Report

HOWARD COUNTY
PUBLIC SCHOOL SYSTEM

BOARD OF EDUCATION OF HOWARD COUNTY
MEETING AGENDA ITEM

TITLE: Preliminary Report: High School Start Time (Phase I Findings) **DATE:** February 13, 2014

PRESENTER(S): David A. Bruzga and Frank V. Eastham, Jr.

OVERVIEW:

The topic of high school start times is under discussion nationally and locally and research is ongoing. In the fall of 2013, the Superintendent requested the formation of an exploratory work group to begin to examine research, school bell schedules and an initial impact analysis on transportation, student activities and athletics, and family/community needs. From September 2013 – January 2014, the group gathered, reviewed, and analyzed information relevant to the high school start time. The preliminary report presented highlights the need for further study, input, and analysis.

FUTURE DIRECTION:

A critical next step is to establish a Charter Committee to focus on the following: stakeholder and community engagement in Phase II, model development and impact analysis in Phase III, and recommendations, which would be scalable and fundable, in Phase IV.

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OVERVIEW

The Howard County Public School System (HCPSS) is committed to aligning initiatives and strategies for improvement with Vision 2018, in which all students are inspired to learn and empowered to excel. *Vision 2018: Fulfilling the Promise of Preparation,* the HCPSS five-year strategic plan, articulates goals and strategies to attain this vision. The mission of the HCPSS is to cultivate a vibrant learning community that prepares students to thrive in a dynamic world.

Examining the high school start time aligns with *Vision 2018* Goal 1: Every student achieves academic excellence in an inspiring, engaging and supportive environment.

- Outcome 1.4: Students are engaged in the learning process.
- Outcome 1.7: Schools support the social and emotional safety and well-being of all students.
- Outcome 1.8: Schools support student well-being and the development of balanced lifestyles, all strongly align with the improvements supported by research on later high school start times.

Charge to the Exploratory Work Group

In September 2013, the Howard County Public School System Superintendent charged staff to convene an exploratory work group (Appendix G). The charge directed staff to examine background research on high school start times with specific attention to student engagement, student achievement, and student well-being. The group reviewed sleep studies/research, high school start times throughout Maryland jurisdictions (Appendix A), and additional information relevant to how shifting high school start times might impact other programs at all levels. Furthermore, they conducted an overview of schools and districts nationally (Appendix B) that are also examining a shift to high school start times. Information about issues, concerns, examples, and impact of shifting the high school start time to 8:00 AM or later were reviewed and discussed.

Project Phases

The project has four phases:

Phase I	Review existing research and conduct an exploratory study of shifts to school start and dismissal times and potential impact.
Phase II	Establish a Charter Committee. Invite stakeholder and community engagement and input.
Phase III	Continue to explore and develop examples to shift school start and dismissal times and conduct a detailed impact study with consideration for elementary, middle, and high schools, transportation, and family well-being.
Phase IV	Provide recommendations to include school start and dismissal times, impact analysis, and cost analysis.

In Phase I, the exploratory work group analyzed the impact of shifting the high school start time, without changing start times for elementary and middle schools. As a result of this initial review, it became quickly evident that the high school start time cannot be evaluated in isolation. In addition to cost, other critical factors emerged. At this time formalizing the committee as a

Charter Committee and expanding membership to include key stakeholders would provide valuable resources and perspectives. However, the group does concur with the public concern for adolescent sleep as a component of student health and well-being and acknowledges that although the relationship between sleep and learning does not yield conclusive results in research models, important functions such as abstract thinking, attention, and working memory are positively impacted by student alertness and readiness for school, which may be correlated with adequate sleep. A broad range of considerations needed to determine next steps for a later high school start time are overviewed in this initial report.

In subsequent phases, actions would include the collection of additional input from survey data, a review of stakeholder considerations, and a detailed impact analysis. A timeline for implementation needs to be developed and a comprehensive study merits the review of a number of factors that are impacted by arrival and dismissal times: time to work, practice, meet, or compete; travel considerations for competitions; civil twilight and traffic norms; before and after school child care; and community services such as tutoring, private lessons, and other after-school activities for students.

History of High School Start Times in HCPSS

HCPSS high schools currently start at 7:25 AM; middle schools start between 7:40 AM and 8:25 AM; and elementary schools start between 8:10 AM and 9:25 AM. The existing schedule is the result of adjustments to the length of the school day for middle and high school students to equal 6 hours and 45 minutes and an annual process of evaluating and refining a tiered bus routing schedule.

The Transportation Office completed an analysis of a later high school start time and reported to the HCPSS Board of Education on November 25, 1997. The report noted advantages and disadvantages with preliminary cost estimates. Within the same timeframe, the Fairfax County Public School System in Virginia and the Anne Arundel County School System and the Montgomery County School System also formulated task force groups to examine later high school start times. The options presented included opening all schools 45 minutes later or shifting secondary school start times to either 8:15 AM or 8:45 AM and operating elementary schools with a start time of 8:50 AM. At that time, the additional cost estimate totaled $2,800,000 and created a demand for 80 additional buses and a three-tiered bus schedule. The third option involved switching the secondary schools' start time with late elementary schools so that high schools would operate 9:30 AM – 4:00 PM. Meeting minutes detailed discussion about the lack of evidence to support improved academic performance, although Board of Education members noted that the relatively small shifts in starting times were inconsistent and results were mixed.

In February, 2004, the HCPSS Board of Education responded to renewed inquiries into school start times as a result of adding an additional fifteen minutes to the school day for middle and high school schedules to provide a 6 hour, 45 minute school day. The elementary school day has been maintained at a 6 hour, 30 minute school day. The final plan adopted expanded the operating window to start all high schools at 7:25 AM and dismiss the last elementary school at 3:55 PM. The Board accepted the additional $143,000 cost associated with this change. In March 2004, a request was made to consider a 7:25 AM start time for elementary or middle schools and an 8:10 start time for high schools, with all other opening/closing times established within the 7:25 AM – 3:55 PM operational window. The impact analysis presented on July 22,

2004 indicated that additional bus equipment would be required due to the loss of the 30-minute student drop-off window available at the high school and shared safety concerns for younger students during peak traffic and predawn hours.

At this time, the Anne Arundel Public School System (MD), the Montgomery County Public School System (MD), and the Fairfax County Public School System (VA) are local educational systems that are studying the topic of high school start times. Senate Bill 14 was introduced on January 8, 2014 to the Maryland General Assembly; it calls for a Task Force to Study Starting Times for Maryland Public Schools with the requirement that the group would report its findings and recommendations to the Governor on or before December 31, 2014. (Appendix G)

Literature Review

Adolescents and Sleep

According to research from the National Sleep Foundation (NSF), changes in adolescent brain chemistry lead to adolescents going to bed later and sleeping later each day. NSF (2013) states that "biological sleep patterns shift toward later times for both sleeping and waking during adolescence -- meaning it is natural to not be able to fall asleep before 11:00 pm." Given this internal timing, it is difficult for teenagers to adjust to early school days because they are forcing their bodies to be awake when the biological cycle is pushing them to be asleep. Eide (2012) states that, based on a longitudinal study completed at Stanford University sleep camp during the 1970s, adolescents slept about 9.25 hours – which is cited as the "optimal" level of sleep by the National Sleep Foundation. As a result of later sleep times but early school starts, NSF finds that "most teens do not get enough sleep — one study found that only 15% reported sleeping 8 1/2 hours on school nights."

