introduction of new SOL mathematics tests. This may indicate greater flexibility among larger divisions to address the changes.

**Average school district score on SOL exam**

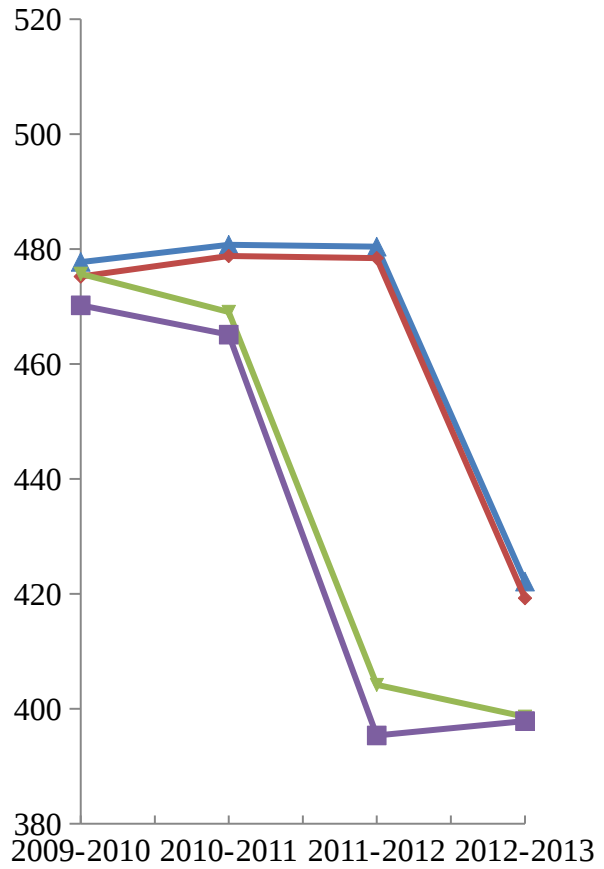


<i>N</i> - waiver <sup>1</sup>	68	66	70	69
<i>N</i> - non waiver	59	60	57	57

**Figure 10. Average school division SOL scores on mathematics and reading Grade 8 exams, comparing school division with pre-Labor Day opening waiver to those without.**

<sup>1</sup>Not all school divisions reported Grade 8 math scores.

**Average school district score on SOL exam**

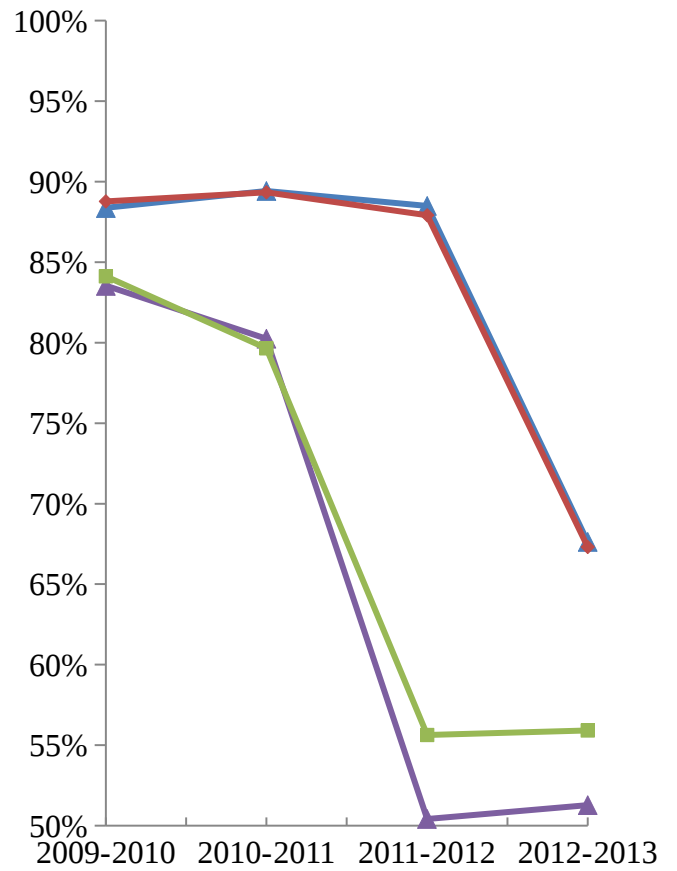


<i>N</i> - waiver <sup>1</sup>	46	45	48	47
<i>N</i> - non-waiver	34	34	33	33

**Figure 11. Average school division SOL scores on mathematics and reading Grade 8 exams, comparing school divisions with pre-Labor Day opening waiver to those without. Only school division with memberships less than 5000 students are considered here.**

<sup>1</sup>Not all school divisions reported Grade 8 math scores.

