Master Plan for

Lower Merion High School Athletic Facilities

Lower Merion School District

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Introduction

Athletics are recognized as an important component in the educational and extracurricular programs provided within school systems at both the primary and secondary grade levels. Not only do athletics provide opportunities for physical fitness, they inspire teamwork, promote sportsmanship, build a competitive spirit, and instill a sense of pride that can extend from the school to the community.

These life skills are the core of the Lower Merion School District's (LMSD) Vision Statement, which is:

Students are our reason for being. We create an environment designed to fulfill the individual learning needs and aspirations of each student. LMSD develops active partnerships at al levels of our learning community and values the individual contribution of each member.

We view learning as a dynamic, innovative collaboration. Individuals learn best when their hearts, minds, and spirits are intimately engaged in the learning process.

Enter to learn. Go forth to serve.

The Vision for this Study is to investigate ways to maximize student participation and experience in Lower Merion High School's outdoor athletic programs, thereby enhancing their education in as many ways possible.

Goals to achieve this Vision include:

- Develop a Master Plan document to guide decision making for long- and short-term capital investment in Lower Merion High School athletic fields, venues, and outdoor facilities.
- Build visibility to create an environment of "excitement"/"desire" that inspires "trickle down" participation from the high school level to youth community sports.
- Provide modernized/up-to-date sports facilities and venues that will meet the aspirations of student athletes, parents, and the supporting athletic community.
- Facilitate access, ease participation and financial burdens, reduce transportation encumbrances, and enhance equality by having as many ("all") sports facilities located on campus.
- Develop facilities that result in a convenient, maintainable, sustainable, and user-friendly environment.

- Create a sports facility environment that inspires the same level of community pride that the District's tradition of excellence and opportunity has already instilled through their facilities.

- Develop facilities that respect the surrounding community and character.

Background

The school property consists of a total of 43 acres that lie on both sides of Montgomery Avenue. The outdoor athletic facilities consist of approximately 17 acres located on the south side of Montgomery Avenue, as well as a single natural grass field named "Butcher Field", which is approximately 0.6 acres located on north side of school. Arnold Field serves as home to all field sports with the exception of baseball and softball. Due to current configuration of existing improvements, those sports are played off campus at two Township parks. Arnold Field consists of four natural turf athletic fields, one artificial surface field, a synthetic surface running track, five tennis courts, track throwing and jumping venues, 1,600-seat home side grandstand with press box with fieldhouse underneath and a 1,400-seat visitor bleachers. Also, the grass fields are in very good shape with a comprehensive maintenance program in place. The tennis courts are in excellent shape but do require maintenance. The existing synthetic turf field is no longer under warranty and will soon need to be replaced. The track was recently reconstructed and is in excellent shape.

The School District is experiencing enrollment growth and there is concern that the resulting increased student sports participation and facilities usage will negatively impact the athletic fields' condition. The 2015-2016 student enrollment was 1,443, and projections indicate an increase of almost 500 students over the next 10 years at Lower Merion High School.

High School Athletic Program and Sports Field Overview

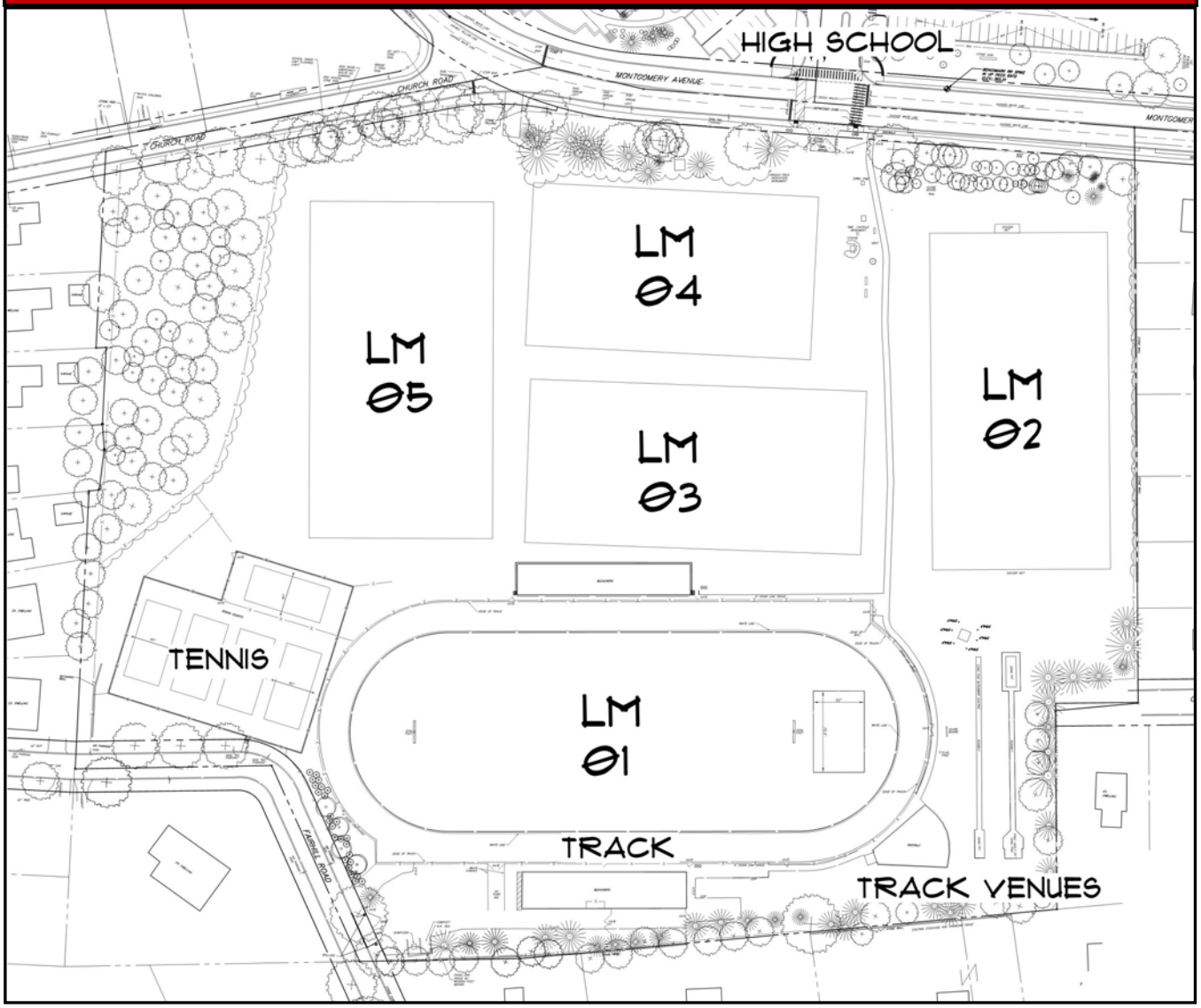
At the high school level, there are 11 sports using indoor facilities including both girls' and boys' basketball, volleyball, swimming and indoor track as well as boys' squash, ice hockey and wrestling. The District's 17 outdoor sports include both girls' and boys' teams for cross country, soccer, tennis, track and field and lacrosse; boys' baseball, football, golf, ultimate Frisbee and crew; and girls' softball and field hockey.

