Executive Summary

This is an interim report from the School Start Times Task Force (“StartForce”) to the Guilford Board of Education. It should be noted that StartForce has not reached a consensus on the optimal timing of any intervention. However, at this time, StartForce recommends that the Board of Education consider:

- Striving to achieve a Guilford High School start time of not earlier than 7.55am by fall of 2019
- Considering a move of the current GHS start time from 7.25am to 7.40am for fall of 2018, with an end time of 2.18pm, to be accomplished by:
  - Sliding current start (and end) times 10 minutes later for Baldwin (7.50 to 8.00), Adams (8.00 to 8.10), and elementary schools (9.00 to 9.10)
  - Shortening the passing time at GHS from six to five minutes resulting in shortening of the HS day by five minutes (with consideration of adding additional instructional days for decreased school day length in the 2019-2020 budget)
- Prioritizing busing efficiencies and examining routes to ensure students are not dropped off any earlier than necessary before the actual start of the school day

StartForce hopes to offer ongoing collaboration and communication with the BOE regarding possible avenues to achieve further interventions that may allow achievement of the later start time by 2019.

It should be noted that in a newsletter from the superintendent last fall the possibility of reorganizing middle schools in a North/South configuration has been mentioned, which would significantly impact busing considerations for school start times. StartForce would like to emphasize that this reorganization is not part of any Task Force recommendation. However, direction from the BOE/administration on whether this might be considered for 2019 would be important for any further options/recommendations.

StartForce, along with the new bus transportation company will continue to explore other options that would allow moving the GHS start time to 7.55am. Such options may include busing efficiencies, tiers of busing, reorganization of the middle schools, switching order in which schools start, and other potential options that may be feasible and acceptable.
Introduction, mission, and vision

The School Start Times Task Force (subsequently dubbed “StartForce”) was convened by the Guilford Public Schools administration in the Fall of 2017 and first met on November 21st. StartForce members included:

- Vincent Baglio, BOE member
- Brendan Balestracci, student
- Craig Canapari, parent and content expert
- Christine Cohen, BOE member
- Irina Esterlis, parent and content expert
- Paul Freeman, superintendent
- Noah Horton, student
- Rick Misenti, GHS principal
- Lou Monaco, teacher
- Chris Moore (chair), parent
- Craig Mullett, parent
- Dorcas Saka, student
- Regina Sullivan, teacher and union representative

In addition to members above there was ad hoc participation from Jason Beaudin (assistant superintendent), Chip Dorwin (transportation coordinator), Jake Jarvis (GHS athletic director), Mary Best (BOE member), Katie Balestracci (BOE member), and Bill Bloss (BOE member and chair).

This document represents an interim report of the progress and recommendations of StartForce to date.

StartForce established a vision and mission by consensus:

Vision: To align Guilford school start times with age-appropriate biological clocks in order to maximize health, safety, and academic achievement.

Mission: To provide the Guilford BOE with comprehensive school start time options, including an optimal option and implementation timeline (greatest benefit with minimized negative impacts). To work towards community (town, student, parent, employee) consensus. To implement the optimal solution as soon as feasible, if possible in 2018-19.

In keeping with this mission, we believe that it is important to provide the Board of Education with progress and recommendations early enough to allow possible implementation of changes in Fall of 2018. It is important to note that this does not represent the final work or recommendation of StartForce, and that it is the intention of the Task Force to continue to work with the BOE and administration.
Summary of science and rational for addressing high school start time

Sleep deprivation is a common problem in teenagers. Over the last several decades, teenagers have been sleeping less and less, prompting one author to ask if we are in a “Great Sleep Recession”. Currently, fewer than 10% of teenagers in the United States are getting the recommended amount of sleep on weeknights, and the amount of sleep that teens get decreases as they proceed through high school. The consequences of chronic sleep deprivation affect academic performance (poorer grades, increased tardiness, higher drop-out rates, issues with complex problem solving), physical health (obesity, hypertension, increased risk of accidents), and mental health (decreased impulse control, increased drug use and diversion, earlier sexual activity, mood disorders, increased vulnerability to stress, suicidality).