Research, too, confirms that high-school students' natural sleep cycles markedly differ from those of young children and even adults. Jacob and Rockoff (2011) and Dahl and Lewin (2002) found that later sleep and wake patterns among adolescents are biologically determined; the natural tendency is for teenagers to stay up late at night and wake up later in the morning. Specifically, the authors state that "changes in the circadian rhythm during adolescence shift children's internal clocks to later bed and wake times (see, for example, Carskadon, Vieira, and Acebo 1993; Crowley, Acebo and Carskadon 2007; Dement and Vaughan, 1999; Wolfson and Carskadon 1998 as cited in Jacob and Rockoff 2011). As noted by Carrell, Maghakian, and West (2011), melatonin levels peak at roughly 7:00 a.m. for adolescents and at 4:00 a.m. for adults, so waking a teenager at 7:00 a.m. is similar to waking an adult at 4:00 a.m."

Adolescents, Sleep and Academic Achievement

Based on the research that less sleep is associated with a decrease in cognitive performance (see, for example, Pilcher and Huffcutt, 1996), a body of research explores the impact of sleep on student's academic performance in school. Given their need to wake later, researchers have found that teenagers are more alert and able to learn when they get more sleep (Owens, 2010; Lufi, 2011; Carrell, 2011; among others), and according to the NSF when they have had at least 8-9 hours of sleep (2013).

At the center of the debate on sleep and academic achievement is the relationship between school start times and learning gains (see for example Curcio, Ferrara, and Gennaro 2006; Wolfson and Carskadon 1998; Mickey T. Trockel, Michael D. Barnes, and Dennis L. Egget

2000). Specifically, learning gains associated with later start times have also been associated with students getting more pillow-time (see for example Wolfson and Carskadon 2003; R. Epstein, N. Chillag, and P. Lavie 1998; Kyla Wahistrom 2002, as cited in Carrell, et al. 2011; Owens, Belon and Moss, 2010). In the following section, empirical studies that examined the relationship between start times and learning gains are discussed; studies that examine the relationship between sleep and learning gains are discussed above and set the background for this review.

Limitations

Research studies that have examined the relationship between start-times and academic achievement and that used empirical evidence in doing so have been reviewed as well. As with any body of research in social sciences, there are several limitations to the research available. First, most studies examine the relationship between sleep and grades, but this correlation does not establish a causal relationship. Of the studies that investigated school start times and academic achievement, none could control for differences stemming from students' ability to choose their courses or schedules (where available). Second, most of the studies relied on students' self-report for sleeping and waking times (except, for example, Wahistrom's follow-up study relied on the "School Sleep Habits Survey" developed and administered by Bradley Hospital at Brown University); while some studies also used self-report achievement data (although all those reported in Table 1 used official school records). Third, none of these studies collected first-hand data to examine the impact of later start-times on student performance; instead, a majority utilized existing data to conduct a secondary data analysis. A limitation of this common research design is the inability of the researcher to include background variables of interest in the study, such as parent or student characteristics or behaviors (Wolfson, 2003). Of all the studies examined, the study by Carrell, Maghakian, and West (2011) utilized data that most closely resembled a random-assignment of students to two different start times (as a result of assignment processes at the institution).[1] Although the study uses first-year college freshman (who arguably have similar biological sleep patterns and preferences as those in their teens) this study is highlighted because of its experimental design.

What Outcomes are Affected by Later Start-Times?

If later start times for high-school students is a way to ensure that students are well-rested and ready to learn, then later start times have also been shown to affect overall academic performance (not just performance in morning classes) and attendance. Carrell, et al. (2011) found that among first-year Air Force students who were randomly assigned to start times, those who started classes prior to 8:00 a.m. performed worse not only in their first-period course, but in all of their courses.[2] Studying the influence of start-times on attendance, Wahistrom (2002) examined two Minnesota school districts, which changed their start times and found that attendance after the change improved as students progressed through grade level (e.g. 11th graders had better attendance than 9th graders), and that attendance within race/ethnicity groups improved for all students except American Indian students in Grade 11. Furthermore, the researchers found that students whose enrollment was discontinuous, or made frequent moves into and out of many high schools over a 4-year period, improved from72% to 76%, before and after the change, respectively.[3] In addition to academic

[1] Through random assignment, variables that may otherwise influence results tend to occur equally between groups.
[2] All students took the same courses and same standardized tests, allowing for comparisons by start time.
[3] Effective with the 1997-98 school year, the Minneapolis School District changed the starting time of its seven comprehensive high schools to 8:40 AM. and the dismissal time to 3:20 PM. Prior to the change, classes began at the high schools at 7:15 AM and dismissed at 1:45 PM. In the 1997-98 school year, the Center for Applied Research (CAREI) in the College of Education and Human

achievement, researchers have examined other benefits to later start times for adolescents. Edwards found that students who start school one hour later watch 15 fewer minutes of television per day and spend an average of 17 more minutes on homework per week (2011).

Notably, Wahistrom (2002) also used results from the School Sleep Habits Survey to determine whether students sleeping times were different after the late start. Before the change in schedule, students reported going to be around 10:45 PM, and maintained the same sleeping time after the change. The researchers note that the findings make sense from a biological perspective and note that it is "likely that nighttime circadian rhythms were contributing to a feeling of sleepiness around 11 PM, regardless of what time students woke up in the morning" (p 12). In sum, later start times appear to positively affect student academic performance, attendance, and have better study skills, but a later start time does not appear to contribute to later sleeping times.

How much does Start-Time Affect Student Achievement?

On average, research suggests that an hour later start time is associated with a .175 standard deviation increase in student test scores, for students across middle and high schools. To put this in context, the achievement gap between black and white students in the US is roughly 1.0 standard deviation (Jacob & Rockoff, 2011). [Note that this effect includes some studies on middle school students that are not shown in Table 1 below]. The most notable study in Table 1 is by Carrell, Maghakian and West (2011), due to the random assignment of incoming students by the USAFA admissions process which most closely resembles the 'gold standard' in research design). The following table presents the results from four key empirical studies reviewed about the impact of delayed start times on student achievement.

Standard Deviation Advantage for Students with Later Start Time	Start-times Compared	Evaluation Design	Population Studied	Source
0.15 SD increase associated with a 1 hour delay	7-8 am versus 8-8:50 am	Random assignment to start times	6,165 first year college students at USAFA 2004-08	Carrell, Maghakian, and West (2011)
0.03-0.10 SD increase in reading and 0.06-0.09 SD increase in math test scores; disadvantaged students benefited most with effects 2x those for advantaged students; effects persisted into high school	7:30 am versus 8:15 am	Historical comparisons of standardized test scores as a result of busing changes due to overcrowding	Middle school students in Wake County Public Schools (N=20,530 in 1999-00 and 27,686 in 2005-06)	Edwards (2011)
No difference in ACT test scores (but does not include disadvantaged populations who don't necessarily take the ACT)	7:30 am versus 8:40 am	Historical comparisons of 1997-98 ACT test scores when some districts changed schedules and others didn't	All students taking the ACT from 73 Minneapolis high schools	Hinrichs (2011)[4]
Slight improvement in letter grades earned overall, but differences were not statistically significant (no SAT or ACT data available)	7:15 am versus 8:40 am	Comparison of student data 3 years prior to and following the schedule change	1,200 Minneapolis secondary students in grades 9-12 (i.e. 10% of the total population)	Wahistrom (2002)

[3] (continued) Development at the University of Minnesota was asked by the Minneapolis School Board to examine the impact of the later start upon its students, staff, families, and community members. The information from that study can be found in "Start Time Study Report of Findings," November 1998, as a bound report provided to Minneapolis School District administrators. (See - http://education.umn.edu/carei/Reports) In fall 2000-01 school year, CAREI was asked by the school district to examine the data about student grades and attendance and to repeat the administration of the School Sleep Habits Survey. The district was interested in knowing if the positive outcomes that had been present during the first year of the change were persisting over the long term. The results from this study are reported here.