The outdoor field sports and current field assignments provided as part of the high school athletic program are outlined in Table A below and Exhibit A on the following page.

TABLE A – LOWER MERION HIGH SCHOOL FIELD SPORTS			
No.	**Sport/Athletic Program**	**Boys/Girls**	**Field No(s)**
	Fall Sports		
1	Football (Varsity)	Boys	LM01/03
2	Football (Ninth Grade)	Boys	LM01/03
3	Soccer (Varsity)	Boys	LM01/02
4	Soccer (Junior Varsity)	Boys	LM01/02
5	Soccer (Ninth Grade)	Boys	LM02/SAP[1]
6	Soccer (Varsity)	Girls	LM01/05
7	Soccer (Junior Varsity)	Girls	LM01/05
8	Field Hockey (Varsity)	Girls	LM01/04
9	Field Hockey (Junior Varsity)	Girls	LM04/01
10	Tennis (Varsity)	Girls	Arnold Field
11	Tennis (Junior Varsity)	Girls	SAP/Arnold Field
	Spring Sports		
1	Baseball (Varsity)	Boys	SAP
2	Baseball (Junior Varsity)	Boys	SAP
3	Baseball (Ninth Grade)	Boys	Vernon Young
4	Lacrosse (Varsity)	Boys	LM01/02
5	Lacrosse (Junior Varsity)	Boys	LM01/02
6	Ultimate Frisbee	Boys/Girls	LM03/05
7	Softball (Varsity)	Girls	SAP
8	Softball (Junior Varsity)	Girls	SAP
9	Lacrosse (Varsity)	Girls	LM01/05
10	Lacrosse (Junior Varsity)	Girls	LM01/05
11	Track and Field	Boys/Girls	Track/LM01
12	Tennis (Varsity)	Boys	Arnold Field
13	Tennis (Junior Varsity)	Boys	SAP/Arnold Field

[1]SAP – South Ardmore Park

EXHIBIT A
Existing Field Map



In addition to the interscholastic sports noted in Table A, many of the fields (including the stadium field) are also used as part of the high school physical education program, intramural sports, and by community recreation and athletic organizations.

Practices and competition for all fall and spring field sports occur on athletic fields and facilities located at the High School campus, with the exception of tennis, baseball and softball which are played at South Ardmore Park and by the ninth grade baseball team at Vernon Young Park, both Township facilities.

Because of the extensive use of the existing facilities as demonstrated above and in Section 2 under Field Use, the District should consider future improvements and enhancements of the existing fields/facilities as part of ongoing planning efforts to improve the quality, safety, and athletic experience for the student athletes at the high school varsity and junior varsity level.

Athletic Program Growth and Sports Field Demand

As with many of the area school districts, enrollment growth has not only resulted in an increased demand on the existing educational facilities, but on the existing athletic facilities as well. The typical school enrollment increase normally leads to greater participation in competitive sports, a generally larger number of athletic programs being offered, and an increase in the number of students participating in athletic programs at all grade levels.

As demand and usage on the fields increases, so does the chance for field condition deterioration over time, resulting in inconsistent turf cover, marginal surface conditions, limited turf recovery, and other conditions that not only affect playability, but may also pose potential hazards to the participants.

Turf deterioration commonly results from a combination of the above factors (sometimes in spite of cultural/ maintenance practices), but most often results from field use exceeding the baseline maximum use that the cultural and physical characteristics of that field can reasonably tolerate, where recovery through natural turf germination is expected. A higher quality of construction and more intensive maintenance programs can help increase the baseline for maximum use and reduce turf stress. However, turf wear and deterioration should be expected and is common for all “high use” facilities, such as public recreation facilities, schools, and municipal parks, regardless of the quality of construction and extent of maintenance. The distinct advantage of quality construction and good maintenance practices is an increase in the effectiveness of field maintenance, leading to shorter recovery periods and more complete turf regeneration.

Public schools, municipal agencies, and public recreation organizations tend to face similar challenges of demand exceeding supply. The development of new athletic fields, or “high quality athletic fields”, may also be influenced by limited or fixed funds available for construction and ongoing maintenance practices.

Study Purpose and Goals

The primary goal of this study is to provide the Lower Merion High School with recommendations that will enable them to provide the proper number of sports fields and facilities that are sized appropriately to accommodate the existing athletic programs and their future growth, while maintaining a level of field quality that is both safe and suitable for practice and competitive play.

