

Adolescent Sleep and School Start Times:

A Status Report and Information Brief for the LMSD Community

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On behalf of the
Adolescent Sleep and School Start Time Committee

Introduction

Over the past several years, much attention has focused on delaying the start of the school day as a way to address chronic sleep loss in adolescents. The biological changes that youth undergo with the onset of puberty lead to a shift in circadian rhythms, pushing the onset of sleepiness later into the evening than either children or adults – about 11pm. Given the recommendations for adolescents to sleep 8-10 hours per night, a bedtime of 11pm should ideally be coupled with a wakeup time of no earlier than 7:00-7:30 am., depending on the length of time it takes to fall asleep with a bedtime of 11pm. These biological patterns are in conflict with early school start times, leading several organizations, including the American Academy of Pediatrics (AAP), American Medical Association (AMA), and Centers for Disease Control and Prevent (CDC), to recommend that middle and high school start times begin no earlier than 8:30am. The Lower Merion School District is examining the feasibility of shifting school start times to align with these recommendations.

Past Efforts

Interschool Council's Sleep and School Start Time Committee

A committee of parents from the Interschool Council (ISC) conducted a study and prepared a report on sleep and school start time issues specifically within the context of the Lower Merion School District. The report, prepared by Amy Norr, Juli Gruber-May, Ellen Keefe, and Heather Marg-Bracken and submitted to the Board of School Directors in May 2015, outlined research, contextual factors, and recommendations for the District to consider for continued dialogue around these issues. The report, which is available on the [ISC website](#), contains many points that are also included here, as well as additional references and resources reviewed by the committee. The community members who worked on this committee remain active advocates of healthy sleep and school start times, expanding their reach through their engagement in the Regional Adolescent Sleep Needs Coalition (RASNC), which includes parents, board members, community members, and educators from our region.

Sleep Expert Presentation Co-Sponsored by ISC and LMSD

A presentation by Dr. Judith Owens, an internationally recognized authority on children and sleep, was made at an event co-sponsored by the ISC and LMSD on March 31, 2014. A video recording of the 87-minute presentation,

“Sleep and the Teenage Brain” is [available on the LMSD website](#) and provides a comprehensive overview of the science of sleep.

ISC’s High School Student Survey

An electronic survey prepared by the ISC Sleep and School Start Time Committee was distributed to all high school students in June 2015. The electronic survey was created by the Interschool Council Committee on Sleep and School Start Times and was delivered to students by the high school principals. The response rate was about 50% (approximately 1,200 students).

Current Efforts

Adolescent Sleep and School Start Time Committee

As part of the implementation of All Forward, a Research and Development (R&D) Committee was established to explore the potential impacts of changing school start times. The committee’s charge was to summarize information that would be critical for the Board of School Directors to know when considering changes to the LMSD bell schedules. Members of the committee included representatives from across the District who could contribute an administrative perspective on the key issues and logistical information that would be important to provide to the Board of School Directors. The committee met on four occasions from December 1, 2016 through May 10, 2017 and included the following members:

Kristina Ayers Paul (Chair)	Special Assistant for Program Evaluation
Karen Castaneda	Director of Nutritional Services
Veronica Ellers	Principal, Gladwyne Elementary School
Thomas Ferguson	HHS Athletics & Activities Director
Jeff Hunter	Assistant Principal, BC Middle School
Scott Kilpatrick	Assistant Principal, Lower Merion High School
Mark Klein	Interim Human Resources Manager
Terry Quinlan	Lead Supervisor of Student Health and School Safety
Megan Shafer	Sr. Director of Policy, Personnel, and School Programs
Uldis Vilcins	Supervisor of Transportation
Don Walsh	LMHS Athletics & Activities Director
Dennis Witt	Supervisor of Safety, Security & Custodians

Committee members engaged in the following activities:

- Reviewed documents and resources prepared by the ISC Sleep and School Start Time Committee
- Reviewed the results of the ISC Sleep Survey from June 2015
- Reviewed published research and literature
- Collected information based on other schools' experiences with changing school start times
- Identified, collected, and reviewed data related to the LMSD context specifically, including:
 - transportation information,
 - athletic schedules,
 - regional comparisons of school bell schedules,
 - administrative perspectives on the implications of changing the bell schedules,
 - facilities use by outside organizations, and
 - capital improvements that would be necessary.
- On April 27-28, 2017, Dr. Paul attended "[Adolescent Sleep, Health, and School Start Times: The National Conference](#)" in Washington, DC. The conference was sponsored by the Yale School of Medicine – Department of Pediatrics, Yale School of Medicine – Section on Pulmonary, Critical Care and Sleep Medicine, The RAND Corporation, The Robert Wood Johnson Foundation, and Start School Later Inc., and featured a line-up of scientists, researchers, sleep advocates, economists, and educational leaders whose work focuses on issues surrounding adolescent sleep and school start times. A number of representatives from surrounding communities also attended, including representatives from Radnor School District, Unionville-Chadds Ford School District, Phoenixville Area School District, Council Rock School District, and the University of Pennsylvania. For a brief overview of the speakers and information provided at the conference, see <https://www.nytimes.com/2017/05/22/well/family/the-science-of-adolescent-sleep.html>

Transportation Study

In Fall 2016 the District commissioned a transportation study with School Bus Consultants, who delivered a report and presentation to the Board of School Directors in March 2017. The report provided a summary of existing transportation details and prepared three new scenarios that would accommodate a later start time for high school students, estimating the number of additional buses that would be needed under each of the scenarios.

The consultants ultimately concluded that additional information would be required to comprehensively estimate the true impact of modifying bell schedules. They suggested consideration of standardizing the length of the school day, initiating traffic studies of school vicinities and surrounding streets, and assessing the need for capital improvements that would better accommodate bus parking, student transfer stations, and parent pick-up/drop-off loops.

The Landscape

Research & Expert Opinion

There is a well-established body of scientific research on adolescent sleep biology and the negative impact that sleep deprivation has on the safety and physical and mental health of adolescents, including increased risk of obesity, depression, suicidal ideation, risky health behaviors such as drug and alcohol use, bullying/violence toward others, injuries, motor vehicle accidents, daytime sleepiness, and difficulty paying attention. In fact, Office of Disease Prevention and Health Promotion has included the improvement of adolescent sleep health as one of four objectives in the *Sleep Health* goal for Healthy People 2020, a federally funded initiative to guide disease prevention and health promotion efforts through education and monitoring of key health metrics (see healthypeople.gov). Given the positive benefits of good sleep health and nationwide sleep deprivation epidemic, particularly in teenagers, the [American Academy of Pediatrics](#), [American Medical Association](#), and [Centers for Disease Control and Prevention](#) have released statements recommending that middle and high schools should begin no earlier than 8:30am.

There is a growing body of research on the intersection of adolescent sleep and school start times, although from an empirical perspective, “the literature...suggests some salutary effects, but often the evidence is indirect, imprecise, or derived from cohorts of convenience, making the overall quality of evidence weak or very weak” (Morgenthaler et al., 2016, p. 1681). Nevertheless, a number of promising benefits to later school start times have been observed by researchers and are highlighted by groups such as the [American Psychological Association](#) and [Start School Later Inc.](#),

In terms of drawing generalizable conclusions about the causal effects of later school start times, critical reviews and meta-analyses conducted by groups from the Centers for Disease Control and Prevention (Wheaton, Chapman, & Croft, 2016) and the National Healthy Sleep Awareness Project (Morgenthaler et al., 2016) suggest enough scientific evidence exists to suggest the following outcomes of later school start times:

- Longer weekday sleep duration,
- Lower weekday-weeknight sleep duration differences,
- reduced vehicular accident rates, and
- reduced subjective daytime sleepiness,
- less falling asleep in class,
- improved attendance, and
- less tardiness;
- however, there is mixed evidence regarding the effect of later start times on academic improvements (See Morgenthaler et al, 2016; Wheaton, Chapman, & Croft, 2016).

Experience

Many lessons can be learned by examining the experiences of other school districts that have delayed school start times. The following lists of lessons are pertinent summaries of information drawn from personal and public accounts of school districts that have delayed school start times for middle and/or high schools.

Lessons Learned from Districts that Have Changed Bell Times

- Lead time (at least 10 months or more) is important for giving the community an opportunity to prepare for changes to bell schedules. Consider adopting a board resolution to make the change within a certain period of time, such as the school board in Fairfax, VA did in April 2012, over two years prior to the implementation of a new school start time in September 2015.
- Exhaust all transportation scenarios until a small handful of acceptable proposals are identified. Administrators in Fairfax, VA and Edina, MN reported working through more than 20 transportation scenarios before finding one that was acceptable.
- Consider hiring a consultant skilled in facilitating organizational change and community engagement around school start times.
- Consider creative solutions to problems that affect sleep health, such as reducing homework requirements, reducing the length of athletic practices, introducing online learning options during first period, and adding an additional tier to the schedule (e.g. two start times for elementary schools) to make efficient use of the bus fleet.