[4] Hinrichs (2011) uses ACT test scores for students in the Minneapolis-St. Paul, MN metro area. For his sample years, between 55 and 66 percent of high school students in Minnesota took the ACT. As a result his sample does not include the students (the bottom portion of the grade distribution) where Edwards (2011) finds the largest impact of start times.

While two of the four studies listed in Table 1 show that later start times do in fact influence student achievement, researchers have also noted the design issues inherent in one of these studies. Carrell, et al. (2011) cites that "Wahistrom (2002) questioned the strength of her own findings" particularly because using letter grades, instead of standardized test scores, inserts variability across classes and schools that cannot be controlled for by the researchers. Hinrichs (2011) uses ACT test scores, unlike any of the other studies examined, which rely primarily on school achievement measures such as GPA. In 2011, Hinrichs broadened his analysis by estimating the effect of start time on achievement using standardized test scores from Kansas and Virginia, and still suggests no effect of school start time on academic achievement.
While all the studies noted examined the impact of later start on all students, one study in particular looks at which student populations stand to benefit the most from later start times. Edwards (2011), in addition to examining the relationship between start-times and achievement, examined among which population the impact of later-start times is greatest. He finds that the effect of a one-hour later start time is greatest among students who have the lowest achievement scores (i.e. students in the bottom half of the distribution).

Delayed Start-time and After-School Activities

While the later start time is preferable from a student-learning perspective, a later end time is not preferable when considering team sports and other after-school activities and student employment. As such, districts that have implemented later start times have also had various approaches to accommodate these after-school obligations. Delayed start times and options for closing times and after school activities are summarized in the table below.

High School End Time	Other Changes	Cost	Hours of Face-to-Face Learning	Advantage	Disadvantage	Source
Same; no change to end time	Move 'free' period to end of day to permit students to participate in extracurricular activities	No additional cost	Same	No changes required to academics	Loss of free period; requires coordination for sporting events with students in other counties	Jacob & Rockoff (2011)
Same; no change to end time	Move to A/B day scheduling to accommodate reduced instruction time	No info	Reduce from 7.5 to 6.5 hours	Review literature on block scheduling	Review literature on block scheduling	Jacob & Rockoff (2011)
Same; no change to end time	Only athletes are assigned to alternative schedule (i.e. free period or reduced day)	No info	Reduced for athletes on select days	Accommodates after-school sports, specifically	Reduces instruction time for athletes	Carrell (2011)
Delayed 1 hour	Installed lights at all athletic fields	Approx. $125K	Same	No changes required to academics	Delay in after-school activities by 1 hour	Jacob & Rockoff (2011)

Delayed Start-times and Busing

Nationally, early start times were adopted for high school students to realize savings in transportation – a tiered busing system allows an average of 30% cost savings to districts (Edwards, 2011 and Jacob and Rockoff, 2011). In a proposal to its board of Education in 2006, the Anne Arundel County Public Schools presented several options and the associated costs for an early start time for high schools. A significant consideration in these options was the cost associated with changes to the bus schedules. These options for busing are outlined as follows:

	Option	Concept	Transport Cost	Other Costs
1	Assign high school timings to 'end of shift'	Retain timings for ES and MS, and move HS to end of shift versus beginning	Marginal	Delay to after-school activities
2	Expand transport capacity to accommodate simultaneous ES and HS pickup (i.e. after 8 AM)	Secure additional equipment and personnel to pickup HS students approx. when ES students are pick up	$3-$4 million per annum	Delay to after-school activities
3	Move from 3-tiered busing (ES, MS, HS) to 2-tiered based on open-close shifts (Shift 1 includes some ES, MS; Shift 2 includes some ES, MS, and all HS)	Identify some ES and MS to open early with the rest opening late; all HS open late; stagger busing by these two 'shifts' instead of 3 tiers based on school level; no additional equipment or personnel	$325K per annum (based on additional 0.5 hrs. for 200 bus trips)	Significant changes in schedule to ES, relatively dark in winter for ES students at dismissal
4	Option 3 + additional buses and personnel	Secure additional buses to accommodate ES and MS in 'late' shift to move close time earlier	$3.25 million per annum (additional 65 buses at $50K each per year)	Delay to after school activities

In the report of the 2013 Bell Times Work Group in the Montgomery County Public Schools, an option (Option 2) is presented with all school start times being shifted 25-35 minutes later, while the order of school start times and the length of the school day remain the same. While this option had implications for late elementary start times (child care, morning free time, and later afternoon dismissal), transportation costs were estimated to be $0.

The above sections present a brief summary of the research findings. To determine to what extent certain factors are at play in the HCPSS, further examination of relevant data is necessary.

High School Start and Dismissal Time: Review and Considerations

Based on an exploratory process to examine potential impact, the work group proposes that next steps should include establishing parameters for model development. The following considerations should be included:

1. Student safety is a priority. In order to consider factors such as daylight, traffic, and travel distance, school start and dismissal times are reviewed annually. A computerized system to optimize these factors for transportation routing should be reviewed.
2. Optimizing school start and end times is critical. In Phase I, the exploratory work group examined various school times for all levels. School start times must address the times for waiting at bus stops and for walking to school in the morning. School dismissal times must consider the need for younger students to arrive home prior to twilight.

3. After-school activities for high school students include athletics, extra-curricular clubs and programs, intervention and acceleration supports, and student employment. In the Phase I example, the exploratory work group designated the high school start time to shift from 7:25 AM to 8:15 AM and high school dismissal time to shift from 2:10 PM to 3:00 PM; this adjustment provides adequate time for the various after-school programs associated with the high school program to continue.
4. The current school day for high school and middle school students is 6 hours, 45 minutes. The current school day for elementary school students is 6 hours, 30 minutes. The length of the school day for all students should be examined since we are reviewing the complex relationship between start and dismissal times with regard to high expectations for student success and exemplary instruction.
5. In addition, the exploratory work group identified other considerations that would impact next steps:

   · Transportation needs (Refer to Appendix D: Transportation Study)
   · Shifts in Food and Nutrition services, to include work schedules, meal preparation, and delivery
   · Impact on families at all levels
   · Impact on high school students and staff
   · Impact on elementary and middle school students and staff
   · Impact on athletics, extra-curricular activities, and after-school programs
   · Impact on community activities and resources

Impact Analysis

The exploratory work group conducted an impact analysis of shifting the high school start time to 8:15 AM. This analysis did not address a change elementary or middle school start times. Currently, HCPSS runs 241 high school trips with a morning 15-25 minute drop-off window for high schools. This proposal would continue to require at minimum a 15-minute drop-off window and would require additional buses, which would significantly increase the current bus fleet by approximately 299 buses. The exploratory work group also discussed including the Homewood School in the same shifting timeframe, but did not consider changing start and end times for Cedar Lane School. Because of the student population and various programs at Homewood School, additional transportation to meet the needs of the special education student group would be necessitated.

Proposed Schedule:

- Ø The bell time window defines the school day and the instructional start of Period 1 and end of Period 6.
- Ø The delivery window defines the transportation drop-off and pick-up of students. For operational purposes, pick-up and delivery at bus stops may require 15 to 60 minutes in the morning or afternoon. Buses are expected to arrive at their first assigned school 10 minutes prior to the dismissal bell. Each subsequent school arrival is before the dismissal bell.