This Athletic Field and Facility Master Plan includes an evaluation of all of the existing sports fields located at the Lower Merion High School campus. This evaluation considers the quality and condition of the athletic fields based on two (2) primary factors. These include: physical factors, and factors related to the type and intensity of field use.

- Physical factors are those such as surface drainage, field grading/surface contour, construction quality and methods, and soil compaction.

- Use factors are those associated with the intensity, type, or other user-based practices with result in excessive wear and turf stress and limits turf recovery.

In order to realize the stated goal, this master plan will consider the facility needs, potential improvements as determined by the School District, and the expansion of athletic facilities to meet the growing demand in a single planning document while developing short- and long-range planning goals and implementation strategies for the District's consideration. The scope of the master plan will also take into account the following:

- Visual inspection of each field included in the study to determine turf quality, physical characteristics (such as surface drainage, field slope, upslope drainage, compaction, and size) as well as general observations regarding the field condition.

- Identify the current usage type(s) and intensity of use (number of practices, games, or other "events") for each field.

- Identify and establish an approximate baseline for maximum use based upon the intensity/type of field use, current condition, method of field construction, and maintenance practices.

- Develop alternatives (options) to address conditions leading to field deterioration and enhance turf recovery, including field use and maintenance practices, reconstruction and renovation of existing facilities, construction of additional (new) facilities, and consideration of synthetic turf athletic field surfacing.

The study has been developed based primarily upon the following:

- Meetings and conversations with District administrative and athletics staff as well as Township recreation personnel, and information provided by these parties regarding field use, maintenance program, and assignments for athletics, physical education, and community use;
- Site inspection/review of the athletic fields and facilities at the high school;
- Review of existing topographic basemapping to determine physical conditions such as slope, upland drainage, surface drainage, and approximate field surface area;
- Review of District field use practices, primarily related to scheduled field assignments, including type of sport/ program and number of scheduled events (games and practices);
- Previous experience with athletic field construction, maintenance practices, and field use, including synthetic turf facilities (both infill and “carpet-type” systems).

Master Plan

2 Investigation of Existing Program and Conditions

- LMSD Five (5) Year Facilities Improvement Plan
- Lower Merion Township Parks and Recreation Documents
- Existing Facilities Site Inspection with District Staff
- Lower Merion Township Parks and Recreation Staff Interviews
- Athletic Staff Questionnaire
- Township Ordinance, Code and ADA Review
- Recommendations for Testing and Studies for Existing Facilities
- Athletic Programs and Field Use (Including Community)
- Potential Growth/Decline in Sports Programs/Participation
- Site Visits to Similar Athletic Facilities

1. LMSD Five (5) Year Facilities Improvement Plan

ELA reviewed the Plan for work associated with Arnold Field and other outdoor athletic venues for the high school. The list is as follows:

2012 - 2013
- Running track renovations. (This work is complete - $850,000).

2014 - 2015
- Construct pathway from high school. (This work is complete - $86,000).

2015 - 2016
- Conduct master plan study (work underway - $20,000).
- Install fiber optic line (This work is complete - $10,000).

2016 - 2017
- Construct baseball and softball team shelters at South Ardmore Park ($80,000).

2017 - 2018
- Replace artificial turf surface at Arnold Field Stadium ($500,000).

2018 - 2019
- Nothing currently planned

Summary

The most significant item listed in the current five (5) year plan is the resurfacing of the synthetic turf in the stadium. The current projected price is reasonable assuming no significant repairs will be needed for the stone sub-base or that storm water improvements are not required by the Township.

2. Lower Merion Township Parks and Recreation Planning Documents

The Greater & Greener Plan 2012-2021

This was a comprehensive study by the Township, published in 2012, investigating all municipal parks and recreation facilities. It is noted that the study was done during the time the expansion was under construction at the high school, so the management of Township fields was at its most difficult.

The sections of the Study which pertain to the District and High School in particular are:

Chapter 1 - Building on Success

It was mentioned that between 1996 and 2011, the Township developed an excellent relationship with the District. This was through joint use of both Township and District facilities by one another. It is noted this should be continued due to the success.

Chapter 3 - Recommendations

Within this chapter there were five (5) overriding goals with various objectives listed for each goal. The only section that pertained to the District was Goal 1, which was to "Enrich the Parks." Under that, listed as Objective 1 under that goal was to increase the number and quality of sports fields. In particular, the recommendation involving the high school involved the improvements noted in the South Ardmore Park Study (relocate the JV Softball field and make the JV Baseball field the proper size).

The Township also mentioned their desire to work with the District to develop a Master Plan for the "Polo Field" park. However, ownership and control of the Polo Field is complicated. Until these issues can be clarified, any planning by Lower Merion Township or Lower Merion School District is on hold.

Chapter 5 - Park & Recreation Facilities

This section reviewed all facilities that the Township owns and operates. Additionally, it discusses various factors which involved the District in general. Those were:

Analysis - Due to the significant use of Township facilities by the District, private schools have difficulty accessing the fields and courts. Also, the report mentions that often, District games run long, impacting community activities.

The report noted that the high school expansion (now complete) exacerbated the conflicts between the community users and the District. It also mentioned that even after the expansion was completed, the District will still need Township facilities, especially South Ardmore Park, so these needs must be factored into future planning for that park.

Strengths - The Study emphasized that the collaboration which exists between the Township and District is one of the most significant strengths and one that should continue.

Challenges - A general item that did not cite the District directly but is a factor in District planning is the high cost of land and especially any easily developed property. The point raised in the Study to illustrate this fact was the relocation of the Villanova University baseball field to Plymouth Township.

Opportunities - The Study noted that the Township, in conjunction with the District, should maximize existing park and recreation sites through judicious design, such as revising field layouts, building the in-demand game fields, and considering synthetic turf and lights.