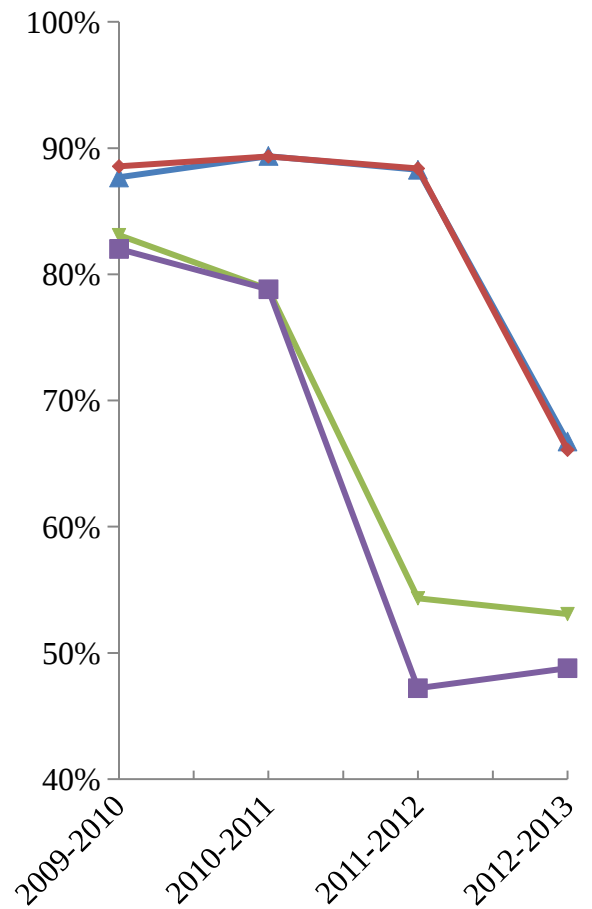
**Average school district pass rate on SOL exam**



<i>N</i> - waiver	69	67	70	71
<i>N</i> - non-waiver	59	60	57	57

**Figure 12. Average school division SOL pass rates on mathematics and reading Grade 8 exams, comparing school divisions with pre-Labor Day opening waiver to those without a waiver.**

**Average school district pass rate on SOL exam**



N - waiver  
N - Non-waiver

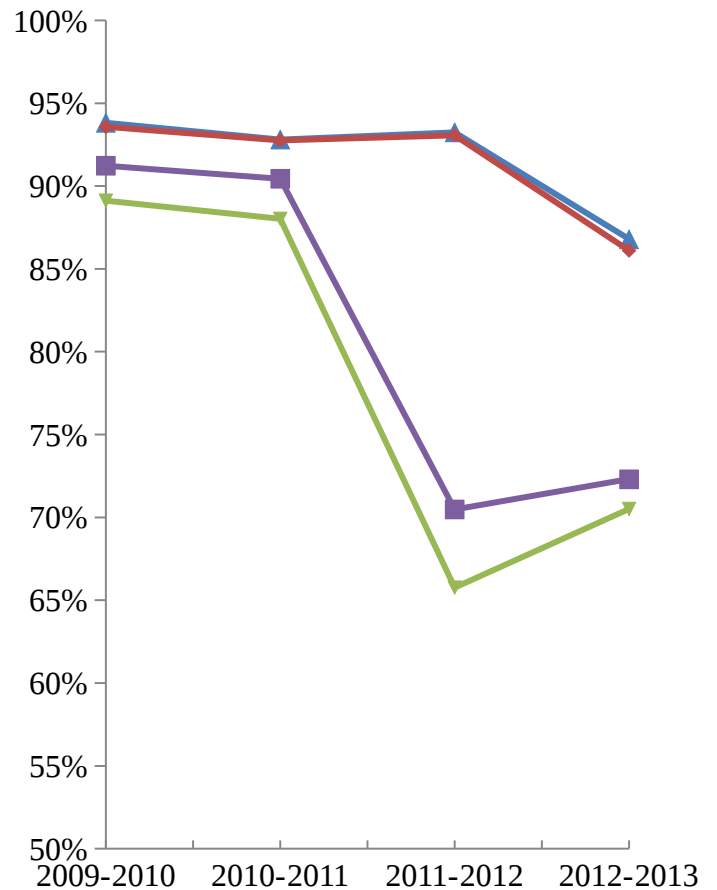
47	46	47	49
34	34	33	33

**Figure 13. Average school division SOL exam pass rate on mathematics and reading Grade 5 exams, comparing school divisions with pre-Labor Day opening waiver to those without a waiver. Only school divisions with less than 5000 students are considered here.**



High school level SOL test score data for waiver and non-waiver school divisions are illustrated in Figures 14-20 for reading, mathematics, history and social science, and science end-of-course SOL tests. For reading, history and social science, and science end-of-course tests there is no difference between the waiver and non-waiver divisions. Reading, for example, is, for all practical purposes the same each year, whether for all divisions or for those with enrollment less than 5,000. The trends for mathematics suggest that waiver divisions have scored slightly higher over three of the four years, with less difference in 2012-2013.

