



Adolescent Sleep and School Start Time

All Forward Research & Development Workgroup

Update to the Education Committee and Supplementary Regular Board Meeting

November 12, 2018

Objectives for Today's Update

1. Share proposed workplan
2. Share findings from:
 - a. Preliminary Analysis of an Exploratory Bell Schedule
 - b. Hanover Research's LMSD Staff Survey conducted in Spring 2018



Adolescent Sleep and School Start Time Proposed Workplan

Workplan

By March 2019

Finish work of the Research & Development committee

April 2019

September 2019

Winter 2019/2020

Key Tasks Remaining

- Interviews with Key Stakeholders (Hanover)
- Community Survey
- Transportation analysis for exploratory bell schedule using a 3-middle school model
- Summarize findings via multiple products
 - Infographic
 - executive report
 - website

Workplan

By March 2019 Finish work of the Research & Development committee

April 2019 Convene steering committee with external facilitator

September 2019 Share re
commun

Winter 2019/2020 Board of

Details

We propose engaging an external facilitator to lead a committee of representative stakeholders through the process of developing recommendations for feasible actions that the District can take to address adolescent sleep health.





Sometimes tough problems can use an outside perspective or neutral party. We facilitate timely, lasting solutions to some of your biggest challenges.

OUR CONSULTING APPROACH

TregoED takes the lead in helping schools or districts address critical issues. Our facilitation moves the project forward in a deliberate and transparent way. We rely on you to provide key information, staff and stakeholders – and you can rely on us to ensure quality outcomes, support for the solution and peace of mind.

KEY BENEFITS

- **Objective guidance on tough issues**
- **Visible record of decision rationale**
- **Increased transparency and buy-in**
- **Effective use of time and resources**
- **Practical, high-quality solutions**
- **Clarity of and confidence in next steps**

Workplan

By March 2019 Finish work of the Research & Development committee

April 2019 Convene steering committee with external facilitator

September 2019 Share recommendations and implementation plan with the community; solicit feedback

Winter 2019/2020

Details

We propose a process similar to that of Radnor School District, in which the recommendations are shared with the public and community feedback is collected to inform the Board of Directors’ decision to move the recommendations forward.



Workplan

By March 2019	Finish work of the Research & Development committee
April 2019	Convene steering committee with external facilitator
September 2019	Share recommendations and implementation plan with the community; solicit feedback
Winter 2019/2020	Board of Directors responds to recommendations



Adolescent Sleep and School Start Time

Update on Key Findings

- Exploratory bell schedule scenario
- Results from the Hanover Staff Survey

Current Bell Schedules in LMSD

Level	Schedule	Length
High School	7:30am – 2:40 pm	7 hours 10 minutes
Middle School	8:15am – 3:05 pm	6 hours 50 minutes
Elementary School	9:00am – 3:35 pm	6 hours 35 minutes

What are the implications of starting middle and high school at 8:30 am or later?

Current Bell Schedules in LMSD

Level	Schedule	Length
High School	7:30am – 2:40 pm	7 hours 10 minutes
Middle School	8:15am – 3:05 pm	6 hours 50 minutes
Elementary School	9:00am – 3:35 pm	6 hours 35 minutes

For students, the current schedule is:

- earlier than the recommended start time of 8:30am for middle and high school students.
- aligned with the dismissal times of the schools competing in the Central Athletic League.
- ordered so that older siblings may be available to receive younger students from the bus in the PM.
- one of the longest in the region for high schools

Current Bell Schedules in LMSD

Level	Schedule	Length
High School	7:30am – 2:40 pm	7 hours 10 minutes
Middle School	8:15am – 3:05 pm	6 hours 50 minutes
Elementary School	9:00am – 3:35 pm	6 hours 35 minutes

From a transportation perspective, the current schedule:

- uses three tiers, which adds efficiency to the bus fleet by making multiple runs per day
- provides non-public transportation during Tier 1 (with LMSD high school students)
- Is problematic at dismissal time due to compressed timing between tiers (25 minutes and 30 minutes); however, the slowest loading group (elementary) and the most challenging staging areas (BCMS and many elementary schools) are dismissed later or last, therefore affecting a smaller proportion of the student body (not high school)