School Level	Delivery Window	Bell Time Window
High School	10 minutes	8:15 AM – 3:00 PM
Middle School	10 minutes	7:40 AM - 2:25 PM 7:55 AM – 2:40 PM 8:00 AM – 2:45 PM 8:05 AM – 2:50 PM 8:10 AM – 2:55 PM 8:25 AM – 3:10 PM
Elementary School	10 minutes	8:15 AM – 2:45 PM 8:35 AM – 3:05 PM 8:40 AM – 3:10 PM 8:45 AM – 3:15 PM 8:50 AM – 3:20 PM 8:55 AM – 3:25 PM 9:00 AM – 3:30 PM 9:15 AM – 3:45 PM 9:25 AM – 3:55 PM

Preliminary Review

Transportation changes and costs include the following:

- The 241 high school trips were shifted from the existing high school bell times of 7:25 AM to 8:15 AM and 2:10 PM to 3:00 PM.
- 98% of the regular education buses that serve high schools would not be able to serve their current combination of trips.
- The bell time window shifted from the earliest school starting at 7:25 AM to a start of 7:45 AM. In the afternoon the current bell schedule posts the earliest school departure at 2:10 PM; under this option school departure shifts be 2:30 PM. This slide in the bell time window results in a decrease in the operating window of 15 minutes in the morning and 20 minutes in the afternoon.
- All high school and Homewood students will start and end the school day 50 minutes later than their current time.
- Current general education fleet utilization averages 2.92 schools served per bus; using Example A this decreases to 1.68.
- Current special needs fleet utilization averages 1.7 schools served per bus; using Example A this decreases to 1.11.
- General education bus contracts will increase by 236.
- Special education contracts will increase by 63.
- Estimated total bus contract cost with this change = $19,464,000

Food Services changes and costs include the following:

- If the lunch shifts for the high schools move forward the same amount of time as the start time for school moves forward with no change to elementary or middle school lunch shifts, Food & Nutrition Service will incur overtime for high school managers and cooks.
- Estimated additional cost associated with this change = $72,000.00

Other Considerations

- Traffic considerations will be evaluated with a request for the use of sensors to study traffic patterns.
- The reduction on the bus operational window increases cost.

- The operational window includes drop-off times prior to the bell times. The drop-off window ranges between 10 minutes up to 25 minutes currently, with the larger drop-off window occurring at the high school. This model would shrink that window at high schools and would potentially increase the window at the schools with earlier start times. Due to the implementation of a breakfast program at all schools, the additional drop-off time would benefit student participation with less impact on instructional time; however, staff supervision would need to be evaluated.
- This example would require additional equipment and staff for transportation needs. It is important to note that with economic conditions improving, driver shortages are anticipated.
- Start and end times for high school staff will be adjusted, as governed by the Negotiated Agreement. Also, times for athletic practices and after-school activities for high school students will shift.
- Research indicates needs of middle school pre-adolescent students are similar to needs of their high school counterparts.
- Students participating in some of the fall and spring sports will need to be dismissed early from Period 6 to attend competitions.
- The agreement for the joint use of fields will need to be modified in order to accommodate the later start times for athletic events.
- Extended Day and Evening School programs provide opportunities for credit recovery for high school students. The start and end times for these programs will need to coordinate with high school dismissal times.

Stakeholder and Community Engagement

Consultation with a broad range of stakeholder groups is critical before any change to the school day could be fully considered. To ensure a smooth process for capturing stakeholder input and clarifying system intentions surrounding the exploration of changing high school start times, communication with students, staff members, parents, and the community is essential. Surveying and meeting with stakeholder and community groups is part of Phase II of this study and charge. While high school students and their parents may be the targeted beneficiaries of a change in school start time, staff, as well as elementary and middle school stakeholder groups, should be fully included in the process as well. Time for community engagement and strategic planning would need to encompass a comprehensive approach to seek and analyze feedback, address family and community needs, and disseminate accurate information to raise awareness and to increase opportunities for collaboration and review.

Conducting a student survey (Appendix E) will be a preliminary step, with a coordinated public message being shared at the same time; additional survey data will be collected electronically from staff and from school families. Information can be available on the system's website, as well as shared through newsletters and social media (Facebook and Twitter) for additional comments.

Discussion groups and forums provide face-to-face dialogue to explain intent, share background information, and offer a time for community response. Hosting several open forum sessions would afford all stakeholders, especially parents, staff, and community members, the opportunity to understand the rationale and considerations behind the examination of changing start times.

A coordinated community engagement strategy will provide the opportunity to include all stakeholders in the process of examining school start times through a set of examples in order to focus discussion on both the benefits and potential change implications. Another desired result would be to raise awareness of relevant research, best practices, learning benefits, and cost implications. The HCPSS community should expect a transparent approach in order to understand fully the rationale, options/models, and unintended trade-offs as well as desired outcomes. Understanding why system resources are being directed to this study for change, as well as understanding why input is needed, could increase participation, redirect any misconceptions, and foster consensus-building around the best model for implementation. Consideration should be given to translating and printing materials to include as many families as possible. Ongoing communication updates would keep all stakeholders engaged and enable a smoother transition, should any changes result.

Next Steps

Student hope, engagement, and well-being are critical to student performance. Student hope drives effort and achievement; student engagement fuels involvement and enthusiasm; and student well-being elicits how students experience their lives, both in and out of school. Sleep studies present how the biology of sleep patterns for adolescents correlates with attentiveness and alertness in the school setting. The evolving body of research clearly presents how sleep is essential to performance and well-being; however, the question of how to improve the existing time structures for the school day in order to nurture hope, engagement, and well-being requires innovation and careful analysis in our commitment to Vision 2018, *Fulfilling the Promise of the Future.*

High school cultures extend beyond a single bell schedule and encompass a broad range of competing demands on time: athletics, extra-curricular activities, employment commitments, and family schedules. When considering any alternatives to the current high school start time, HCPSS must evaluate impact on all students Pre-K-12, staff, families, budget, and the broader community.

***Next steps will include**:*

Phase II

- Form a Charter Committee for School Start and Dismissal Times.
- Invite stakeholder and community engagement and input.
- Offer electronic surveys.
- Develop a timeline for Phase III and Phase IV.
- Investigate available routing software to optimize transportation tiering and routing.
- Review bus contracts to examine financial efficiency.
- Report to the Board of Education and community on Phase II.

Phase III

- Develop scalable and fundable models.
- Prepare a detailed impact analysis for each model.
- Report to the Board of Education and HCPSS community on Phase III.

Phase IV

- Develop detailed implementation model for HCPSS.

Appendix A

Maryland Average High School Start Time

Counties	Length of Day	Start Time
Allegany County	6 hours, 52 minutes	7:30 or 7:40 AM
Anne Arundel County	6 hours, 48 minutes (Study)	7:17 AM
Baltimore City	6 hours, 50 minutes	7:30 – 9:00 AM
Baltimore County	6 hours, 30-45 minutes	7:30 or 7:50 AM
Calvert County	6 hours, 55 minutes	7:25 or 7:40 AM
Caroline County	6 hours, 50 minutes	
Carroll County	6 hours, 45 minutes	7:30 AM
Cecil County	6 hours, 40 minutes	7:30 – 8:00 AM
Charles County	6 hours, 45 minutes	7:30 or 8:05 AM
Dorchester County	6 hours, 55 minutes	7:35 – 7:50 AM
Frederick County	6 hours, 50 minutes	7:30 AM
Garrett County	6 hours, 50 minutes	8:25 AM
Harford County	6 hours, 30 minutes	6:30 – 7:30 AM
Howard County	6 hours, 45 minutes	7:25 AM
Kent County	6 hours, 45 minutes	
Montgomery County	6 hours, 45 minutes (Study)	7:25 AM
Prince George's County	6 hours, 40 minutes	7:45 – 9:30 AM
Queen Anne County	6 hours, 30-45 minutes	7:45 – 8:00 AM
St Mary's County	6 hours, 45 minutes	7:30 – 8:00 AM
Somerset County	7 hours	7:30 AM
Talbot County	6 hours, 55 minutes	7:40 – 7:50 AM
Washington County	6 hours, 45 minutes	8:45 – 9:00 AM
Wicomico County	7 hours	7:45 AM
Worcester County	6 hours, 50 minutes	7:48 – 8:07 AM

NOTE: These times reflect the earliest and latest start time for each school district. In some cases there are additional start times in between the times indicated.