Additionally, the Study suggested creating school 'parks' placing trails, benches and playgrounds at school athletic sites to introduce more passive recreation to the community. A good example of this would be installation of an engineered mulch path at Arnold Field as desired by coaches and staff.

Chapter 9 - Management and Operations

Under "Major Findings" was listed "School District Coordination" and the cooperative nature of the relationship between the Township and the District, especially with regards to the athletic facilities maintenance. Both maintenance work and capital improvements done by the District were cited as being instrumental in creating successful parks for the community.

Appendix A - Capital Improvement Plan

The only noted improvements that impact the high school are upgrades to South Ardmore Park, including the aforementioned relocation of the JV Softball field and enlarging the base paths of the infrequently used JV Baseball field.

Summary

The cooperative relationship between the Township and District is noted as a significant factor in keeping the Township facilities in acceptable condition. This was further emphasized with future planning even including jointly developing the Polo Field park as a multi-field synthetic turf sports complex with amenities. It is felt that maintaining this relationship, especially with the challenges of limited usable open space for fields and the high cost of land, is very important to both parties to maintain the quality of recreational facilities.

South Ardmore Park - Master Plan Update

This update was done in 2012 per the recommendation of a report entitled "*The Greater Greener Plan*" which was a study of all parks within the Township.

The District is a significant participant in the activities in South Ardmore Park (SAP), as the ball fields and tennis courts are used by the high school. The District has maintained and made improvements to these facilities, and their Five-Year Plan indicates that they are likely to continue doing so.

Items within this Update that pertain directly to the District and High School in particular include the following:

Objectives for the Update

Objective 1 - Convert the one 60' field to a 90' baseball field.

Objective 2 - Relocate Field A (JV Softball) to eliminate overlapping outfields and drainage issues. Continue to work with the District on joint planning, maintenance and improvement of District-used facilities.

Objective 7 - Provide adequate safety zones around fields as well as fencing to protect spectators. (Note that the District has provided fencing along the baselines since this Study was done by the Township.)

Facility Inventory

An inventory of the Park included the following for the District-used facilities:

Field A (JV Softball) - This field has a tendency to stay wet for prolonged periods. The outfield overlaps with Field B (Varsity Softball).

Field B (Varsity Softball) - The only issue is the overlapping outfield with Field A. Since it is used more frequently than Field A, the storage boxes with maintenance equipment are located here.

Field C (Part time use for JV Baseball) - Currently the bases are set at 60' and 70', which is not a size sufficient for high school baseball. It is understood that the field is primarily used for drills and general practices.

Field D (Varsity Baseball) - This is the best maintained ball field at the park. It also is the most used of all the fields, and therefore has storage units with maintenance equipment close by.

The Study stated that all fields receive regular maintenance, including aeration. It was noted in a meeting with Township Staff that aeration in fact is not happening, and the fields all are in need of such work due to overuse and resulting compaction.

Tennis Courts (Girls Tennis) - There are five (5) courts in the battery that are generally in good condition with only minor cracks. The District currently only uses four (4) of these courts.

Parking

It was noted that there are 50 spaces with one ADA space which is one short of what is required. Street parking is also available. With the park being in a residential area such parking is at a premium.

Park Challenges

The Study reviewed the major issues that face the park. The issues which impact the District-used facilities included the following:

Heavy Sports Use - Current maintenance practices seem to keep the fields in good condition, making them playable and safer. As noted previously, the heavy use requires more aeration to decompact the soil and promote healthier grass growth.

Parking - Due to the parks proximity to residential neighborhoods, conflicts continuously occur between park visitors (spectators) and residents. It was also noted that idling and parked buses at the Park during District events also cause issues with parking.

Upon review of the findings, the Study then prioritized five items to be addressed. Of those, only "Park Facility Improvements" and "Playing Field Management" pertained to District-used facilities. The former noted tennis court maintenance while the latter involved the ball fields.

In particular, the court work simply stated that regular inspection and maintenance shall be done to keep the surface playable for as long as possible.

As for the ball fields, it was suggested that Field A (JV Softball) be relocated to eliminate drainage problems and outfield overlap with Field B (Varsity Softball). In addition, the Study noted that the Township should maintain a good relationship with the District to help keep the ball fields in the best shape possible. In particular, it mentioned that the District had provided to date $80,000 to help improve the facilities.

Summary

The Study noted a variety of issues that must be addressed throughout the park with the majority not involving District-used facilities. Continued partnership with the Township and District was strongly promoted due to the financial benefit of joint work. Many of the Park's most recent improvements involved investment by the District (e.g. batting tunnels and shed among other items) and the next most significant will be the team shelters, which will also be District-funded.

3. Existing Facilities Site Inspection with District Staff

On November 19, 2015 ELA met with District Staff to review the facilities on Arnold Field. Weather conditions were rainy but it did not prevent a walk through of all fields as well as the tennis courts and track. A subsequent inspection took place without staff on December 8, 2015 involving ELA, Stadium Solutions (for grandstand inspection) and Schrader Group Architects (to inspect the structures on and under the home side bleachers).

The Summary of findings for the fields, track and tennis courts are as follows:

Field No. 1 - Stadium Artificial Turf

Installed in 2006, the turf is starting to show wear, with color fading and fiber degradation which is not unusual for an eight-year-old synthetic turf field. The manufacturer's warranty on the field expired in 2014. No drainage issues are known to exist, and per Township regulations the system is checked bi-annually to ensure proper operation. The District contracts with Fisher Pro Services, a firm that specializes in synthetic turf athletic field maintenance, to perform work on this field. The services performed here include annual deep cleaning and a G-max testing, cleaning of perimeter track drains and on-call work to replenish rubber infill and repair tears or seam failures. The District owns a pull behind turf groomer and sweeper and uses that on a regular basis to keep the turf in the best possible shape. Painted lines are added by the District to enhance football markings or to add other playing fields.