The reasons for sleep deprivation in teens are many. Electronic device use and poor sleep hygiene may be a factor for some teenagers. However, the primary reason for sleep deprivation is the collision between the natural changes in the timing of sleep and wake, and inappropriately early school start times. As children enter puberty, their natural biological sleep period moves later by two to three hours, meaning that most adolescents have difficulty falling asleep before 10:30-11:30pm. The average adolescent sleep requirement is between eight and ten hours per night, with most teens needing around nine hours of sleep per night. Thus, teenagers will need a wake time sometime between 6:30am and 9:30am to ensure an optimal amount of sleep. Unfortunately, in Guilford, teenagers need to be on the bus as early as 6.30am to get to school on time. Although our high school start time is similar to those of surrounding districts, our start time of 7:25am is earlier than 90% of high schools in the United States. (Nationally, the average high school start time is 8:04am). The result is likely chronic sleep deprivation in our students, although we do not have any survey data on the sleep habits of Guilford students. The Guilford DAY survey does show that rate of depression in Adams and HS students is increasing over time, as well as an increase in the prevalence of suicide attempts. Although there is not a study that has evaluated whether SSL implementation can decrease suicidality specifically, there are numerous reports showing that phase (circadian rhythm) and duration of sleep have a prominent role in suicidality – beyond what is already accounted for by depression, anxiety, and PTSD symptoms that are also prevalent in this population.

One of the most effective and well-studied ways to extend sleep in teenagers, and thus improve their health, is moving high school start times later. The American Academy of Pediatrics and the Centers for Disease Control both recommend that no school start before 8:30am. Later start times clearly result in additional sleep for teens and not a delay in bedtime as start time opponents argue. Although changing school start time presents many challenges for schools and communities, it is actually a cost-effective intervention in terms of student health and economic benefits. Aligning school schedules with teens’ natural sleep-wake cycle and extending sleep in teenagers has shown benefits as diverse as reducing car crash rates,
improving academic achievement, and improving mood and mental health.\textsuperscript{23–26} Sleep extension has also been shown to improve the athletic performance of college athletes.\textsuperscript{27,28}

The evidence suggests that a healthier start time for the children of Guilford will improve their well-being, mental health, and academic performance.

**Specifics**

The starting time of the high school is dependent on several factors:
- Ending time of the high school
- Length of the school day. The school day is made up of instructional time, time between periods (“passing time”), and lunch
- Busing and transportation, which is influenced by the number of “tiers” (currently three), number of buses
- Moving end times/ start times of all schools (“sliding”)

**End Time of High School**

StartForce began by addressing the end time of the high school. Ending too late could affect students who work after school, and can conflict with athletic times. While it is hoped that in many cases sporting events could be moved to accommodate a later end time, there would be increased overlap with school and some events as the day ends later. This could result in decreased participation in athletics and/or instructional time missed. We specifically asked GHS athletic director for an analysis of the potential impact of moving to later times on this issue. The analysis concluded that moving between 20–30 minutes would have some impact, but not as much as moving further.

The consensus from the members of StartForce is that a move of 25 minutes from the current GHS end time of 2:08 to an end time of 2:33 would be an optimal balance between moving later to accommodate a later start time and minimizing disruption/ overlap of work and athletic activities.

**Length of the School Day**

As noted above, length of the school day consists of instructional periods, lunch periods, and passing time. This was discussed at length. It was emphasized by the administration that a reduction in instructional time was not acceptable. Similarly, the length of lunch periods (25 minutes) was discussed and there was consensus that this should not be infringed on. The length of passing time between classes is currently six minutes. This amount of time was often necessary in the older GHS, which was much more geographically spread out. One benefit of the new GHS is that it is more compact and vertically aligned, requiring less time to move between spaces in most cases. While there are potential downsides to decreasing this time, the consensus of the group was that a reduction from six to five minutes would be reasonable. The
passing time between lunch waves is shorter and would not be reduced, leaving five passing
times that could be reduced from six to five minutes. This would allow the school day to be
shortened by five minutes without affecting instructional time. It should be noted that despite
the fact that this should not directly influence instructional time, Dr. Freeman feels that any
reduction in the length of the school day should ideally be directed towards increased
instructional time. A reduction of 5 minutes would total ~900 minutes, or approximately 2
instructional days. Dr. Freeman has suggested that should this occur that he might request that
the BOE consider adding 2 additional instructional days to the school year for the 2019-2020
budget. It is estimated that each instructional day would cost ~$175K.