Appendix B

National Start Time Shifts

State	*School Start Later***	*Length of School Day**
California	· Menlo-Atherton High School · Long Beach Unified School District · Moorpark High School · Palo Alto	6.1
Colorado	· Academy School District · Cortez-Montezuma Schools	7.0
Connecticut	· Wilton	6.5
Florida	· Panama City · Santa Rosa County · 22 Florida school districts	6.3
Georgia	· Decatur	6.9
Indiana	· Avon High School · Cathedral High School · Lawrence Township · Valparaiso Community Schools	7.0
Iowa	· West Des Moines School District	6.6
Kentucky	· Fayette Co. 8:30 AM · Jessamine County	6.7
Louisiana	· Lafayette Parish	7.3
Maine	· Duxbury · Eastham · Nauset High School · Northampton · Sharon Public Schools · Weston High School	6.2
Maryland	Studies in: · Anne Arundel County · Howard County · Montgomery County ·	6.4
Massachusetts	· Middle School Study between 8:37 and 7:15 AM	6.6
Minnesota	· Edina · Mahtomedi School District · Minneapolis Public Schools 8:30 or 8:40 AM	6.3

State	*School Start Later***	*Length of School Day**
Mississippi	· Hattiesburg Public School District	6.8
Missouri	· Columbia Public Schools	6.5
Nevada	· Las Vegas	6.3
New Jersey	· Ridgewood High School	6.5
New York	· Corrinth (elementary and middle schools) · Glen Falls High School · Ithaca	6.9
North Carolina	· Columbus County · Moore County · Wake County · Duke University (No classes begin prior to 8:30 AM)	6.8
Ohio	· Dublin City · Hudson · Kenston Public Schools · Parma · Westlake High	6.6
Oklahoma	· Stillwater	6.5
Rhode Island	· St. George's School, Middletown	
Tennessee	· Cleveland	7.0
Texas	· Lubbock ISD	7.1
Vermont	· Brattleboro Union High School	6.4
Virginia	· Arlington · Fairfax (Period 1 Opt-Out) · Henrico County	6.7
Washington	· Mercer Island School District	5.9
Wisconsin	· Whitnall High School, Greenfield	7.0
Wyoming	· Jackson High School, Jackson	7.0

NOTE: Length of School Day* Averages reflect data reported by schools rather than state requirements. The school-reported length of day may exceed state requirements.

SOURCE: US Department of Education, National Center for Education Statistics, School and Staffing Survey (SASS), "Public School Questionnaire," 2007-08

Start School Later, Inc.** is a non-profit group consisting of health professionals, sleep scientists, educators, parents, students, and citizens. Their work focuses on ensuring that all public schools establish school hours that support health, safety, equity, and learning.

Appendix C

Overview of High School Day

High School Bell Schedule Current

High School Schedule	**6 hours 45minutes**
Period 1	7:25-8:15
Period 2	8:20-9:10
Period 3	9:15-10:05
Period 4A/4B	10:10-12:20
Period 5	12:25-1:15
Period 6	1:20-2:10

High School Lunch Shifts	**30 minutes**
A Lunch	10:10-10:40
B Lunch	10:43-11:13
C Lunch	11:16-11:46
D Lunch	11:50-12:20

High School Bell Schedule with Later Start (example)

High School Schedule	**6 hours 45minutes**
Period 1	8:15-9:05
Period 2	9:10-10:00
Period 3	10:05-10:55
Period 4A/4B	11:00-1:10
Period 5	1:15-2:05
Period 6	2:10-3:00

High School Lunch Shifts	**30 minutes**
A Lunch	11:00-11:30
B Lunch	11:33-12:03
C Lunch	12:06-12:36
D Lunch	12:40-1:10

High School Schedules include:

- Transition times
- Time for school announcements
- Class attendance reporting

Appendix D

Transportation Study

The complexity of transportation considerations is extensive. The following factors are included in the development of transportation options:

a) Operational window
b) Walking considerations
c) Campus transportation (Single runs for middle and high school students)
d) Scheduling process to include tiered schedule, routing, finance, and practice runs

Student safety is the overriding priority for students who are walking or riding to school. In the process of creating efficient schedules, school start times and dismissal times impact the operational window and factors out of the school district's control, such as traffic congestion and "civil twilight". "Civil twilight" refers to the limit at which twilight illumination is sufficient, under good weather conditions, for objects and people to be clearly distinguished in natural light. Beyond the "civil twilight" window, artificial illumination is normally required to carry on ordinary activities such as walking to school or waiting at a bus stop. At this time, traffic implications associated with the various options are not available.

Currently, The Howard County Public School System transports 16,462 elementary school students, 9,850 middle school students, and 12,587 high school students. All high schools open at 7:25 AM and dismiss at 2:10 PM. Middle schools open between 7:40 and 8:25 AM and dismiss between 2:25 and 3:10 PM. Elementary schools open between 8:15 and 9:25 AM and dismiss between 2:45 and 3:55 PM. Timing coordination is critical to fiscal management with regard to equipment, personnel, route mileage, and school safety risk factors (traffic and daylight for both school opening times and dismissal times).

FACTS

- 74 schools served
- 5 non-public schools
- 5.3 million annual miles traveled; 439 buses running routes
- 38,899 students transported daily
- 10,000 students not eligible for transportation
- 1,300 special education students transported daily
- Bus contracts based on 4 hours/day and 55 miles/day
- Cost for large buses = $60,000 each
- Cost for small buses = $78,000 each

Study of Later High School Start Time

This study considered the feasibility of scheduling school bus service for the Howard County Public School System (HCPSS) and provides data related to the direct transportation costs and daylight issues associated with opening high schools at 8:15 AM rather than the current opening time of 7:25 AM. The study involved a mock-tier of existing HCPSS bus trips and reconfiguring school bus routes to facilitate the later high school opening time.

> Shift the high school start time to 8:15 AM. or 8:30 AM with no changes to elementary or middle school start times.

General Planning Assumptions

1. Current number of General Education bus contracts is 318.

2. Current number of Special Needs bus contracts is 121.

3. Currently the number of high, middle and elementary trips is 241, 284, and 404, respectively.

4. The projected cost of each additional general education bus contract is $60,000 per year, a special needs bus contract is $78,000 per year.

5. All middle schools and high schools will continue to have a 6-hour and 45-minute instructional day.

6. Elementary schools will continue to have a 6 hour and 30 minute instructional day.

7. All high schools open at 8:15 a.m. and close at 3:00 p.m.

8. Homewood will open at 8:15 a.m. and close at 3:00 p.m.

9. The number of trips that service each school will remain as currently allocated for the 2013/14 school year.

Definitions

1. The “bell time window” - Is associated in the morning with the earliest time school opens and continues to the time that the latest school opens. The current morning window is 7:25 a.m. to 9:25 a.m. The afternoon bell time window begins when the earliest school dismisses and continues until the latest school dismisses. The current afternoon window is 2:10 p.m. to 3:55 p.m.