Arguably, the most important service that Fisher provides the District is the G-Max tests, which are done to confirm that the turf meets or exceeds industry standards for shock attenuation. This essentially is a way to read how rapidly an object comes to a stop when hitting the turf surface, higher the number the quicker the stop, which means chance for injuries and concussions. Currently, the standard is based on American Society for Testing and Materials (ASTM) requirements, where the test result is to be below a reading of 200. These tests are taken throughout the field in pre-determined locations based on the sports played. What the 2015 tests have shown is the field is doing well with the highest numbers in the 150's, which is very good for a field of this age. This is directly attributable to the regular maintenance that the District performs. This maintenance ensures that the infill is evenly distributed maintaining proper depth. This is key since the infill is what players run on with the fibers only existing to contain the material. The playing field dimensions are approximately 198' by 360' which is wide enough for all District field sports per PIAA regulations. The solar orientation is not good as the playing fields run east to west causing athletes to look into the sun which is not safe. All varsity field sports, as well as track and cross country, use this field.

Fields No. 2 through No. 6 - Natural Grass Fields

Robert Schultz of the District Staff provided a detailed breakdown of the maintenance performed on all the natural grass fields at the high school. This work is done on all the fields and is as follows:

Grass cutting: (LMSD staff)

- Generally fields are being cut from around March 1st through December based on weather and field use.
- Spring sports runs from approximately March 1st through May 30th.
- Fall sports runs from the second week of August through the second week of November.
- Typically fields are cut a minimum of one (1) time/week with large-area mower and trimmed out with smaller riding mowers, weed eaters, etc. Sometimes the grass is cut two or three times/week depending upon weather and growth habits. Field hockey fields are cut shorter and typically two (2) times/week.
- Generally, fields are policed (for debris, litter, etc.) by mower operators prior to cutting each week.
- It takes one (1) staff approximately four (4) hours to cut the five (5) fields with the large-area mower (single cut). It will take longer when double cutting (often the case for spring flush of growth).
- It will take a four (4) staff crew approximately eight (8) hours to cut, trim, and weed eat out the five (5) grass fields (all the work the large area mower can not perform).
- Fall leaf removal requires several rounds (2-4 average) of a 3-4 staff crew mechanically blowing and collecting leaves from the fields.

Field Prep for Sports: (LMSD staff)

- Typically fields are lined one (1) time/week requiring two (2) LMSD grounds staff approximately 45-60 minutes/field using approximately 10-12 aerosol cans of turf paint/field). Football on grass practice fields takes a bit longer and more paint due to the required lines/layout.
- There is upwards of a 40-hour week of support (for four staff) to prepare (deliver, assemble and net athletic goals, deliver and position portable bleachers, assemble ball net systems, assemble batting tunnels, etc.) for spring sports. It takes approximately 2-3 days to reverse this work at the end of the spring season.
- There is upwards of a 40-hour week of support (for four staff) to prepare (deliver, assemble and net athletic goals, deliver and position portable bleachers, deliver and set out football tackling sleds and related equipment, etc.) for fall sports. It takes approximately 2-3 days to reverse this work at the end of the spring season.
- *Miscellaneous costs include portable toilet rentals out on the corners of fields (approximately $77.00/ unit/month) for approximately nine (9) months.* LM fields get three additional units for grass fields. There are two additional units near the grandstand for track and field events as well. One of these stays out year-round to accommodate use of the track.
- Bulk infield mix, ball mound mix, drying agents, aerosol field paints, plastic zip ties and string line reels are all required in support of sports.

IPM/Turf Maintenance Program: (Combined LMSD and contracted staff)

- Soil tests usually taken on an annual basis (contracted service).
- All fields treated with a soil amendment program on a monthly basis from April through October for a total of eight (8) applications) (combined LMSD labor and District-purchased products along with additional contracted service labor and contracted equipment).
- All fields treated 2-3 times/year for selective weed control (combined LMSD labor and District-purchased products along with additional contracted service labor and contracted equipment).
- Individual fields treated for insect damages (if present) approximately one (1) time/year (combined LMSD labor and District-purchased products along with additional contracted service labor and contracted equipment).
- Non-selective weed control product applications (for spot treatments) made several times/year based on frequency of occurrence (LMSD staff and products).
- Deep slice aeration of all fields performed one (1)/year (combined LMSD labor/contracted labor and equipment).
- Specialized soil amendment application at the end of the season (combined LMSD labor/contracted labor and equipment).
- Over seeding is performed from March through November on a regular occurring basis to goal mouths, center circles, and other high-wear areas (LMSD labor and materials). Fields are currently over seeded with a minimum of three (3) varieties of perennial ryegrass certified 'blue tag' blends from PA distributors.
- Bulk topsoil, top dressing materials, seed, penn mulch (for smaller repair areas) and sod available for ongoing (year round) repairs and maintenance as needed.
- Use of Turf Blankets.

Irrigation Program: (Combined LMSD and contracted staff)

- Toro Sentinel System underground irrigation under Fields LM-02, 03, 04, and 05. LM-06 does not have irrigation available.
- System is activated in the spring and operates through the season as needed. System is winterized (contracted service) in late fall before frost.
- Water costs
- Monitoring costs (remote desktop/laptop used to monitor/program/etc.)