Unintended, Unanticipated Consequences

Lessons learned through the experience of other school districts demonstrate that, even with the best planning, there will be unanticipated and unintended consequences that will need to be addressed.

A few examples from Districts who have made bell schedule changes:

- Length of commute time on busses longer due to new traffic patterns (Greenwich, CT; Montgomery County, VA)
- Elementary students too tired at the end of a day that started and ended much later than before (Montgomery County, VA)
- Parents dropping off young students at school early in order to get to work on time (Montgomery County, VA)
- Increased cost of partial-day substitutes to cover classes for high school teachers who had to leave early for out-of-District athletic events operating on an earlier schedule (Little Elm, TX)

Additional Sources of Experiential Information

Start School Later Inc. has created a [database of schools](#) that have reportedly shifted to later school start times, although upon critical examination we found a number of malfunctioning hyperlinks to the source material, as well as instances in which the information posted or linked to the site contradicted the bell time schedules posted on schools' websites. We urge caution when examining the accounts posted in this database and suggest further investigation that goes beyond the Start School Later Inc. website.

Our Context

Our local context provides the best clues regarding the possibilities and challenges for delaying school start times for LMSD adolescents. The information below was considered by the LMSD Adolescent Sleep and School Start Time Committee to be the most pertinent contextual factors to consider.

Current School Day Schedules

- High School - 7:30 AM - 2:40 PM
- Middle Schools - 8:15 AM - 3:05 PM
- Elementary Schools - 9:00 AM - 3:35 PM
 - AM Kindergarten 9:00 AM - 11:50 AM
 - PM Kindergarten 12:45 AM - 3:35 PM

Transportation

- 3-tier bussing system with many busses currently at maximum capacity
- Transportation of public and private school students to approximately 120 public, private, and independent schools each day
- Private school shuttle and transfer system that operates during Tier 1
- Limited possibilities for parking, bus staging, and private school transfer stations

Athletics and Extra-Curricular Activities

- LMSD belongs to the Central Athletic League, which operates on a schedule that accommodates current (early) school day schedules; A later high school start time would increase the number of instructional minutes lost by athletes attending events outside of the District. See table 1 for information in the appendices for more information about the starting and ending times of schools in the Central Athletic League, as well as information about how athletic schedules operate under the current schedule and new scenarios.
- Shared gyms, athletic fields, and other spaces require practice and meeting schedules that extend late into the evening hours. New spaces would need to be located and/or the length of time of practices, rehearsals, and extracurricular meetings would need to be shortened.
- Outdoor athletics events, including practices and games/matches, require lighting during the evening hours. Arnold Field does not accommodate events held in darkness.

Traffic

Traffic in our community is heavily congested, and any change to bell schedules would have a significant impact on the traffic experience of our educational community, as well as community members who commute from or through the District.

Childcare and Other Family Arrangements

- Childcare is frequently cited as a major obstacle for families who are adjusting to new bell schedules, particularly for families that rely on older siblings to care for younger siblings in the afternoon and evening hours.
- MELC is a major provider of before and after school care within our District, and we would need to work in close collaboration with them to ensure that families would be supported through any transition that might occur.

Student Drivers

Traffic accidents among students who are driving while drowsy is a public health and safety concern, and many believe that a later school start time would lead to less sleep deprivation and therefore less traffic accidents as a result of drowsy driving by teenagers. About 350 student drivers (100 at Lower Merion High School and 250 at Harriton High School) have been given parking permits for the 2017-2018 academic year.

High School	School District	Start	End
Conestoga	Tredyffrin-Easttown	7:20 AM	2:20 PM
Haverford	Haverford	7:30 AM	2:22 PM
Penncrest	Rose Tree Media	7:30 AM	2:23 PM
Radnor	Radnor	7:35 AM	2:27 PM
Ridley	Ridley	7:30 AM	2:30 PM
Springfield	Springfield	7:30 AM	2:30 PM
Garnet Valley	Garnet Valley	7:30 AM	2:32 PM
Marple Newtown	Marple Newtown	7:40 AM	2:35 PM
Lower Merion & Harriton	Lower Merion	7:30 AM	2:40 PM
Upper Darby	Upper Darby	7:30 AM	2:41 PM
Strath Haven	Wallingford-Swarthmore	7:35 AM	3:00 PM

Recommendations

In order to provide a comprehensive picture of the ramifications of modifying bell schedules to accommodate later start times for adolescents, we respectfully suggest the following actions be taken.