It should also be noted that simply shortening the day may not result in a later bus pickup time
for some students, unless efficiencies between the GHS and Adams/Baldwin runs could be
realized. This is because even with the 7:25 start times some students are dropped off earlier
than 7:00am in order to make the Adams/Baldwin pickup. It is less clear how early Adams and
Middle school students are dropped off, but these students would also benefit from more
efficient busing in the morning. Thus, shortening the day should only be put in place along with
concomitant improvements in bus efficiency to ensure that all students benefit from this
change.

- **StartForce recommendation**: shorten the GHS day for 2018-2019 by 5 minutes by
  reducing passing time between periods from six to five minutes

### Busing and Other School Start Times

Current start and end times of Guilford Schools are:

- GHS 7.25-2.08
- Baldwin 7.50-2.40
- Adams 8.00-2.40
- Elementary 9.00-3.25

There are currently 3 bus tiers: GHS, Baldwin/ Adams, and Elementary. It should be noted that
while less than half of GHS students currently ride the bus, a substantial portion of these
students are dropped off earlier than the start time of 7.25 (closer to 7am) in order to
accommodate pick up of the Adams/ Baldwin students.

It should also be noted that given the geographic distribution of Baldwin and Adams, there is
the possibility of realizing efficiencies should the district elect to move towards a north/south
configuration in which each school would have students from 5th-8th grade that were
geographically closer to the school. It has been roughly estimated that this could result in
approximately a 15-minute efficiency on each end, without a financial impact on busing costs. **It
is again emphasized that StartForce does not have a position on whether this should occur,**
**but that this decision would impact how options are approached.**
Another option would be to try to move to two busing tiers, probably configured as GHS/Adams and Elementary/Baldwin. This could allow for a later GHS time (and earlier Adams time), with a later Baldwin time and probably earlier or potentially unchanged elementary time. While this would reduce transportation times, it would require more buses and would result in fewer hours that the bus drivers in the district would spend transporting children. This is challenging for the bus companies to accommodate, and in the recent request for proposal (RFP) there was no company that was willing to price this option. Previously when this was investigated it was roughly estimated that this might come at a cost of ~$250 to $500K to the district.

A third option would be to consider “flipping” the start times of two of the schools. From a biological standpoint, having elementary schools start first would make biological sense. However, it would not be safe to flip elementary and high school times as this would result in the elementary school students getting on the bus in the dark during the winter time. Switching middle and high school start times would be more feasible as this would result in high school students still getting out by 2:40 PM. The downside of this approach would be shifting the burden of inappropriately early start times to the middle school population. It may be worth exploring this from a cost standpoint. Although research suggests that the biological shift to later sleep and wake times becomes more pronounced in later high school, it initiates with puberty and thus a year or so earlier in female as compared to male students (around 11-12 years of age).

It is possible there may be more efficiencies in the busing. GPS has just hired a new busing company. StartForce will continue to meet with them and push for efficiencies that may allow a later GHS start time that is cost neutral. However, at this point these efficiencies have not been identified.

It is possible to “slide” all end times (and thus existing start times) later. This runs into the issue of elementary school students starting later (which may have impact for working parents and childcare) as well as the potential for elementary school students to be arriving home from the bus with little or no daylight remaining. With a current end time of 3:25, there are elementary students who are dropped off as late as 4:20 pm. The earliest sunset of the year in Guilford occurs at approximately 4:29 pm, in early to mid-December, with last light 20-30 minutes after this. There was consensus that the end time (and thus start time) of all schools could be moved ~10 minutes later without causing substantial disruption or elementary school children being dropped off in the dark.

• *StartForce recommendation: move all school end times (and start times) 10 minutes later for 2018-2019*

The composite recommendation of StartForce for 2018-2019 is for GHS is to move the start time from 7:25 am to 7:40 am, and the end time from 2:08 pm to 2:18 pm, with other schools starting and ending 10 minutes later.
Ideally for 2019-2020 the BOE, GPS administration, the bus transportation company and StartForce could identify additional ways to move the GHS time to a start of 7:55 and end of 2:33. This could be accomplished through busing efficiencies and/or restructuring number/ tiers of buses. StartForce hopes to continue to work towards this goal.

References