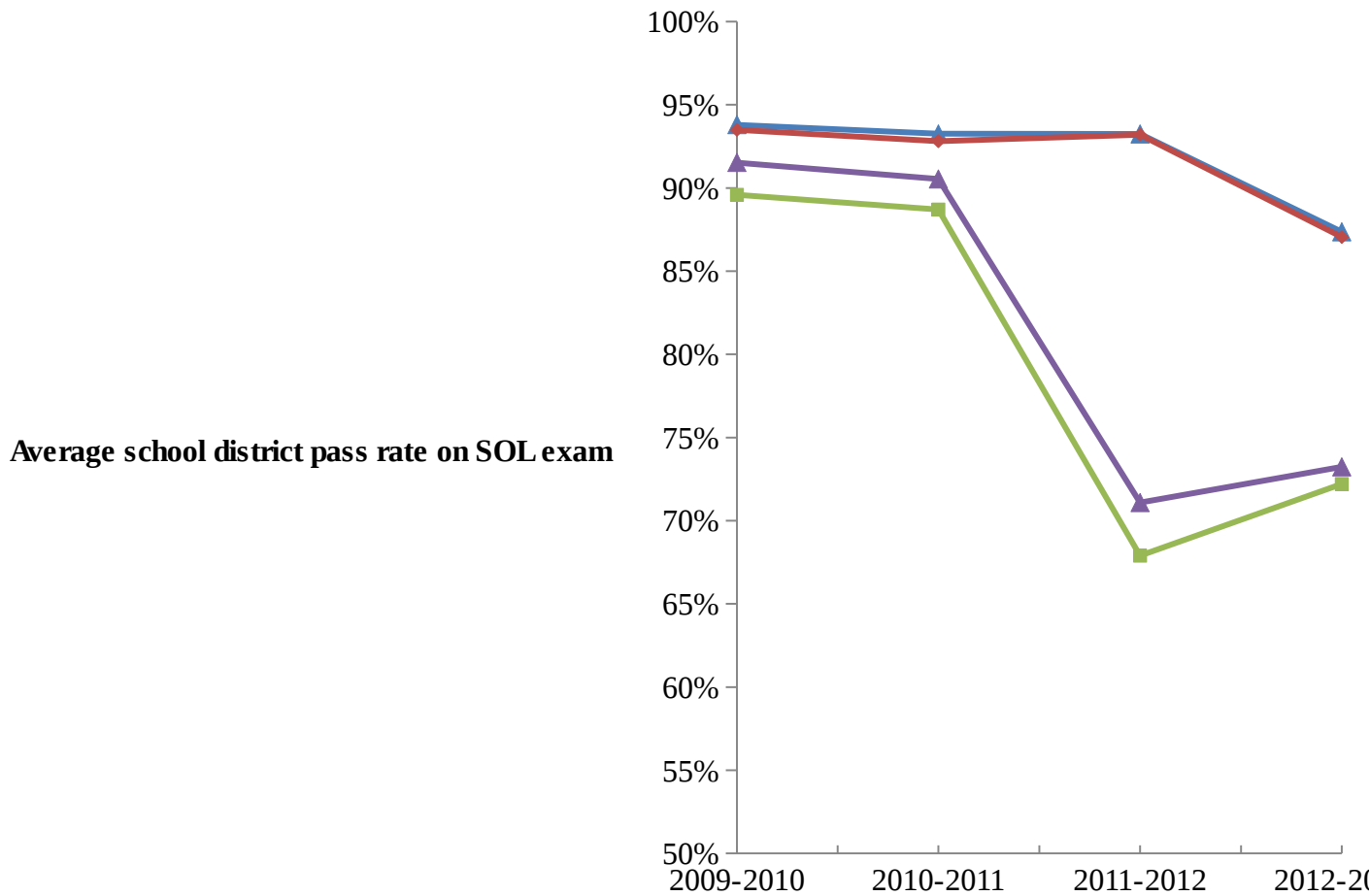
**Average school district pass rate on SOL exam**



<i>N</i> - waiver	47	46	47	49
<i>N</i> - non-waiver	34	34	33	33

**Figure 14. Average school division SOL exam pass rate on mathematics and reading end of course (EOC) exams, comparing school divisions with pre-Labor Day opening waiver to those without. Only school divisions with enrollments less than 5000 are considered here.**

