I. Committee Members:

Claudia Bennett, *Mindess School Assistant Principal*

Michael Caira, *Warren School Principal*

Lauren Carreiro, *Dean of Students 2017 & 2019, Ashland High School*

Gina Donovan, *School Committee*

Betsy Emberley, *Parent*

Isha Emhoff M.D., F.A.C.S., *Parent*

Marybeth Gallant, *Ashland High School Librarian*

Jane Greenstein Ph.D., *Parent*

Nanci Herson, *Teacher*

Patricia Kane, *Teacher*

Heidi Kaufman, *Parent*

Michael Morro, *Ashland Middle School Assistant Principal*

Deborah Peck, *Teacher*

Sue Reap, *Teacher*
II. Mission:

To review the current research on school start times, explore relevant factors and policies of comparable districts, and gather community input to make recommendations for start times that are feasible and appropriate for Ashland. The success and well-being of all students in our district will be at the forefront of our work.

III. The Committee’s Work to date:

In September of 2014, at the request of the Superintendent, a School Start Time Committee was formed to review the scientific and medical literature regarding later school start times for adolescents in the district. It was the additional charge of the committee to explore relevant factors and policies of comparable districts, and gather community input from staff, parents, and students in our community regarding start times for the Ashland Public Schools. After a thorough and in-depth review of the literature, the committee has come to the conclusion that the science and research on adolescent sleep cycles, as well as the benefits of adequate sleep on the emotional and physical health of adolescents, clearly and unequivocally supports later school start times for high school and middle school students. The Centers for Disease Control\(^1\) and the American Academy of Pediatrics\(^2\) have each issued statements explicitly endorsing later school start times subsequent to their own separate and independent reviews. The findings of our committee are in agreement with these strong consensus statements. Furthermore, a survey of our high school and middle school students confirms published data regarding the incidence and impact of sleep deprivation in adolescents. (Table 1).

IV. The Problem:

There is consistent research that suggests starting high schools later in the day has many benefits academically, physically, socially, and emotionally for students. To this end, Administration was charged with the task of researching and reporting to the Ashland School Committee findings relative to how the change in start times would impact students, staff, parents, school finances, and the community as a whole. Due to the depth and importance of the issue, and to include representation from various stakeholders the School Start Time Committee was formed.

Community forums, parent, staff, and student surveys; discussions with faculty and
local officials, and other activities were ongoing to ensure a thorough process that met the requirements of due diligence. While the research on the appropriateness of starting the school day later is both strong and sure, the committee gathered information about the many logistical issues surrounding school day start and end times.

We have found that externalities remain the greatest hurdle to the implementation of this public health wellness and education initiative. These externalities include, but are not limited to, difficulties scheduling inter-district events, restructuring of bus-tiers, normalizing time changes into parental schedules and responsibilities, general societal pressure against change, building coalitions with community stakeholders, as well as educating and fostering public and staff understanding.

V. Considerations:

Issues and Policy Levers

The literature, coupled with our own survey results, provides a clear mandate to action. The following are policy levers the committee has suggested to state and local representatives to move the process forward:

**Biology:** Policy and school requirements should be aligned with adolescent biology. Allowing for individual variation, the adolescent day is shifted by hormonal drive such that optimal wake time is 8:00 AM. Given that existing laws require reasonable accommodation for physical, mental, and emotional needs of students educated in the Commonwealth, these can be leveraged with regard to broader adolescent-specific needs.

**Academic Performance:** Timing the school day to be better aligned with hormonal drive improves learning\(^3\). Sleep encodes, consolidates, and allows recall of learned material. Compromised learning by sleep-deprived students negatively impacts teacher effectiveness in the classroom\(^4\). The state has a deep and vested interest in both the academic achievement of students as well as the success of teachers.

**Social Well-being:** Later school start times reduce truancy and absenteeism\(^5,6\). Truancy and absenteeism reduce students’ future economic and overall wellbeing\(^7,8\). Education is linked to health, citizenship, and economic success.
Promotion of general welfare is the utmost purview of government.

Narrowing Disparities Gaps: Schools have a special interest in narrowing disparities gaps. Later school starts benefit all students but the benefit of later school starts to disadvantaged middle school students is greatest of all, with roughly two times greater positive effects as seen in advantaged students\textsuperscript{10}.

Automotive Accident Risk: Studies confirm a significant reduction in teen-driver automotive accidents after implementation of later school starts\textsuperscript{11,12}. This benefits all citizens directly, as well as indirectly by its affect on insurance premiums and other societal costs.

Mood/Mental Wellness: Teen depression, depression-related illness, including substance abuse, are social and economic liabilities to the state. Thus, the state has a conferred interest in measures that reduce these burdens. Later school start times have a demonstrable positive effect\textsuperscript{7,13}. 