2. The “operational time window”- Is associated in the morning with the time the first student is picked up and continues until the last student s is dropped off at the latest opening school. In the afternoon the operational window begins when the earliest school is dismissed and continues until the last student, at the latest school, is dropped off. For example, while high schools start at 7:25 a.m. buses may start picking-up students as early as 6:25 a.m. In the afternoon, the last elementary school dismisses at 3:55 p.m. and the last student may be dropped-off as much as 55 minutes later.

3. School Bus “Trip” – The stops, directions and student assignment to a bus serving a particular school.

4. School Bus “Route” – The combination of trips assigned to a bus to form a bus route.

5. “Tier” – trips assigned to a particular time slot.

6. Exhibit A Current example of an HCPSS bus route

7. Exhibit B Current Bell Time Window

Daylight Factors

On the shortest day of the year, sunrise occurs at 7:27 AM and sunset occurs at 4:44 PM. The following statistics are based on these times and the number of students who would be required to walk to school or to their bus stop prior to sunrise or after sunset.

- 100% of current high school students begin their transit to school prior to sunrise on the shortest days of the school year. In this study, high school students who will begin transit prior to sunrise will decrease to 2%.
- 19% of current of middle school students begin their transit to school prior to sunrise on the shortest day of the year.
- Currently 0% of elementary school student begins and ends their transit to and from school prior to sunrise and sunset. This percentage remains at 0% under the high school start time shift to 8:15 AM.

Executive Summary

The table below summarizes results and findings of the Study:

Bus schedule	Estimated Added Cost	% ES in Darkness*	% MS in Darkness*	% HS in Darkness*
Current Bus Schedule	None	0%	19%	100%
8:15 HS Start Bus Schedule	*$19,152,000*	0%	19%	0%

*The value represents the percentage of students who during some part of their transit to school will be walking to school or bus stops prior to sunrise or after sunset on the shortest day of the year.

Exhibit A - Example of a current assigned bus route, trips and tiers.

Bus#874	Trip Alias:R0449	BidRt#:R0449	Description of Scheduled Event	Start Time	End Time
Weekly			Trip: ATHOLTON HS Bus 874 AM 9	6:38 am	7:05 am
Weekly			Trip: HAMMOND MS Bus 874 AM 12	7:34 am	7:55 am
Weekly			Trip: HAMMOND ES Bus 874 AM 11	8:32 am	8:45 am
Weekly			Trip: FULTON ES Bus 874 AM 12	9:09 am	9:15 am
Weekly			Trip: ATHOLTON HS Bus 874 PM 9	2:00 pm	2:43 pm
Weekly			Trip: HAMMOND MS Bus 874 PM 12	2:50 pm	3:18 pm
Weekly			Trip: HAMMOND ES Bus 874 PM 11	3:30 pm	3:49 pm
Weekly			Trip: FULTON ES Bus 874 PM 12	3:55 pm	4:08 pm

TRIP DETAIL BY BUS 01/29/2014

BLUE HORIZONS INC — **BUS 874**

STOP TIME	*ATHOLTON HS Bus 874*
6:38 am	CHARMED DAYS & EASTERN MORNING RUN
6:46 am	CHURCHILL WAY & DERBY DR
6:48 am	CHAMPIONS WAY & DERBY DR
6:50 am	DERBY DR & WINNERS CIRCLE WAY
7:05 am	ATHOLTON HS (509)

STOP TIME	*ATHOLTON HS Bus 874 PM 9*
2:00 pm	ATHOLTON HS (509)
2:33 pm	DERBY DR & WINNERS CIRCLE WAY
2:34 pm	CHAMPIONS WAY & DERBY DR & PREAKNESS PL
2:35 pm	CHURCHILL WAY & DERBY DR
2:43 pm	CHARMED DAYS & EASTERN MORNING

STOP TIME	*HAMMOND MS Bus 874 AM 12*
7:34 am	10477-10429 GORMAN RD
7:36 am	CHAMPIONS WAY & DERBY DR & PREAKNESS PL
7:39 am	DERBY DR & WINNERS CIRCLE WAY
7:40 am	10386-10630 GORMAN RD
7:43 am	HUNTERS WAY & PILLA TERRA CT
7:45 am	HUNTERS WAY & PATUXENT RIDGE WAY
7:47 am	GORMAN RD & PERSIMMON CT
7:49 am	GORMAN RD & TWIN OAKS WAY
7:51 am	HAMMOND PKWY & JOHNS HOPKINS RD
7:52 am	10631-7986 GORMAN RD
7:55 am	HAMMOND MS (607)

STOP TIME	*HAMMOND MS Bus 874 PM 12*
2:50 pm	HAMMOND MS (607)
3:00 pm	10477-10429 GORMAN RD
3:02 pm	CHAMPIONS WAY & DERBY DR & PREAKNESS PL
3:05 pm	DERBY DR & WINNERS CIRCLE WAY
3:06 pm	10386-10630 GORMAN RD
3:08 pm	HUNTERS WAY & PATUXENT RIDGE WAY
3:10 pm	HUNTERS WAY & PILLA TERRA CT
3:13 pm	GORMAN RD & PERSIMMON CT
3:15 pm	GORMAN RD & TWIN OAKS WAY
3:17 pm	HAMMOND PKWY & JOHNS HOPKINS RD
3:18 pm	10631-7986 GORMAN RD

STOP TIME	*HAMMOND ES Bus 874 AM 11*
8:32 am	DERBY DR & WINNERS CIRCLE WAY
8:33 am	CHAMPIONS WAY & DERBY DR
8:34 am	CHURCHILL WAY & DERBY DR
8:39 am	GORMAN RD & PERSIMMON CT
8:40 am	10602-10612 JOHNS HOPKINS RD
8:45 am	HAMMOND ES (606)

STOP TIME	*HAMMOND ES Bus 874 PM 11*
3:30 pm	HAMMOND ES (606)
3:41 pm	DERBY DR & WINNERS CIRCLE WAY
3:42 pm	CHAMPIONS WAY & DERBY DR
3:43 pm	CHURCHILL WAY & DERBY DR
3:47 pm	GORMAN RD & PERSIMMON CT
3:49 pm	10602-10612 JOHNS HOPKINS RD

STOP TIME	*FULTON ES Bus 874 AM 12*
9:09 am	GUNSTON ST & MORRIS ST & TAWES ST
9:15 am	FULTON ES (525)

STOP TIME	*FULTON ES Bus 874 PM 12*
3:55 pm	FULTON ES (525)
4:08 pm	GUNSTON ST & MORRIS ST & TAWES ST

Exhibit B - Current Bell Time Window

Howard County Public School System
School Opening and Closing Times for School Year 2013–2014
(Times may need to be adjusted during the first weeks of school)