Recommendation 1: New Transportation, Traffic, and Capitol Improvement Studies

Investigate the upfront and annual cost of new transportation system scenarios, as well as the impact those scenarios would have on traffic patterns and the need for capital improvements to accommodate transportation.

Transportation Study Parameters

1. Consider making the length of the school day consistent for elementary, middle, and high school at 7 hours and 10 minutes, thereby addressing some of the complications with transporting students in a three-tier system. Would result in:
 - +35 minutes for elementary school
 - +25 minutes for middle school
 - no difference for high school
2. Consider scenarios that would account for any changes to school attendance boundaries that the District may be considering.
3. Consider **multiple** creative scenarios. Other school districts report generating about 20 different scenarios before finding the “sweet spot.”
4. While shifting from a 3-tier system to a 2-tier system is not likely to yield cost benefits, consider a 4-tier system in which elementary schools operate on two different schedules.
5. Carefully consider the implications of transporting K-12 private school students during Tier 1, which currently transports our high school students. Any change in bell schedules that would place LMSD elementary or middle school students on the bus with private school students who are older might be a source of concern for our public-school parents.

Traffic Study

While it is hard to determine how traffic patterns would adjust to different bell schedule scenarios, it is important to have baseline data on the ebb and flow of traffic around our schools during commuting hours. Also consider that bus commutes for students may become longer or shorter depending on new timing and general traffic pattern changes in the community as a result of new bell schedules.

Lighting for Arnold Field

Additionally, the feasibility and cost of improvements necessary for utilizing Arnold Field during darkness is also critical, given the possibility that outdoor sports teams would begin and end their events later in the afternoon/evening, at times during darkness. We recommend an updated estimate of the cost of adding lights to Arnold Field.

Recommendation 2: Community Engagement

Community engagement involves a cyclical process of giving and gathering information in ways that benefit both the giver and receiver. We recommend the development and implementation of a systematic plan to educate the community on the science of sleep in children and adolescents, the effects of sleep deprivation, strategies for promoting healthy sleep habits, and key factors related to the feasibility of changing school start times in LMSD. We also suggest a need to assess the potential impacts that new start times would have on families in regard to childcare arrangements, part-time jobs, extracurricular activities sponsored and not sponsored by the District, and any other impact not previously considered by the Adolescent Sleep and School Start Time Committee. The research and experiences of other school districts have provided a strong working list of community impacts, but we need to hear from our community.

Key Strategies for Community Engagement

1. **Focus Groups (October-December, 2017):** Hold focus groups with stratified random samples of parents and students to (a) engage in in-depth discussion of the information from the Sleep and School Start Time Info Brief, and (b) guide the creation of a community input survey to administered later in the year.
2. **Gather Baseline Data (November-January, 2017):** As recommended by Wheaton et al. (2016), gather baseline data on key metrics such as student sleep characteristics, falling asleep during class, daytime drowsiness, motor vehicle accidents among our students, and other key metrics recommended in the literature.
3. **Possible Community Outreach and Survey (TBD):** Consider strategies for working with the ISC to distribute the Adolescent Sleep and School Start Time Info Brief and invite families to participate in a survey to assess the potential impacts (positive, negative, and neutral) that different school start times would have on families.
4. **Community Seminar/Panel Discussion (TBD, Spring 2017):** Host a community event as part of the LMSD Department of Health Services' Community Seminar Series, in which we invite expert members of the LMSD community to participate in a panel discussion addressing the topic: "Sleep Health: What Families Need to Know to Promote Healthy Sleep Habits at Home."

Recommendation 3: Existing Policies and Practices

Not only have homework and extracurricular activities been cited as possible barriers to healthy bedtimes and sleep health within the research literature, but our own high school students have verified these are relevant issues in our District. Results from the 2014 ISC Student Sleep Survey indicated that, for the approximately 50% of grade 9-12 students who responded, homework and extracurricular activities, along with an early school start time, were cited most often as the interfering with getting enough sleep at night.