Criteria for Evaluating a Natural Grass Athletic Field

When investigating a natural grass athletic field, the major points of consideration to evaluate the condition of the field are as follows:

- ☐ Field size - Does the space accommodate regulation-sized playing fields for each sport?
- ☐ Solar Orientation - Is the axis of play (goal to goal) in a direction where students are not looking into the sun?
- ☐ General Grass Health - Is grass cover consistent throughout field? Are the blades healthy with no noticeable stress? Are the roots deep?
- ☐ Grading - Are the slopes consistant with no low or high spots? Is top dressing done?
- ☐ Worn Areas - Are there any worn areas with no grass growth?
- ☐ Weeds - Any evidence of weeds? Is there a comprehensive weed management program in place?
- ☐ Pests - Any evidence of pest damage? Is there an Integrated Pest Management Program in place to control pests?
- ☐ Fertilization - Is soil testing done and followed up with a comprehensive fertilization plan?
- ☐ Aeration - Is the field regularly aerated?
- ☐ Irrigation - Is there an irrigation system in place? Is it a subsurface system or water wheel type?
- ☐ Overseeding - Is this done throughout the season to insure growth of turf grasses?
- ☐ Use Discipline - Is the field used during rain events? Is the field “rested” as much as possible to help promote recovery?
- ☐ Maintenance Program - Is there documentation of all maintenance records and is a comprehensive program in place to make sure work is consistent and proactive, not reactive?

If a field addresses each item above and successfully performs them, then it should be considered an excellent facility. If it only addresses a few, but the field remains playable and safe, it is a good facility. If little to no items are addressed and the field is uneven and mostly unplayable, then it is classified poor and in need of renovation.

Description of Individual Grass Fields

Field No. 2 - This field lies on the eastern side of Arnold Field and is used mostly for soccer and lacrosse. Of all the grass fields, this is the only one that has a drainage issue where the far eastern sideline will take longer to dry out than the remainder of the field. Although a nuisance, this does not prevent use of the field for prolonged periods of time. The playing area is approximately 180' x 330' which is on the small side for soccer but good for lacrosse. Field orientation runs slightly southeast to slightly northwest. This is the solar orientation for field sports since the players will not be looking into the sun during play. Turf conditions are excellent. Part of the field serves a landing zone for track throwing events.

Field No. 3 - This field is immediately adjacent to the synthetic turf stadium and serves as a football/ ultimate practice field. The solar orientation for this field is not favorable for it runs in an essentially east - west axis, placing the sun in the eyes of the participants. Turf conditions are excellent. Playing surface is roughly 160' by 330'; a good width, but 30' too short for football.

Field No. 4 - This field lies immediately north of Field No. 3 adjacent to Montgomery Avenue and serves as the main Field Hockey venue. The solar orientation for this field is not favorable for it runs in an essentially east - west axis, placing the sun in the eyes of the participants. Turf conditions are excellent and since it is primarily for field hockey it receives an extra level of attention to properly groom it (see staff notes above). It is used for both Varsity and JV practices and JV games. Playing field is 160' wide by 280' long which is 20' short in both dimensions for PIAA standard field requirements.

Field No. 5 - This field lies on the western edge of Arnold Field adjacent to the woods. The solar orientation for this field is acceptable, running slightly southeast to slightly northwest similar to Field No. 2. Turf conditions are excellent. It is used for soccer, girls lacrosse and ultimate. Playing field is 180' wide by 330' long which, per PIAA regulations, is narrow for soccer by 15' and short for girls lacrosse by 30'.

Field No. 6 - This field lies behind the high school and is approximately 160' x 200' which is undersized for all PIAA sanctioned sports therefore it serves as a pure practice facility for various field sports as well as cross country. This is mostly used as a venue for Physical Education classes. No irrigation is located on the field. Solar orientation is good and turf conditions are good as well.

General Notes

Field Nos. 3 through 5 - During construction of the high school expansion, these fields were paved over with the relocated parking from the school. Due to the heavy compaction and need to rebuild the fields once the construction work was done, the District took proper steps rebuilding with good athletic field topsoil root zone mixes and irrigation to help promote healthy turf growth. In doing so, the District put the fields in a position to withstand heavy use. This good foundation helps to maximize the benefits of the intensive maintenance program, for the goal is now to maintain the soil quality and not trying to fix it. So often with school district athletic fields, contractors use inferior topsoil (or maybe little to none at all) forcing the District to essentially start from scratch to transform the poor soil into something that can successfully promote healthy growth. This takes many years and costs more. In the case of these fields a good foundation was installed which is the most important step in creating healthy and vigorous natural grass fields.

Synthetic Running Track and Field Venues

Constructed approximately 25 years ago, the track was completely re-built in 2013, as were the runways for the jumping venues. The conditions of all these venues are currently excellent. All jump facilities were recently upgraded with new covers and platforms.

Tennis Courts

The battery of five courts are getting up in years, having been rebuilt back in 1991 using the stone process where 1" of stone is placed over the old court surface with 3" of bituminous paving, resurfacer and color coat. They are starting to look their age with fading, cracks, and one very noticeable round depression lying in between courts (all parties felt that may be a manhole due to the shape). Aside from the latter problem. most conditions are within acceptable tolerances and should be monitored, for they will likely get worse in the next couple of years. The depression we encountered should be investigated and repaired prior to the spring tennis season.

Athletic Equipment Storage

Storage Is scattered throughout the facilities with the bulk of it below the home grandstand on Field 1 and some below the visitor bleachers. These are mostly large goals, track hurdles and equipment, and football sleds. Other items such as nets and miscellaneous parts are stored at the District grounds maintenance facility.

Grandstands

ELA has contracted with Stadium Solutions and Schrader Group Architects to perform inspection services on both grandstands and the rooms and spaces below the home side. A summary of both their reports follows:

SCHRADERGROUP Architecture Summary

Fieldhouse Building

The existing fieldhouse building is a sound structure located below the bleachers, consisting of approximately 5,000 sq. ft., of which approximately 1,600 sq. ft. utilizes space for team rooms and public restrooms. The remainder of the ground floor space is utilized for athletic equipment storage and other district storage. There is an existing mezzanine level above the ground level utilized for storage that is approximately 3,200 sq. ft. The existing toilets located in the fieldhouse building are functional and in good condition but do not fully meet current ADA standards, quantities, clearances and maneuverability requirements. The existing waterless urinals in the Men's Restroom appear to be new and could be reutilized in any future project.