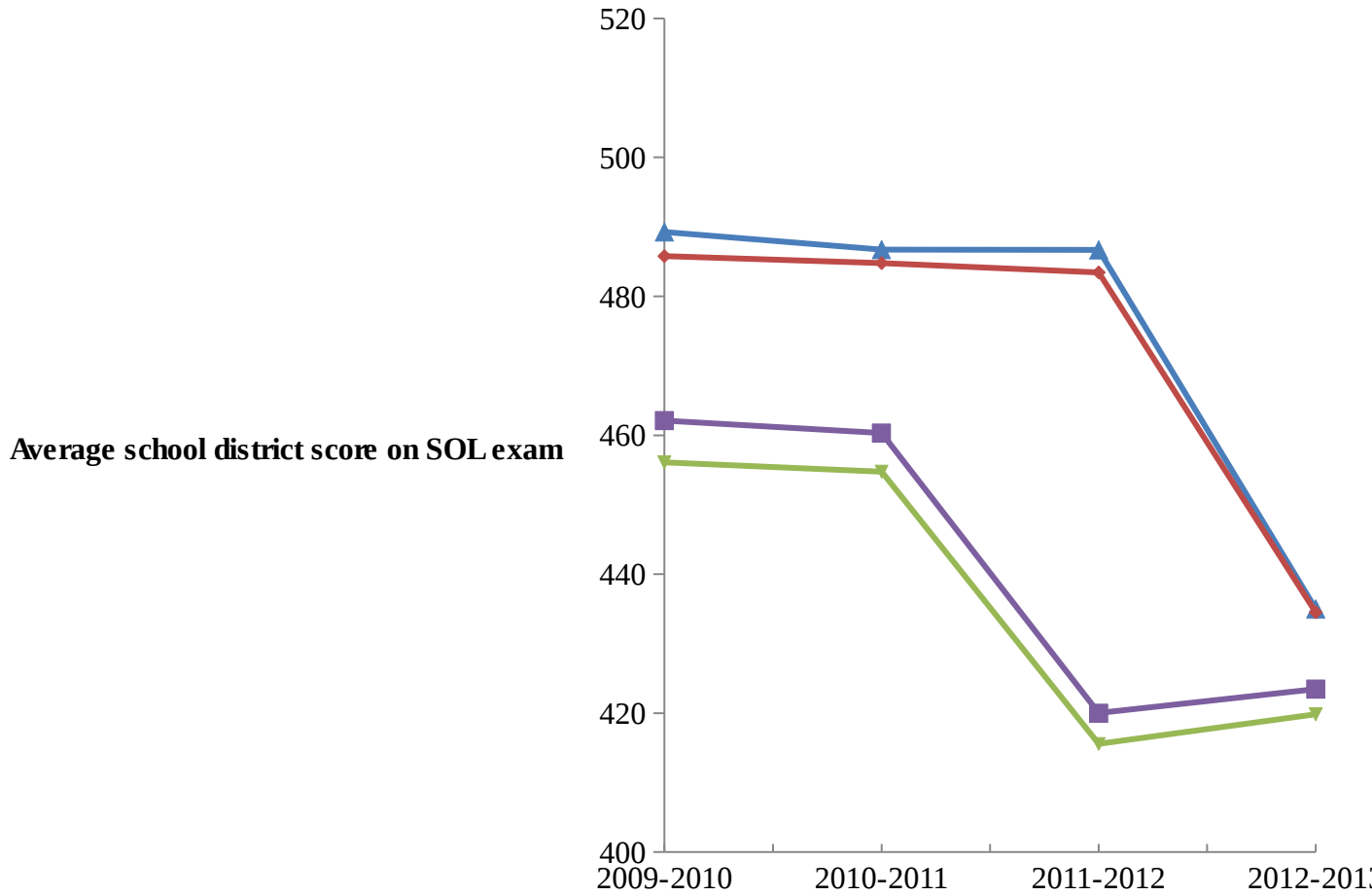
<sup>1</sup>Lexington City Schools (waiver division 2009-2012) did not report a reading SOL EOC exam result for the examined years. Values for *N* are reduced accordingly.



<i>N</i> - waiver	69	67	70	71
<i>N</i> - non-waiver	59	60	57	57

**Figure 15. Average school division SOL exam pass rate on mathematics and reading end of course (EOC) exams, comparing school divisions with pre-Labor Day opening waiver to those without.**