![Pubertal Time Bending](image_url)

**Pubertal Time Bending**
- Sleep-Wake Phase Delay
  - 2 hour delay relative to mid childhood
  - Fall asleep later and wake up later
- Delayed nocturnal melatonin secretion
  - SHR in circadian phase preference
  - Cannot go to bed earlier - they cannot fall asleep
  - High level of alertness at 8 PM, even higher at 10 PM
- Altered sleep drive
  - Pressure to fall asleep accumulates more slowly
  - Takes longer to fall asleep
  - Difficulty falling asleep until after 11:00 PM

![Sleep Time Delay](image_url)

**Sleep Time Delay**
- Waking a teenager at 7:00 am is like waking an adult at 4:00 am
- Students lose up to 120 minutes of sleep per school night\textsuperscript{11}
- Equivalent to 5 hours jet lag on Monday morning
- Weekend Catch-up Sleep
  - Moves the inner clock even further away from the external clock
  - Worsens morning sleepiness at school

![Mood/Mental Wellness](image_url)

**Mood/Mental Wellness**
- Teen depression, depression-related illness, including substance abuse, are social and economic liabilities to the state. Thus, the state has a conferred interest in measures that reduce these burdens. Later school start times have a demonstrable positive effect\textsuperscript{7,13}.

![Learning and Sleep: Sleep has 3 Functions](image_url)

**Learning and Sleep: Sleep has 3 Functions**
- **Teach**
  - Formation of new memory trace
  - Susceptible to forgetting
- **Sleep**
  - Memory trace is stabilized and integrated into pre-existing knowledge
- **Learn**
  - Stored memory is accessible and recallable.
VI. Summary Recommendations:

Consistent with the obvious benefits to adolescents, as well as to assure that benefits are maximized across all age groups in the district, it is necessary for the high school and middle school aged students to start their day later than they currently do. In order to allow for the flexibility, required to meet the needs of transporting our youngest students, the committee recommends that early elementary students start the school day last. Within the constraints of budgetary restrictions, only cost-neutral or cost-saving options in bus schedules are feasible. Furthermore, only proposals that conform to the current collective bargaining agreement with the teacher’s union can be considered.
VII. Process:

Through monthly meetings, forums, administration of surveys, and working groups, the School Start Time Committee members reviewed the research, collected community-specific information, disseminated resources, discussed perceived and real barriers, and analyzed relevant data. Mindful of the impact on families, the committee strove for a solution that would positively balance the benefits and burdens for our students and community. The analysis included:

- Two forums in November/December 2014 to inform, gather feedback, and field questions and concerns from the community
- A forum with a cross-section of AHS students
- Administration and analysis of surveys to students, staff, and parents
- Working group to inform staff and collect their input
- Working group to communicate with local before and after school providers
- Working group to communicate with local youth athletic organizations
- Working group to communicate with district athletic director
- Working groups to assess bus data, including route times and bus capacity
- Working group to assess potential schedule issues

VIII. Proposal:

The current bell schedule and bus route start times are listed below:

**Current Ashland Public School Hours**

Ashland High School: 7:30 a.m. to 1:55 p.m. (bus routes begin at 6:40-6:50)

Ashland Middle School: 7:50 a.m. to 2:15 p.m. (bus routes begin at 7:05-7:15)

David Mindess School: 8:15 a.m. to 2:40 p.m. (bus routes begin at 7:35-7:50)

Henry E. Warren School: 8:45 a.m. to 3:10 p.m. (bus routes begin at 8:00-8:20)
On January 6th, 2016 the School Start Time Committee voted (10-2) to submit the following recommendation to the district superintendent:

David Mindess School (grades 3,4,5): 7:40 a.m. to 2:05 p.m. (bus routes begin at approximately 7:00)

Ashland Middle School (grades 6,7,8): 8:05 a.m. to 2:30 p.m. (bus routes begin at approximately 7:25)

Ashland High School (grades 9,10,11,12): 8:30 a.m. to 2:55 p.m. (bus routes begin at approximately 7:50)

Henry E. Warren School (grades K,1,2): 9:00 a.m. to 3:25 p.m. (bus routes begin at approximately 8:20)

IX. Challenges and Opportunities:

Challenges:

● Dependence on older siblings to provide before and after school care for young siblings.
● Inter-district athletics scheduling
● Leading the staff through change
● Modification of extracurricular activity and after-school work schedules

Opportunities:

● Positive public health impact that addresses the immediate needs of students in the district and improves their likelihood of success
● Positive impact on wellness measures
● Fluid recommendation that can evolve with district reorganization demands
● Ashland leads the Commonwealth and serves as a template for potential state-wide implementation of later school start times.

X. Conclusion:

There is overwhelming medical and scientific evidence in favor of later school start times. The proven health and academic benefits to adolescents, in addition to the resultant positive balance of benefits to burdens for the district cannot be ignored.
The difficulties faced by our district in implementing a school start time change stem from externalities. These stumbling blocks can be overcome. With the cost-neutral proposal above, our district has the resources to implement the necessary changes.

XI. APPENDIX

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<tr>
<th>Measure</th>
<th>High School</th>
<th>Middle School</th>
</tr>
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<tbody>
<tr>
<td>Sleep hours below recommended</td>
<td>2-3</td>
<td>1-2</td>
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<tr>
<td>Tired in morning classes</td>
<td>90%</td>
<td>90%</td>
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<tr>
<td>Tired and struggling/unable to stay awake during 1st 2 periods</td>
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<td>25%</td>
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<tr>
<td>Measure of persisting tiredness. Very tired during last 2 periods</td>
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<td>12%</td>
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<tr>
<td>Ability to manage stress “very concerning”</td>
<td>90%</td>
<td>90%</td>
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</tbody>
</table>

REFERENCES

1 http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6430a1.htm, retrieved September 21, 2015.