Pressbox

In evaluating the existing pressbox, several factors surfaced for consideration. The building appears structurally sound and in fair working condition; however, it appears to be original to the stadium and far below current standards for stadium fields. It is approximately 80 sq. ft. in comparison to a typical size at 500 sq. ft. or larger to accommodate several people including announcers, statisticians, press, and home team and visiting coaches. Existing electrical switch gear, fuse panels and cable are housed inside, which greatly diminishes space inside. It is recommended the pressbox be replaced. Further evaluation of the existing electrical service is needed to determine viable costs for renovation and/or replacement.

Stadium Solutions Summary

Home Grandstands

Conclusions and Recommendations

The home side bleacher structure is in fair to satisfactory condition and all systems are functioning properly.

Code Compliance IBC (ICC 300) Current Edition

When originally built in 1960 and subsequently renovated in 1968, the facilities were constructed to the building codes in place at the time. Since then, new codes have been enacted, with the International Building Code (IBC) currently in effect.

This inspection was conducted in compliance with Chapter 5 of the current edition of ICC 300. Chapter 5 addresses existing structures for safety, proper maintenance, replacement of damaged, broken or badly deteriorated elements.

Code issues observed during the inspection are:

- No mid-aisle hand rails on the vertical aisles.
- Guardrail system inadequate per current codes. This is a safety issue which should be addressed in the near future.
- No handicap ramp per ADA legislation.
- It is noted that the District takes necessary steps to provide reasonable access to the stadium for those with disabilities.

Maintenance Issues

- The painted steel needs attention. The paint is peeling and exposing the steel it is meant to protect. The steel is oxidizing where this condition has occurred.
- Some of the butt joint cover for the seat board extrusions are loose and should be properly attached.

New Construction Code Anomalies

- No handrails on the vertical aisles.

Structural Concerns:

- None were observed.
- This is an old grandstand and it appears a lot of remedial maintenance has been done with the structure to keep it as a viable grandstand.

Visitor Grandstands

Conclusions and Recommendations

The bleacher structure was in satisfactory condition and all systems functioning properly.

Code Compliance IBC (ICC 300) Current Edition

This inspection was conducted in compliance with Chapter 5 of the current edition of ICC 300. Chapter 5 addresses existing structures for safety, proper maintenance and replacement of damaged, broken or badly deteriorated elements.

Code issues observed during the inspection are:

- No handicap ramp per ADA legislation.

Maintenance Issues

- Non slip tape (contrasting color) should be applied on stairs and vertical aisles.

New Construction Code Anomalies

- No handicap ramp per ADA legislation.

Structural Concerns

- None observed on the grandstand.

Complete studies can be found in the Appendices (A and B).

4. Lower Merion Township Parks and Recreation Staff Interviews

On November 19, 2015 following the walkthrough on Arnold Field, District Staff and ELA visited the Township Parks department to interview them about the District-used facilities. Donna Heller, Director and Dave DeAngelis, Parks Supervisor sat down and related their thoughts.

South Ardmore Park

With this being the Township Park most used by the high school, the focus of the discussion was on this facility. Points raised by Township staff members included:

- All fields are heavily used ,so soil compaction is high. This negatively impacts healthy grass growth.
- Fields are over-scheduled but demand requires it.
- Weed control is difficult to accomplish; it seems to never get done.
- No irrigation exists.
- The Parks and Recreation Department has a core aerator but heavy usage prevents them from using it.
- Soil tests have shown a good and healthy top soil.
- The walking path mentioned in the Park Master Plan is the top priority for the Township.
- The relocation of Field A (JV Softball) is not in the current Capitol Improvement Budget.
- The Township is of the opinion that the District can proceed to construct the baseball and softball team shelters. *(Note: This in the 2016 District budget.)* It was pointed out they must be the open-type for security/aesthetic purposes.
- The Township prefers skinned (all infield mix) type infields since they are easier to maintain.
- The Township uses weed pre-emergent in the infield mix to keep it as weed-free as possible.
- The Township owns infield grooming equipment and uses it on a regular basis.
- To aid in quicker drying, the Township uses "Pro's Choice" infield mix coordinator. Previously, they used "Turface."
- Only two sheds are allowed on the site and are owned by the District and Lower Merion Little League.
- The Township has allowed “job boxes” on all fields to store bases and maintenance equipment.

- Tennis courts are maintained by the Township. They currently are in good shape and are monitored for any cracks or settlement.
- They agree that idling buses pose a problem and therefore this practice should be stopped.
- Maintenance is shared between the District and Township with the District responsible for game preparation.
- Field usage permits are more of a "handshake" agreement than full permits.

Other Township Parks used by Lower Merion High School

Penn Wynne - Used by the Cross Country teams in recent years. Township did not indicate any issues with the running courses.

Vernon Young - Used by the 9th grade baseball team. As with the South Ardmore fields the field has heavy usage and requires aeration as well as regular maintenance.

5. Athletic Staff Questionnaire

In December, a standard questionnaire was sent out to all coaches for all fall and spring outdoor sports teams (See Appendix C). Of the 16 teams, 13 coaches have responded to date. The questions pertained to the levels of play within the program (9th grade through Varsity), practice and game times, any playability issues with the facilities and general comments. For the most part, the playability issues raised by the coaches were in line with what the District maintenance staff, planning documents and field inspections have found, though there were a few comments contrary to those reports. The comments made in the "General Comments" section varied from none at all to issues that, based on what was written, have been around for a while. The comments made by District staff included:

Fall Sports

- There is a desire to have a soft surface trail for runners to use. This would circle Arnold Field.
- The lines in the synthetic turf field are higher in some areas causing issues with playability. (*Note: This is typical with some fields of this age due to different rates of UV degradation for different fiber colors*)
- Having at least one more turf field to allow practice during or after rain events will help in preparing students for games. A few coaches noted that they lose more practice time than they'd like to lose.
- The five tennis court battery is not enough to allow both JV and Varsity to practice together, and the lack of a sixth court prolongs matches.
- All sports practice after school and many on Saturdays.
- Those than can shift goals to reduce wear spots try to do so.