Exploratory Bell Time Scenario

6:30 AM			
7:30 AM	Elementary 7:50am-3:00pm	High 8:30am-3:40pm	Middle 9:10am-4:20pm
8:30 AM			
9:30 AM			
10:30 AM			
11:30 AM			
12:30 PM			
1:30 PM			
2:30 PM			
3:30 PM			
4:30 PM			
5:30 PM			

- ✓ No secondary student begins before 8:30am.
- ✓ 40-minute intervals are maintained for on-time transportation by creating a consistent day-length for all three tiers (7 hours 10 minutes).
- ⚠ There are opportunities and disadvantages to extending the elementary and middle school day to 7 hours and 10 minutes, but...
 - Elementary could be shortened by releasing earlier than 3:00pm.
 - Middle school day could be shortened by pushing start time past 9:10am.

Exploratory Bell Schedule

Level	Schedule	Length
Elementary School	7:50am – 3:00 pm	7 hours 10 minutes
High School	8:30am – 3:40 pm	7 hours 10 minutes
Middle School	9:10am – 4:20 pm	7 hours 10 minutes

Positive Features of this Exploratory Schedule

- Achieves an 8:30 am or later start time for all secondary students.
- Schedules are tiered with 40-minute intervals for most efficient use of bus fleet.
- The length of the instructional day is maintained for high school students.
- Elementary and middle school schedules gain time for academics and/or wellness activities.
- By positioning high school in Tier 2 there is less conflict with extracurriculars than if positioned in Tier 3.

Exploratory Bell Schedule

Level	Schedule	Length
Elementary School	7:50am – 3:00 pm	7 hours 10 minutes
High School	8:30am – 3:40 pm	7 hours 10 minutes
Middle School	9:10am – 4:20 pm	7 hours 10 minutes

Potential Challenges with the Exploratory Bell Schedule

- Pick-up in darkness for elementary students, drop-off in darkness for middle school students (more on this later...)
- Many athletic teams will miss, at a minimum, the last period of the day for out-of-district competition, which typically begins at 3:30pm (teams typically leave at 2:00, 2:15 or 2:30).
- New afterschool childcare needs may emerge for families, but is made less severe by the extension of the current elementary day from 6 hours 35 minutes to 7 hours 10 minutes (+35 minutes).
- Transportation for afterschool elementary academic support programs and activities will no longer be possible.
- Non-school sponsored extracurricular schedules will be affected by (a) timing and (b) having less time in the afternoon/evening before bedtime.

Exploratory Bell Schedule

Level	Schedule	Length
Elementary School	7:50am – 3:00 pm	7 hours 10 minutes
High School	8:30am – 3:40 pm	7 hours 10 minutes
Middle School	9:10am – 4:20 pm	7 hours 10 minutes

Transportation Reconfiguration

The LMSD transportation department re-routed the current school population to explore transportation needs of public and non-public students under this schedule.

Parameters were:

- Where ever possible, maintain the current practice of using buses for multiple runs per day (typically 5 to 6 per day)
- Design the LMSD routes first, then route the non-public schools in the most efficient way possible

Exploratory Bell Schedule

Level	Schedule	Length
Elementary School	7:50am – 3:00 pm	7 hours 10 minutes
High School	8:30am – 3:40 pm	7 hours 10 minutes
Middle School	9:10am – 4:20 pm	7 hours 10 minutes

	Buses Needed for Current Schedule	Buses Needed for Exploratory Schedule
Public Students Only	33	77
Non-Public Students Only	15	36
Mixed Load	56	5
TOTAL BUSES	104	118



Transportation Needs

+14



How much does it cost to
add a bus to the fleet?

How much does it cost per year to add a bus to the fleet?

Purchased Bus		Contracted Bus	
Bus purchase (prorated @ 10 years)	\$14,096	Contract per day (\$362.00) X 193 days	\$69,866
Maintenance/fuel per year	\$11,019	Infrastructure @ 15% for cameras, radio, LMSD specific requirements	\$10,479
Driver salary/benefits	\$58,359		
Vehicle insurance	\$1,000		
Parking infrastructure	?		

Annual Cost Per Bus: \$84,474+

Annual Cost Per Bus: \$80,345

Exploratory Bell Schedule

Level	Schedule	Length
Elementary School	7:50am – 3:00 pm	7 hours 10 minutes
High School	8:30am – 3:40 pm	7 hours 10 minutes
Middle School	9:10am – 4:20 pm	7 hours 10 minutes

How much will it cost to add 14 buses?