Considerations for Homework Policy and Practices

1. Consider providing guidelines that teachers can use to guide their assignment of group work outside of school hours.
2. Provide clear guidance to teachers about using digital submission deadlines that promote early bedtimes (i.e., not 11:59 PM).
3. Consider developing a homework, project, and exam schedule that reduces the amount of overlapping due dates and test events.

Extracurricular Policies and Practices:

1. It is recommended that there be 10-11 hours between the end of an official school function and the beginning of the next school day. Consider providing guidelines around the scheduling of events and activities in the evenings.
2. Consider reducing the length of time for athletic practices and extracurricular meetings, thereby freeing up more time for students in the evening (or morning, in the case of activities that are scheduled before the school day begins).

References

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- American Medical Association. (2016). AMA supports delayed school start times to improve adolescent wellness. Retrieved at <http://news.cision.com/american-medical-association/r/ama-supports-delayed-school-start-times-to-improve-adolescent-wellness.c2029027>
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- Centers for Disease Control and Prevention. (2015). Most US middle and high schools start the school day too early. Retrieved at <https://www.cdc.gov/media/releases/2015/p0806-school-sleep.html>
- Morgenthaler, T. I., Hashmi, S., Croft, J. B., Dort, L., Heald, J. L., & Mullington, J. (2016). High school start times and the impact on high school students: what we know, and what we hope to learn. *Journal of clinical sleep medicine: JCSM: official publication of the American Academy of Sleep Medicine*, 12(12), 1681.
- Wheaton, A. G., Chapman, D. P., & Croft, J. B. (2016). School start times, sleep, behavioral, health, and academic outcomes: a review of the literature. *Journal of School Health*, 86(5), 363-381.

Resources

Healthy People 2020

A national initiative from the federal Office of Disease Prevention and Health Promotion to “guide disease prevention and health promotion efforts to improve the health of all Americans.” One of 42 goals for 2020 is to improve the sleep health of Americans, including the “proportion of students in grades 9-12 who get sufficient sleep.” www.healthypeople.gov/2020/topics-objectives/topic/sleep-health

Regional Adolescent Sleep Needs Coalition (RASNC)

A local, regional group of parents, school board members, and school administrators from many surrounding school districts that meet monthly in Radnor to discuss activities and efforts related to their common interest in adolescent sleep and healthy school start times. www.facebook.com/Regional-Adolescent-Sleep-Needs-Coalition-882518711854657/

Start School Later Inc.

A national advocacy group promoting healthy school start times for adolescents. This organization co-sponsored the national conference attended by the committee chair and provides many resources for advocates of healthy school start times. www.startschoollater.net/

Start School Later Research Wiki

A continually updated, comprehensive list of published research related to sleep and school start times. <http://startschoollater.pbworks.com/>

Regional School Districts with Student Enrollment of 4,500+ Transportation Tier Systems and School Bell Schedules