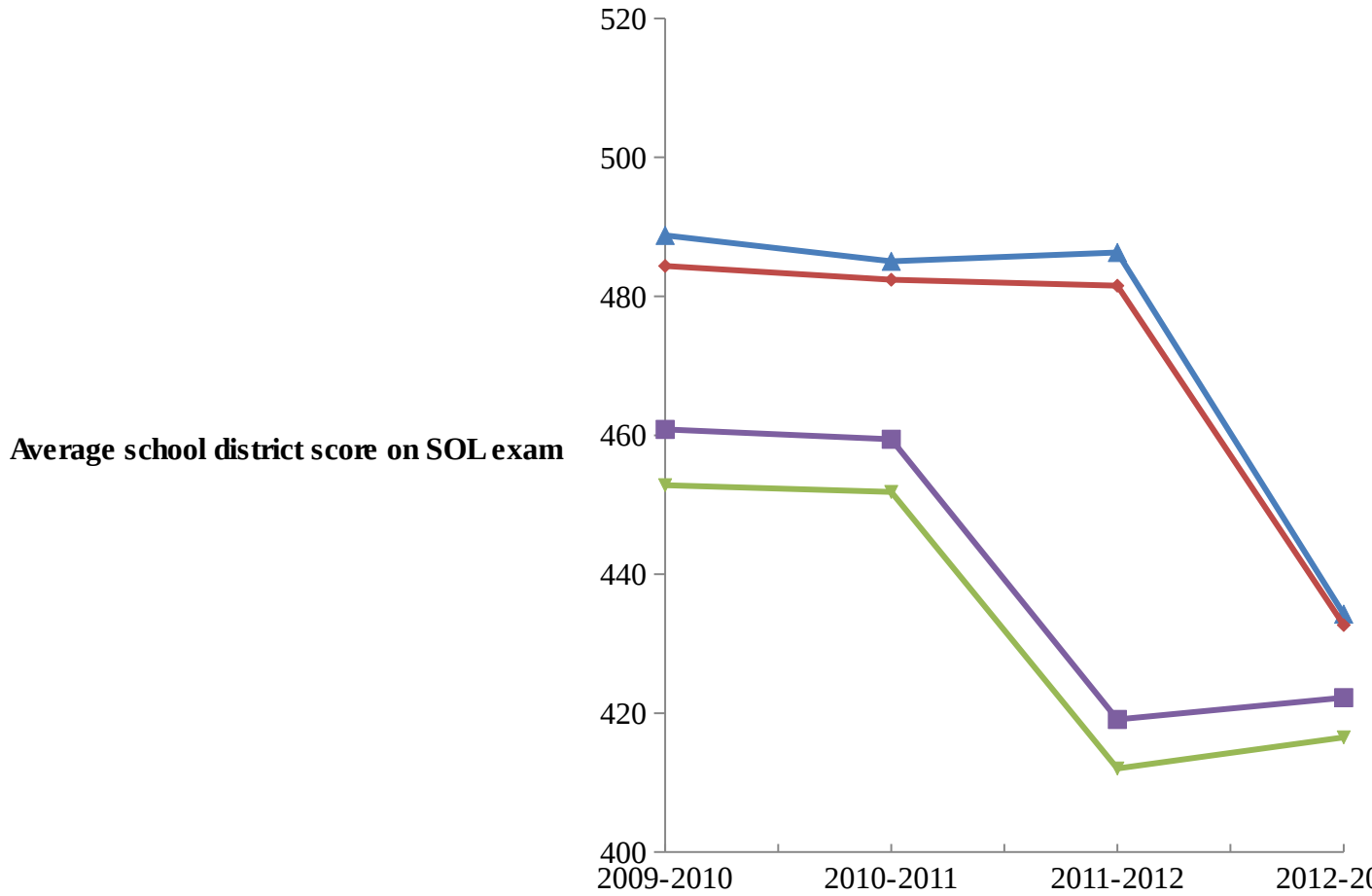
<sup>1</sup>Lexington City Schools (waiver division) did not report a reading SOL EOC exam result for the examined years. Values for *N* are reduced accordingly.



<i>N</i> - waiver	69	67	70	71
<i>N</i> - non-waiver	59	60	57	57

**Figure 16. Average school division SOL exam score on mathematics and reading end of course (EOC) exams, comparing school divisions with pre-Labor Day opening waiver to those without.**

<sup>1</sup>Lexington City Schools (waiver division 2006-2012, except 2008) did not report a reading SOL EOC exam result for 2006 – 2013. Values of *N* are reduced accordingly.



<i>N</i> - waiver	47	46	48	49
<i>N</i> - non-waiver	34	34	33	33

**Figure 17. Average school division SOL exam score on mathematics and reading end of course (EOC) exams, compared to those with pre-Labor Day opening waiver to those without.**

<sup>1</sup>Only school divisions with enrollments less than 5000 are considered here.

<sup>2</sup>Lexington City Schools (waiver division 2006-2012, except 2008) did not report a reading SOL EOC exam result for 2006 – 2013. *N* are reduced accordingly.

## Statistical Comparisons for 2012-2013

### Elementary School

The third and fifth grade mathematics and reading test score comparison data are presented in Table 3. The analysis of variance tests for statistical significance, which include the percentage of students eligible for free and reduced price lunch, and school division enrollment, as covariates, indicate that there are no statistically significant differences in achievement, though non-waiver divisions are marginally better than waiver divisions on third grade mathematics.