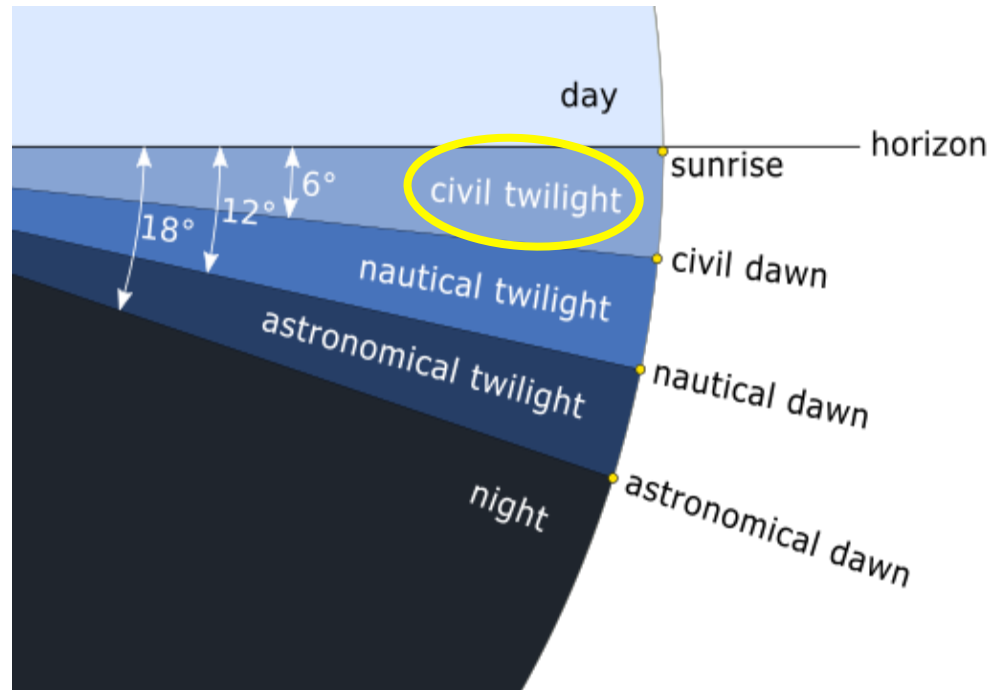
Additional \$1.1+ million per year

\$1,182,636+ if purchased

\$1,124,830 if contracted

**Will students be boarding or
de-boarding buses in the dark?**

Civil Twilight is the time just before sunrise and just after sunset when it is still bright enough to conduct outdoor activities without artificial illumination.



Under the exploratory scenario,

What is the earliest time that students would be picked up?



Tier

Estimated* Earliest Pick-Up

Civil Dawn

<p>Elementary <i>(7:50am – 3:00pm)</i></p>
<p>High <i>(8:30am – 3:40pm)</i></p>
<p>Middle <i>(9:10am– 4:20pm)</i></p>

September 1	6:00 am
October 1	6:29 am
November 1	7:01 am
December 1	6:33 am
January 1	6:52 am
February 1	6:40 am
March 1	6:06 am
April 1	6:17 am
May 1	5:31 am
June 1	5:01 am

**Traffic patterns under new schedules may warrant adjustment.*

Under this exploratory scenario,

What is the earliest time that students would be picked up?



Tier

Estimated* Earliest Pick-Up

Civil Dawn

<p>Elementary (7:50am – 3:00pm)</p>	<p>Note: Buses are scheduled to arrive at school 15 to 30 minutes prior to the start of the school day so that students may participate in the breakfast program.</p>
<p>High (8:30am – 3:40pm)</p>	
<p>Middle (9:10am– 4:20pm)</p>	

September 1	6:00 am
October 1	6:29 am
November 1	7:01 am
December 1	6:33 am
January 1	6:52 am
February 1	6:40 am
March 1	6:06 am
April 1	6:17 am
May 1	5:31 am
June 1	5:01 am

**Traffic patterns under new schedules may warrant adjustment.*

Under this exploratory scenario,

What is the earliest time that students would be picked up?