District	County	Students (n)	Tiers	High	Middle	Elementary	Notes
North Penn SD	Mont.	12,736	4	7:21 AM	8:05 AM	8:30AM & 9:10 AM	ES-11; MS-3; HS-1; Alt. HS-1
Downingtown Area SD	Chester	12,291	2	7:40 AM	7:40 AM	8:50 AM	ES-10; MS-2; HS-2; 6th grade Ctr-1
Upper Darby SD	Del.	12,024	3	7:30 AM	8:30 AM	8:50 AM	ES-10; MS-2; HS-1; Kdg. Ctr-1
West Chester Area SD	Chester	11,479	4	7:30 AM	8:05 AM	8:40 AM & 9:10 AM	ES-10; MS-3; HS-3
Council Rock SD	Bucks	10,996	3	7:05 AM	7:50 AM	9:00 AM	ES-10; MS-3; HS-2; Alt. School-1
Pennsbury SD	Bucks	10,288	3	7:20 AM	8:10 AM	9:00 AM	ES-10; MS-3; HS-2
Neshaminy SD	Bucks	8,397	3	7:16 AM	7:55 AM	9:10 AM	ES-6; MS-3; HS-1
Lower Merion SD	Mont.	8,388	3	7:30 AM	8:20 AM	9:00 AM	ES-6; MS-2; HS-2
Spring-Ford Area SD	Mont.	7,860	2	7:40 AM	8:05 AM	9:00 AM	ES-9; 5th/6th-1; 7 th -1; 8 th -1; HS-1
Abington SD	Mont.	7,816	3	7:35 AM	8:10 AM	8:50 AM	ES-7; Jr High-1; Sr. High-1
Pennridge SD	Bucks	7,297	3	7:05 AM	7:55 AM	8:50 AM	ES-7; MS-3; HS-1
Norristown Area SD	Mont.	7,123	3	7:20 AM	8:20 AM	9:10 AM	ES-6; MS-3; HS-1; Kdg. Ctr-1
Coatesville Area SD	Chester	6,758	4	7:30AM	7:40 AM	8:55 AM & 9:30 AM	ES-6; MS-3; HS-1
Tredyffrin-Easttown SD	Chester	6,573	3	7:20 AM	7:50 AM	8:45 AM	ES-5; MS-2; HS-1
Souderton Area SD	Mont.	6,512	2	7:40 AM	7:40 AM	8:45 AM	ES-6; MS-2; HS-1
Bristol Township SD	Bucks	6,314	4	7:13 AM	8:10 AM	8:50 AM & 9:15 AM	ES-3; MS-2; HS-1
Haverford Township SD	Del.	5,878	3	7:30 AM	7:50 AM	8:35 AM	ES-5; MS-1; HS-1
Perkiomen Valley SD	Mont.	5,647	3	7:50 AM	7:50 AM	8:40 AM	ES-4; MS-2; HS-1
Centennial SD	Bucks	5,501	3	7:30 AM	8:00 AM	8:45 AM	ES-3; MS-2; HS-1
Ridley SD	Del.	5,470	2	7:40 AM	8:30 AM	8:40 AM	ES-7; MS-1; HS-1
Bensalem Township SD	Bucks	5,424	3	7:15 AM	8:05 AM	8:50 AM	ES-6; MS-2; HS-1
Owen J Roberts SD	Chester	5,264	2	7:30 AM	7:30 AM	8:30 AM	ES-5; MS-1; HS-1
William Penn SD	Del.	5,095	3	7:30 AM	8:00 AM	8:45 AM	ES-8; MS-1; HS-1; Cyber Acad.-1
Avon Grove SD	Chester	4,945	2	7:30 AM	7:30 AM	8:25 AM	ES-1; Intermediate-1 (8:25AM); MS-1; HS-1
Methacton SD	Mont.	4,863	3	7:35 AM	8:10 AM	8:35 AM	ES-6; MS-1; HS-1
Hatboro-Horsham SD	Mont.	4,791	3	7:30 AM	8:00 AM	8:40 AM	ES-5; MS-1; HS-1
Colonial SD	Mont.	4,761	3	7:35 AM	8:03 AM	8:55 AM	ES-5; MS-1; HS-1
Garnet Valley SD	Del.	4,757	2	7:30 AM	7:30 AM	8:50 AM	ES-3; MS-1; HS-1
Cheltenham Township SD	Mont.	4,555	3	7:30 AM	8:15 AM	9:00 AM	ES-4; 5th/6th-1 (8:15AM); MS-1; HS-1