**Table 3**

**Means, Standard Deviations, and Significance of Differences Between Waiver and Non-Waiver School Divisions for Spring 2013 Third and Fifth Grade Reading and Mathematics SOL Scaled Scores**

	<b>Waiver Group</b>		<i>p</i>
	Waiver	Non-Waiver	
<b><u>SOL Test</u></b>	<b><u>(<i>n</i> = 71)</u></b>	<b><u>(<i>n</i> = 57)</u></b>	
Third Grade Reading	227.63 (13.34)	229.54 (16.60)	.710
Third Grade Mathematics	413.20 (18.30)	420.75 (22.20)	.100
Fifth Grade Reading	430.72 (13.92)	431.38 (18.20)	.360
Fifth Grade Mathematics	428.45 (21.10)	432.10 (19.33)	.200

### Middle School

The eighth grade mathematics and reading test score comparison data are presented in Table 4. The analysis of variance tests for statistical significance, which include the percentage of students eligible for free and reduced price lunch, and school division enrollment as covariates, indicate that there are no statistically significant differences in

achievement, though non-waiver divisions are marginally better than waiver divisions on eighth grade mathematics.

**Table 4**  
**Means, Standard Deviations, and Significance of Differences Between Waiver and Non-Waiver School Divisions for Spring 2013 Eighth Grade Reading and Mathematics SOL Scaled Scores**

<u>SOL Test</u>	<u>Waiver Group</u>		<i>p</i>
	Waiver ( <i>n</i> = 71)	Non-Waiver ( <i>n</i> = 57)	
Reading	422.5 (21.10)	421.66 (17.00)	.120
Mathematics	398.90 (23.00)	403.62 (19.57)	.590

High School

The high school end-of-course test score comparison data are presented in Table 5. The tests for statistical significance, which include adjustments for the percentage of students eligible for free and reduced price lunch, and school division enrollment, indicate that there are no statistically significant differences in achievement for reading, though waiver divisions score significantly better on mathematics.

**Table 5**

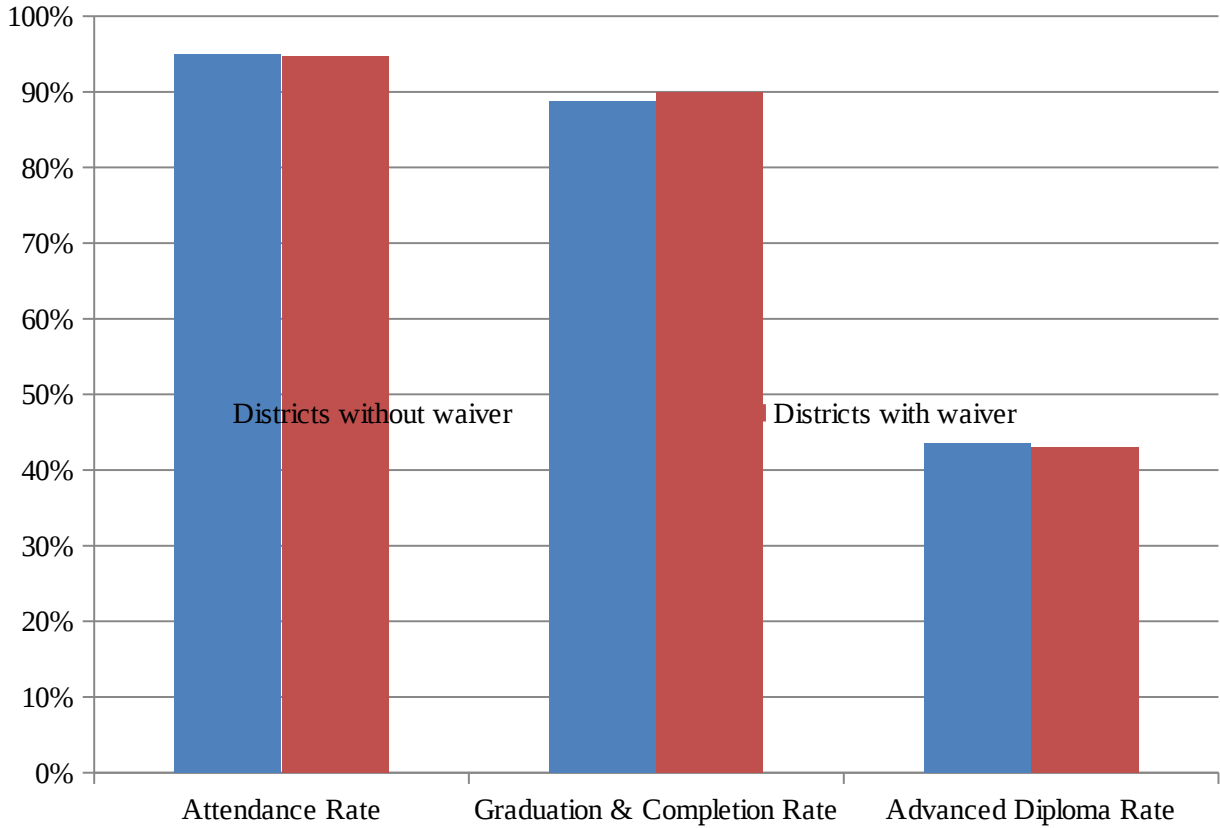
**Means, Standard Deviations, and Significance of Differences Between Waiver and Non-Waiver School Divisions for High School End-of-Course SOL Scaled Scores**