7:26-2:10	7:40-2:26	7:56-2:40	8:00-2:46	8:06-2:50	8:10-2:56	8:16-2:46	8:26-3:10	8:30-3:16
Atholton HS Centennial HS Glenelg HS Hammond HS Howard HS Long Reach HS Marriotts Ridge HS Mt. Hebron HS Oakland Mills HS Reservoir HS River Hill HS Wilde Lake HS	Dunloggin MS Folly Quarter MS Glenwood MS Mt. View MS Patuxent Valley MS	Oakland Mills MS	Burleigh Manor MS Elkridge Landing MS Lake Elkhorn MS Mayfield Woods MS Wilde Lake MS	Hammond MS Harpers Choice MS Patapsco MS	Bonnie Branch MS	Cradlerock ES	Clarksville MS Ellicott Mills MS Lime Kiln MS Murray Hill MS	
8:36-3:06	**8:40-3:10**	**8:46-3:16**	**8:50-3:20**	**8:56-3:26**	**9:00-3:30**	**9:16-3:46**	**9:20-3:50**	**9:26-3:56**
Bollman Bridge ES	Lisbon ES Northfield ES Talbott Springs ES	Bryant Woods ES Centennial Lane ES Hollifield Station ES Manor Woods ES St. John's Lane ES Swansfield ES	Ducketts Lane ES Rockburn ES	Longfellow ES Phelps Luck ES Triadelphia Ridge ES	Dayton Oaks ES Hammond ES Jeffers Hill ES Laurel Woods ES Stevens Forest ES	Atholton ES Clemens Crossing ES Forest Ridge ES Waverly ES West Friendship ES	Bushy Park ES	Bellows Spring ES Clarksville ES Deep Run ES Elkridge ES Fulton ES Gorman Cross. ES Guilford ES Ilchester ES Pointers Run ES Running Brook ES Thunderhill ES Veterans ES Waterloo ES Worthington ES

Special Schools Opening & Closing Times	
Cedar Lane School	7:55-2:25
Homewood/Gateway/Passages/Bridges	7:25-2:10

Parochial Schools Opening & Closing Times	
Bethel Christian Academy	8:30-3:00
Our Lady of Perpetual Help	9:15-3:45
Resurrection	9:15-3:45
St. Augustine	9:15-3:45
St. Louis	9:15-3:45

Appendix E

Surveys

The HCPSS Division of Accountability is designing a student survey to be administered to all high school students. The survey will collect the following demographic data:

- Gender
- Ethnicity
- High School
- Grade
- Special services, self-reported, such as FARMS and ELL.

Questions will address the following preferences:

- Preferred school day times
- Typical number of hours of sleep during the school week
- Participation in extracurricular activities
- Job or internship and hours of service
- Responsibility for younger siblings
- Qualitative responses to later start time (attendance, tardiness, engagement, health and well-being, grades, participation in athletics and extra-curricular programs).

Surveys for staff members and parents are being designed as well. The staff survey will collect the following demographic data and preferences:

- Level/location of predominant work assignment
- Children attending school and level
- Preferred school day times
- Qualitative responses on current start time and impact of changes in start time (attendance, tardiness, engagement, health and well-being, grades, participation in athletics and extra-curricular programs, child care, transportation, work schedule adjustments, and homework completion).

The parent survey will collect data similar to both the student and staff surveys, addressing preferences and understanding the impact of changes in start times.

Appendix F

Program Considerations for Ongoing Assessment

After School Programs

According to a NCES nationally representative survey conducted in 2002, approximately 50% of students participate in at least one interscholastic sport and 50% of students participate in other extracurricular activities. These average participation rates do not mean that all activities will be negatively impacted by a later dismissal. Obviously, outdoor sports activities such as football and soccer would be impacted.

Adjustments should be considered to support student participation in after-school programs.

- Offer an Optional Period 1 or Digital Period 7 to allow student schedule flexibility to address student needs, without interfering with instruction.
- Review an exemption for student athletes from physical education requirements and/or related elective classes in order to arrange for early competition schedules.
- Policy provisions do accommodate students who demonstrate legitimate work or internship needs.
- Lighted fields and parking lots can provide access for later outdoor practices and competitions.
- Transportation considerations include field trips and after-school programs for all levels.

Clubs and Extracurricular Activities

Considerations:

- See general considerations for after-school programs in elementary and middle schools.

Athletic Practice Schedules

Considerations:

- Research indicates that sleep deprivation negatively impacts coordination and endurance, so performance may be improved.
- Reschedule practice times.
- Shorten practice times.

Athletic Competition Schedules

Considerations:

- Competition schedules will not be altered.
- Students who need to be dismissed for travel to competitions may miss the last period class.
- Baseball and softball fields are not lit.

Work for High School Students

Considerations:

- Students and families who depend on extra income from after-school jobs could be impacted. A change may disproportionately affect low-income families.
- Employers have not communicated a negative effect on business or the number of hours student workers are available. Researchers have reported that students who are employed for more than 15 hours per week are negatively impacted academically; fewer hours for students who do not rely on employment for substantive needs may be beneficial.

Changes for Younger Students

Considerations:

- Research is lacking on the effect of school start times on younger students.
- Transportation routing needs to consider “civil twilight” for the safety of younger students. Communities could create a schedule for bus stop supervisors who volunteer. Current schedules include the latest start time to be 9:25 AM and the latest dismissal time to be 3:55 PM for elementary students.
- The community would need to adjust childcare options.

Additional Factors for Elementary Schools

Considerations:

- Start times not later than 9:15 AM would be optimal for elementary schools.
- The late dismissal time of 4:00 PM may negatively impact intervention programs such as Bridges, BSAP, and Title I. These programs begin after the conclusion of the regular school day and would extend into twilight evening hours.
- The Elementary School would benefit from additional recommendations regarding the length of the school day.

Homework

Considerations:

- Students often report that they are less tired and more efficient with homework with later start times.
- Students may have less time after school hours to access public resources like the library, although electronic resources are increasingly available.

Evening School

Considerations:

- A later school day will decrease the time that teachers have between the regular school day and the evening school hours.
- Transportation for extended day programs will need to be evaluated.
- Facility/space for extended day and evening school could potentially overlap.
- Extended day programs at Homewood are scheduled for 2.5 hours to allow for credit-bearing coursework. The hours are 3:00-5:00 PM currently.
- Evening school is currently scheduled from 5:00-8:00 3 evenings per week.

Special Education

Considerations:

- Special buses provide transportation to Homewood. There would likely be some impact with any shifts in school start and dismissal times.
- Before- and after-school care options would need to be considered for students with special needs.

Food Services

Considerations:

- Lunch shifts for high schools will shift.
- AM prep time will need to be reviewed for impact. Food services staff members work an 8-hour day and any extension would require overtime pay.
- Lunch shifts at other levels would need to be adjusted accordingly.
- Breakfast programs will also need to be adjusted accordingly.

ARL

Considerations:

- Currently, the Applications and Research Lab (ARL) provides centralized career academies to students from all Howard County comprehensive high schools and Homewood.
- Transportation is provided to all students utilizing existing bus service. Transportation for the ARL will not be impacted by shifting start times since ARL operates on the high school schedule and all high school start and end times are the same.
- Moving start times for schools would not negatively impact course offerings, teaching schedules, or internship opportunities for students.
- Students return to their home high school prior to the end of the school day; therefore, after school activities are not impacted as well.

Appendix G

High School Start Times

Charge Statement: The HCPSS Superintendent has issued the charge to form an exploratory work group to gather information and resources to review the designated start time in all high schools in The Howard County Public School System. The Project Team will review current research, relevant models, stakeholder input, survey results, and an analysis of optional approaches.