Prepared by Uldis Vilcins, Supervisor of Transportation

Athletic Schedules Under the Current and Later Bell Schedules

	START TIME 7:30 a.m. END TIME: 2:40 p.m.				START TIME 8:10 a.m. END TIME: 3:20 p.m.				START TIME: 8:20 a.m. END TIME: 3:30			
FALL SPORTS	PRACTICE	AWAY GAME	HOME GAME	EARLY DISMISSAL	PRACTICE	AWAY GAME	HOME GAME	EARLY DISMISSAL	PRACTICE	AWAY GAME	HOME GAME	EARLY DISMISSAL
FOOTBALL	3:00-5:30	FRIDAY 7:00	FRIDAY 7:00	NO ED	3:45	FRIDAY 7:00	FRIDAY 7:00	NO ED	3:45	FRIDAY 7:00	FRIDAY 7:00	No ED
SOCCER	3:00-5:30	3:45/7:00	3:45/7:00	2:00/2:15	3:45	3:45/7:00	4:00/7:00	2:00/2:15	3:45	3:45/7:00	4:15/7:00	2:00/2:15
FIELD HOCKEY	3:00-5:30	3:45/7:00	3:45/7:00	2:00/2:15	3:45	3:45/7:00	4:00/7:00	2:00/2:15	3:45	3:45/7:00	4:15/7:00	2:00/2:15
CROSS COUNTRY	3:00-5:30	4:00	4:00	2:00/2:15	3:45	4:00	4:00	2:00/2:15	3:45	4:00	4:00	2:00/2:15
GOLF	2:30-5:30	3:00	3:00	1:45/2:00	3:30	3:00	3:00	1:45/2:00	3:30	3:00	3:00	1:45/2:00
GIRLS TENNIS	3:00-5:30	3:45	3:45	2:00/2:15	3:45	3:45	4:00	2:00/2:15	3:45	3:45	4:15	2:00/2:15
GIRLS VOLLEYBALL	3:00-5:30	3:45/7:00	3:45/7:00	2:00/2:15	3:45	3:45/7:00	4:00/7:00	2:00/2:15	3:45	3:45/7:00	4:15/7:00	2:00/2:15
CHEERLEADING	3:00-5:30	7:00	7:00	NO ED	3:45	7:00	7:00	NO ED	3:45	7:00	7:00	NO ED
JV FOOTBALL	3:00-5:30	3:30	3:30	2:00/2:15	3:45	3:30	4:00	2:00/2:15	3:45	3:30	4:15	2:00/2:15
9TH GRADE FB	3:00-5:30	3:30	3:30	2:00/2:15	3:45	3:30	4:00		3:45	3:30	4:15	2:00/2:15
WINTER SPORTS												
GIRLS BASKETBALL	4:30-6:30	5:30/7:00	5:30/7:00		5:30-7:00	5:30/7:00	6:00-7:30	2:00/2:25	5:30-7:00	5:30/7:00	6:00-7:30	
BOYS BASKETBALL	3:00-5:30	5:30/7:00	5:30/7:00		3:40-6:00	5:30/7:00	6:00-7:30		3:40-6:00	5:30/7:00	6:00-7:30	
WRESTLING	3:00-5:30	5:30/7:00			3:40-6:00	5:30/7:00	6:00-7:30		3:40-6:00	5:30/7:00	6:00-7:30	
ICE HOCKEY	3:30-5:30				3:30-5:30				3:30-5:30			
TRACK & FIELD	3:00-5:30	7:00	N/A		3:40-6:00	7:00	N/A		3:40-6:00	7:00	N/A	
SWIM & DIVING	4:45-6:30	3:45	3:45	2:00/2:15	5:30-7:15	3:45	4:30	2:00/2:15	5:30-7:15	3:45	4:30	2:00/2:15
SQUASH	3:30-5:00	3:30	3:30	2:00/2:15	3:30-5:00	3:30	3:30	2:00/2:15	3:30-5:00	3:30	3:30	2:00/2:15
CHEERLEADING	3:00-5:00		5:30/7:00		3:40-5:00		6:00-7:30		3:40-5:00		6:00-7:30	
9TH BOYS BASKETBALL	3:00-4:00	3:30	3:30	2:00/2:15	3:40-4:40	3:30	4:00	2:00/2:15	3:40-4:40	3:30	4:00	2:00/2:15
SPRING SPORTS												
BOYS LAX	3:00-5:30	3:45/7:00	3:45	2:00/2:15	3:40-6:00	3:45/7:00	4:00	2:00/2:15	3:40-6:00	3:45/7:00	4:15	2:00/2:15
GIRLS LAX	3:00-5:30	3:45	3:45	2:00/2:15	3:40-6:00	3:45	4:00	2:00/2:15	3:40-6:00	3:45	4:15	2:00/2:15
BASEBALL	3:00-5:30	3:45	3:45	2:00/2:15	3:40-6:00	3:45	4:00	2:00/2:15	3:40-6:00	3:45	4:15	2:00/2:15
SOFTBALL	3:00-5:30	3:45	3:45	2:00/2:15	3:40-6:00	3:45	4:00	2:00/2:15	3:40-6:00	3:45	4:15	2:00/2:15
TRACK & FIELD	3:00-5:30	3:45	3:45	2:00/2:15	3:40-6:00	3:45	4:00	2:00/2:15	3:40-6:00	3:45	4:15	2:00/2:15
BOYS TENNIS	3:00-5:30	3:45	3:45	2:00/2:15	3:40-6:00	3:45	4:00	2:00/2:15	3:40-6:00	3:45	4:00	2:00/2:15
CREW	4:00-6:00				4:00-6:00				4:00-6:00			

Prepared by Don Walsh (LMHS) and Tom Ferguson (HHS), Athletics and Activities Directors. Activities/Club schedule analysis in progress.