	<b>Waiver Group</b>		<i>p</i>
	Waiver	Non-Waiver	
<b><u>SOL Test</u></b>	<b><u>(<i>n</i> = 71)</u></b>	<b><u>(<i>n</i> = 57)</u></b>	
Reading	435.01 (7.64)	434.51 (12.18)	.160
Mathematics	422.32 (10.37)	419.85 (14.91)	.030

**Other Outcome Indicators**

Figure 18 illustrates additional waiver/non-waiver comparisons on three 2012-2013 high school outcomes – attendance rate, graduation completion rate (within four years), and the percentage of students graduating with an advanced studies diploma. These data clearly show no differences between waiver and non-waiver divisions.

The average daily attendance of students and number of instructional days during the 2012-2013 school year, for both elementary and secondary schools, for waiver and non-waiver school divisions, are shown in Figure 19. While waiver divisions averaged approximately one-half day more in instruction, this difference was not statistically significant, and non-waiver divisions had slightly higher attendance (also not statistically significant).

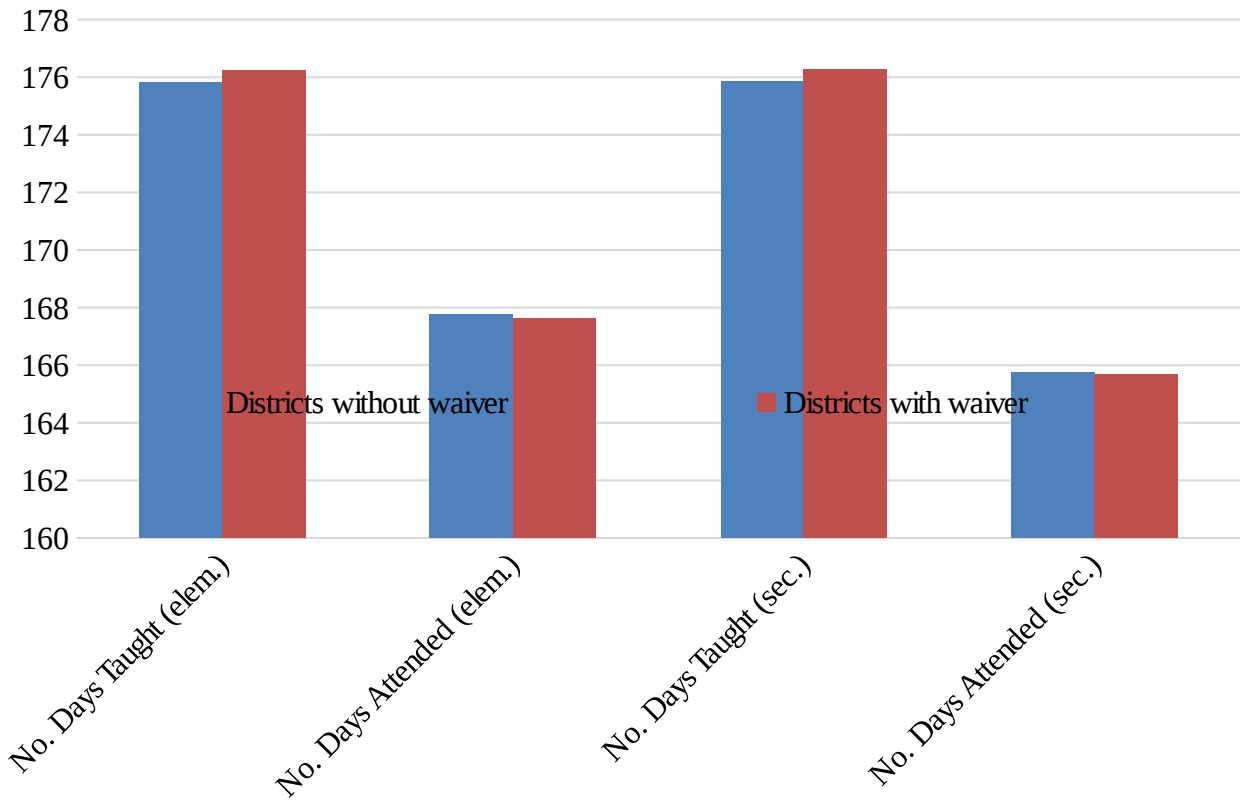


**Figure 18. Comparison of average rates at which students attended school, completed high school, and were awarded an advanced diploma during the 2012-2013 school year in Virginia public schools – school divisions with pre-Labor Day opening waiver vs. school divisions without waiver.**

Completion and diploma rates are based on ninth grade Fall 2009 membership numbers.