Project Scope:

- Examination of existing high school start times
- Identification of possible options and alternatives for high school start times
- Identification of considerations for high school start times
- Recommendations for high school start times
- Identification of communication needs for implementation
- Impact analysis on athletics, after-school activities, community activities, and student employment
- Implementation timeline and evaluation

Critical to Quality:

- Stakeholder input and vetting of recommendations
- Recommendations which are scalable and fundable
- Consideration to included transportation, negotiated agreements, school calendar, student needs and strategic planning
- Identification of impact on school athletics, after-school activities, community activities, and student employment

Committee Members:

Lisa Bertucci, Resource Teacher, Alternative Education
Lisa Boarman, Coordinator, School Counseling and Related Services
Andrew Cockley, Principal, ARL
Robert Cole, Coordinator, Digital Education
Jack Davis, Coordinator, Athletics
Frank Eastham, Executive Director School Administration
Clarissa Evans, Executive Director Curriculum
Paula Glovier-Mayo, Administrative Assistant
Ellen Hill, Instructional Facilitator, Special Education, High School
Mary Klatko, Director, Food and Nutrition Services
Caryn Lasser, Coordinator, Strategic Planning
Kathryn McKinley, Principal on Special Assignment for Leadership Development and System Initiatives
Marion Miller, Administrative Director, Elementary Schools
David Ramsay, Director, Pupil Transportation
Scott Ruehl, Principal, Mount Hebron High School
Karl Schindler, Principal, Glenelg High School
Karim Shortridge, Principal, Oakland Mills High School

Research Review: Hetal Thukral, Research Specialist

Committee Chair: David Bruzga, Administrative Director, High Schools

Initiative Manager: Linda Wise, Deputy Superintendent

Howard County Public School System

2014 Charter for School Start and Dismissal Times

Committee: 2014 Charter for School Start and Dismissal Times
Chair(s): TBD, School Administration
Date of Charter: February 2014

OBJECTIVES: Outline the specific tasks the Charter Committee is meant to accomplish.

The Charter Committee will accomplish the following tasks:

- Student, staff, and family surveys and analysis
- Community meetings for information and input
- Examination of existing school start times
- Identification of possible options and alternatives for high school start times
- Identification of possible options and alternatives for elementary and middle school start times
- Identification of considerations for and impact of shifting school start times
- Recommendations for school start times
- Identification of communication needs for implementation
- Impact analysis on athletics, after-school activities, community activities, and student employment
- Impact analysis on student safety with regards to transportation windows, civil twilight, and traffic consideration
- Impact analysis on stakeholder and community input
- Recommendations to include an implementation timeline and evaluation

PARAMETERS: In a general way, this section describes limits such as budget, human resources, etc. within which the Charter Committee will function. The process will verify compliance with laws, regulations, contracts, district policies, etc.

- The Charter Committee's Phase Reports and final recommendations will be presented to and reviewed by the Superintendent's Cabinet and Executive Team.
- The Charter Committee Co-Chairs will present to the Board of Education as an Action Item.
- The Charter Committee will represent the review of the committee throughout the phase reporting process and will also inform the Superintendent and the Board of minority opinions of the committee if applicable.

PARTICIPANTS: A Charter Committee representing the diversity of our community and the range of stakeholders impacted by a shift in school start times will be established with representation from the following groups and organizations.

- School-Based Support Personnel
- Central Office Support Personnel
- Office of Transportation
- Office of Special Education
- Office of Professional and Organizational Development
- Office of School Administration
- Office of Elementary Curriculum
- Office of Secondary Curriculum
- Elementary School Administrator
- Middle School Administrator
- High School Administrator
- Elementary School Teacher
- Middle School Teacher
- High School Teacher
- HCASC
- HCEA
- HCAA
- PTA Council
- Community Advisory Council
- Superintendent's Equity Council
- Pre-K Parent
- Elementary School Parent
- Middle School Parent
- High School Parent
- Community Member At Large

RESPONSIBILITIES

- Be prepared for and attend each meeting in person.
- Actively participate in committee responsibilities which may include: asynchronous communications over the Internet and attend public meetings.
- Review literature and research materials.
- Seek and input from stakeholders and represent their views in committee deliberations.
- Develop a Phase II report, Phase III report, and Phase IV report with recommendations.

GOVERNANCE	The Charter for School Start Times will be constituted in March, 2014. The committee will appoint co-chairs, a recording secretary, and a group facilitator.

- The co-chairs will be responsible for preparing the agenda.
- The committee will establish processes and procedures for accomplishing its objectives, including clear decision-making methods with consensus decision-making as the preferred method. Written records of committee meetings will be kept by staff and published by the committee.
- A recording secretary will be responsible for recording minutes of each meeting. He or she will also ensure approved minutes are submitted to the Superintendent and to the Board liaison.
- A facilitator will be responsible for meeting process, discussion, and review of next steps.
- Meetings will be held from *[meeting times to be determined by the committee.]*.

IMPLICATIONS	The Charter Committee for School Start Times will develop recommended models to be shared with all stakeholder groups.

- The process will include input, review, and consensus.
- Recommendations will be aligned with strategic planning, district policies, and practices, which are exemplary and efficient.
- Phase II, III, and IV timeline, considerations, and development will be shared and revised as appropriate and necessary.

SENATE BILL 14

F1 4lr0472
HB 1462/13 – W&M (PRE–FILED) CF 4lr0470

By: **Senator Reilly**
Requested: September 5, 2013
Introduced and read first time: January 8, 2014
Assigned to: Education, Health, and Environmental Affairs

A BILL ENTITLED

AN ACT concerning

Task Force to Study Starting Times for Maryland Public Schools

FOR the purpose of establishing the Task Force to Study Starting Times for Maryland Public Schools; providing for the composition, chair, and staffing of the Task Force; prohibiting Task Force members from receiving compensation, but authorizing reimbursement for certain expenses under the Standard State Travel Regulations; requiring the Task Force to study and make recommendations relating to a later starting time for Maryland public schools; requiring the Task Force to submit a certain report to the Governor and the General Assembly on or before a certain date; providing for the termination of this Act; and generally relating to the Task Force to Study Starting Times for Maryland Public Schools.

SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF MARYLAND, That:

(a) There is a Task Force to Study Starting Times for Maryland Public Schools.

(b) The Task Force consists of the following members:

(1) two members of the Senate of Maryland, appointed by the President of the Senate;

(2) two members of the House of Delegates, appointed by the Speaker of the House;

(3) the following members, appointed by the Governor:

(i) one representative of the State Board of Education;

EXPLANATION: CAPITALS INDICATE MATTER ADDED TO EXISTING LAW.
[Brackets] indicate matter deleted from existing law.

(ii) one representative of the Maryland boards of education;

(iii) one representative of the Maryland State Education Association;

(iv) one representative of the Maryland Association for Secondary School Principals;

(v) one representative of the Department of Health and Mental Hygiene who has expertise in adolescent health issues;

(vi) one mental health professional who specializes in young adult and adolescent health issues;

(vii) one pediatrician who has expertise in adolescent health care;

(viii) one doctor who specializes in sleep disorders;

(ix) one representative from the Maryland Department of Transportation;

(x) one parent of a student enrolled in a Maryland public middle or high school;

(xi) one student enrolled in a Maryland public high school; and

(xii) one representative who is an athletic director or a coach employed by a Maryland public middle or high school who has expertise in after–school sports activities.

(c) The Governor shall designate the chair of the Task Force.

(d) The State Department of Education shall provide staff for the Task Force.

(e) A member of the Task Force:

(1) may not receive compensation as a member of the Task Force; but

(2) is entitled to reimbursement for expenses under the Standard State Travel Regulations, as provided in the State budget.

(f) The Task Force shall:

(1) review the science on the sleep needs of adolescents, including effects of sleep deprivation on academic performance and benefits of sufficient sleep;

(2) review and study how other school systems have implemented later school day starting times and how various activities in those school systems were impacted and scheduled around the changes; and

(3) make recommendations regarding whether public schools in the State should implement a starting time of no earlier than 8:00 a.m.

(g) On or before December 31, 2014, the Task Force shall report its findings and recommendations to the Governor and, in accordance with § 2–1246 of the State Government Article, the General Assembly.

SECTION 2. AND BE IT FURTHER ENACTED, That this Act shall take effect July 1, 2014. It shall remain effective for a period of 6 months and, at the end of December 31, 2014, with no further action required by the General Assembly, this Act shall be abrogated and of no further force and effect.

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