Tier	Estimated* Earliest Pick-Up
Elementary <i>(7:50am – 3:00pm)</i>	6:45 am (Big Bus)
	6:52 am (Special Needs Bus)
High <i>(8:30am – 3:40pm)</i>	7:37 am (Big Bus)
	7:37 am (Special Needs Bus)
Middle <i>(9:10am– 4:20pm)</i>	8:14 am (Big Bus)
	8:17 am (Special Needs Bus)

Civil Dawn	
September 1	6:00 am
October 1	6:29 am
November 1	7:01 am
December 1	6:33 am
January 1	6:52 am
February 1	6:40 am
March 1	6:06 am
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May 1	5:31 am
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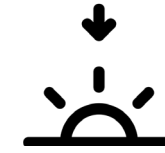
Tier	Estimated* Earliest Pick-Up
Elementary <i>(7:50am – 3:00pm)</i>	6:45 am (Big Bus)
	6:52 am (Special Needs Bus)
High <i>(8:30am – 3:40pm)</i>	7:37 am (Big Bus)
	7:37 am (Special Needs Bus)
Middle <i>(9:10am– 4:20pm)</i>	8:14 am (Big Bus)
	8:17 am (Special Needs Bus)

Civil Dawn	
September 1	6:00 am
October 1	6:29 am
November 1	7:01 am
December 1	6:33 am
January 1	6:52 am
February 1	6:40 am
March 1	6:06 am
April 1	6:17 am
May 1	5:31 am
June 1	5:01 am

**Traffic patterns under new schedules may warrant adjustment.*

Under this exploratory scenario,

What is the latest time that students would be dropped off?



Tier	Estimated* Latest Drop-Off
Elementary <i>(7:50am – 3:00pm)</i>	3:41 pm (Big Bus)
	3:54 pm (Special Needs Bus)
High <i>(8:30am – 3:40pm)</i>	4:40 pm (Big Bus)
	4:39 pm (Special Needs Bus)
Middle <i>(9:10am– 4:20pm)</i>	5:10 pm (Big Bus)
	5:20 pm (Special Needs Bus)

Civil Dusk	
September 1	7:59 pm
October 1	7:09 pm
November 1	6:26 pm
December 1	5:06 pm
January 1	5:16 pm
February 1	5:48 pm
March 1	6:19 pm
April 1	7:52 pm
May 1	8:24 pm
June 1	8:59 pm

**Traffic patterns under new schedules may warrant adjustment.*

Key Findings from Test Scenario

- Schedules that respond to start time recommendations for secondary students will require modification to the current non-public school shuttle system.
- An additional 14 buses are estimated under this scenario, which will increase the transportation budget by at least \$1.1 million annually.
- Some elementary students would wait in morning darkness about 10 weeks during Fall/Winter.
- Some middle schoolers would arrive home in darkness about 10 weeks during Winter.
- Secondary athletes would miss more than one class period each time they dismiss early to participate in out-of-district competitions (currently, they miss part of one class).
- Home matches, which currently begin at 3:30 for most teams, would need to begin later in the afternoon and/or athletes would need early dismissal to maintain adequate warm up time.
- Transportation for afterschool elementary programming would no longer be possible; Late buses at secondary schools would need to shift.
- Secondary students would have a reduction in the afternoon/evening time available before bedtime, resulting in the need to prioritize afterschool commitments and activities more carefully (school and non-school extracurriculars, homework, work, downtime, family time, etc.)

Hanover Research's Key Recommendations from the Staff Survey (Spring 2018)

Based on survey feedback from 572 professional staff, 151 support staff, and 26 administrative staff:

- Later start times would have negative impacts on a majority of the staff members who responded to the survey, particularly commuting.
- The most supported early start time at all three levels was 7:35am.
- The latest acceptable start time for the majority of respondents was 8:00am for high school staff, 8:30am for middle school staff, and 9:00 am for elementary school staff.
- Hanover Research recommended that the District conduct additional research to determine ways for minimizing negative impacts of schedule changes for staff.



Timeline:

By March 2019

Finish work of the Research & Development committee

April 2019

Convene steering committee with external facilitator

September 2019

Share recommendations and implementation plan with the community; solicit feedback

Winter 2019/2020

Board of Directors responds to recommendations