<sup>1</sup>Dataset includes 71 school divisions with a pre-Labor Day opening waiver and 57 school divisions without.





**Figure 19. Comparison of number of instructional days offered and average number of days students attended averaged across VA school divisions with and without pre-Labor Day opening waiver.** Dataset includes 71 school divisions with a pre-Labor Day opening waiver and 57 school divisions without.

## Discussion

The data presented and analyzed in this report represent an analysis of the relationship between school division start date, before or after Labor Day, and academic outcomes. The approach to the analysis is to determine if trends or differences were evident in comparing the two groups of divisions. The nature of waiver request and actual starting date is somewhat problematic, yet since nearly all school divisions were included in the study it is likely to be representative of all. There could be other approaches to determining start date status, such as when in August the school division begins, which could make a difference. Furthermore, while most waiver requests remain constant from year to year, there are changes in status for some divisions that complicate the analysis. For example, a division could have a waiver one year but not the next. The approach taken for the statistical analysis was designed to control this effect by determining clear same status for four consecutive years. The intent was that the results in 2012-2013 represent four years of either starting before or after Labor Day.

This study is a group analysis, an aggregate that relies on averages and not individual school division trends or individual division results in comparison to others, which could provide some variation in the trends reported here.

The location of the school divisions that begin the school year prior to Labor Day obviously lie primarily west of I-95, have fewer large and urban divisions in comparison to the non-waiver group, and a slightly higher number of students eligible for free and reduced price lunch. While it is not possible to control these factors, as well as other differences, the results reported here do adjust for socioeconomic status, a major influence on achievement.

Because group averages are used, and there is a larger number of low enrollment divisions that have waivers, the cumulative effect of the impact larger divisions have on a high number of students is mitigated. That is, this study does not weigh results by enrollment. An analysis by school or more systematic matching of size could provide helpful additional information. That being said, the logic of this analysis is that the start date, because it is division wide, will have a unitary effect. Furthermore, the analysis adjusted for size of division in the statistical analyses of year 2012-2013 SOL test scores, and both longitudinal and statistical analyses were completed for a set of divisions that did not include the largest divisions in the state.

Another consideration with the study may be the outcome variables that were selected. The SOL tested areas were identified logically as representing important areas across grade levels,

with the hope that, together, the trends would become evident. It is possible, of course, that other outcomes could show different trends, though the consistent results obtained here suggest that is probably not the case. The longitudinal results are consistently similar and convincing across subjects and grade levels, showing very little difference in trends when comparing the waiver to non-waiver divisions (with some possible exceptions). There may also be other factors associated with many or even most of the divisions in each group (e.g., larger urban school divisions may emphasize different math courses than small rural divisions), but even with these unknown factors, the results strongly suggest a pattern of no relationship between start date and academic performance from year to year. This does not mean, however, that a single division or small group of divisions would show different trends.

The statistical comparisons for the 2012-2013 school year test score results, adjusting for free and reduced price lunch and size, consistently show no statistically significant differences between the two groups of divisions. The fact that this finding occurs consistently suggests that there is no relationship between start date and academic performance. The statistical analysis has good power to find significance; hence the failure to reject the null hypothesis of no relationship is likely to be true, once again for all school divisions as a group. Just as in the longitudinal analyses, other outcome variables and selected subgroups of divisions may provide different results, though in the author's opinion, this seems unlikely. This argument is supported by additional outcome indicators that show no difference, including attendance, completion, and graduation with an advanced studies diploma. Furthermore, because of the stability in which divisions are waiver and which non-waiver, it is likely that statistical results will be the same for other years.

## **Conclusions**

The purpose of this study was to investigate whether a relationship exists between when school begin, before or after Labor Day, and academic performance. By clearly identifying waiver and non-waiver school divisions, adjusting for the effect of socioeconomic status and size, the analysis was able to draw reasonable comparisons. The preponderance of the evidence suggests that, as a group, divisions that begin school prior to Labor Day, as compared to those beginning after Labor Day, show approximately equal academic performance as measured by SOL tests across time, subject area, and grade level. Waiver and non-waiver divisions have essentially the

same graduation rates, attendance, percentages of students graduating with an advanced diploma, instructional days, and average number of days attended. While for the vast majority of school divisions waiver designation and school start date stays the same, year after year, there is some variation, so comparisons each year will not be the same. These conclusions are limited to the aggregate groups analyzed, and do not necessarily generalize to individual school divisions.