Spring Sports

- With baseball and softball at South Ardmore Park, the teams are at the mercy of the Township where field conditions and wet weather cancellations are concerned. Many feel that the fields can be better maintained and are deemed “non-playable” too quickly, but it is understood that the heavy usage by both the District and community lead to these issues.
- Infields are not in the best of shape due to excessive play by other teams.
- The ball fields being off campus costs an hour of practice time.
- Buses are not always on time for picking ball teams up.
- Having no trainer available for the teams at South Ardmore Park puts players at risk in case of injury.
- All softball fields should have skinned infields *(Note: The Township would prefer that all fields were skinned.)*
- Sharing a field with another team reduces effectiveness of practices.
- The ball stopper netting is too low and not wide enough to work properly at the stadium. It should wrap up the sidelines.
- Would like another turf field to allow practices during or after rain events.
- The five tennis court battery is not enough to allow both JV and Varsity to practice together, and the lack of a sixth court prolongs matches.
- There is a desire to have a soft surface trail for runners to use. This would circle Arnold Field.
- A press box of proper size is needed so that events can be properly controlled.
- The facilities under the home grandstand are outdated and need renovation. This would include more modern facilities, locker rooms, and proper trainer facilities.
- With the aforementioned improved trainer facilities, adding a second trainer with student assistants would be helpful to properly cover the number of students.

Summary

The input of the Coach is important, for they are the staff member that uses the facilities the most and they know intimately the conditions of the surface their students play on. They are frequently faced with scheduling problems and are most keenly attuned to the impacts of facility conditions on conducting safe and effective practices and games.

A major takeaway from the survey responses is the need for an additional turf field, which would foster better team conditioning and preparation by enabling practices to continue even when the grass fields are unfit for use due to weather or poor field conditions. Additionally, another turf field would allow grass fields to rest and alleviate current schedule conflicts in the stadium. Finally, the baseball and softball coaches are concerned with the adverse effects being off campus has on their teams. Both teams would prefer to relocate back on District property.

6. Township Ordinance, Code and ADA Review

With a facility as old as Arnold Field, it is common for various aspects of the site to not meet current zoning standards thereby making them "non-conforming"; this means the condition lawfully exists. If the District would desire an expansion of a non-conforming condition, then a special exception must be sought from the Township to allow said expansion. This standard is often applied to what is termed "bulk regulations" such as lot coverage, structure height or use.

Zoning Ordinance Analysis - Current Conditions

- The existing athletic facilities are considered an accessory use to a Public School. This type of use is required by the Ordinance to be on the same lot as the school. Because Montgomery Avenue technically divides the school and fields onto separate lots, the facilities are considered non-conforming.
- The building area is allowed to be 45% of the lot area, and it is currently at less than 0.5%.
- The Ordinance prohibits tennis courts and similar hard surfaced athletic facilities from being in the front, rear or side yards. The existing courts do lay within the front yard along Fairhill Road, and therefore, are non-conforming.
- The existing home grandstand is sufficiently under the 65' maximum permitted height.
- As for parking, the field was originally built with the intention to serve the facility with a combination of off-street parking in the high school lot and on-street parking. The only on-site parking is a small lot designated primarily for ADA needs, staff, and officials that was never intended as the primary parking facility. Current parking at the high school is 460 spaces, which per the Ordinance is sufficient for 2,300 seats (1 space per 5 seats). The current total number of seats at the stadium is 3,136. Since this is an existing condition, the number of available on-site parking spaces is non-confirming. It was noted in meetings with staff that it is on very rare occasions the stadium reaches capacity.
- Fencing on the site is mostly chain link with the exception of the ornamental metal gate, fence and stone pillars along Montgomery Avenue. This gate, as well as the 10' tennis court fencing along Fairhill Road, do not comply with the 6' height limitations of the Ordinance. As with other existing conditions, these are considered non-confirming.

ADA Review

Site Surface Material

Currently, the surfaces acceptable for ADA access on the site are:

- New path from Montgomery Avenue to the Stadium.
- Paths around the stadium.
- Synthetic track surfacing.

- Synthetic turf.
- Paving located behind and around the home grandstands.
- Tennis courts.

Site-Slopes

Currently, the accessible surfaces which appear to have gradients that fall within the 2% to 5% acceptable range for ADA include:

- Pathway from Montgomery Avenue.
- Paths on the eastern side of the stadium.
- Track, tennis courts and synthetic turf.
- Parking lot drive area only.

Home Grandstand/Fieldhouse Building

The building has limited access due to door sills. The current bathrooms do not fully meet ADA regulations.

Visitor Bleachers/Home Grand Stand Spectator Seating

Neither the home or visitor grandstands have ADA ramp access or seating areas. It is noted that the District does make reasonable accommodations for disabled spectators during events.

Parking

Based on the current stadium seating of 3,136, the number of required parking spaces are 628. Per regulations, the current 13 ADA reserved spaces is 2% of that requirement.

Currently on Arnold Field, there is no designated ADA reserved parking. When disabled guests need access, they park in the more level areas of the stadium side parking lot where District Staff will assist them to the stadium.

Summary

ADA access does exist, but in a limited capacity. The new path allows access to three of the grass fields (LM02 to LM04), but not the fourth (LM05). The same path connects to the stadium, but no access exists to grandstands, seating areas on the fields or tennis courts. When disabled spectators need access to the stadium, the District provides reasonable alternatives to aid them.

The existing fieldhouse building has no accessible restroom facilities. Temporary toilets are provided.

Based on the current ADA conditions, it is highly likely that that any significant improvements to Arnold Field will be required to include ADA improvements to address the deficiencies noted above.

7. Recommendations for Testing and Studies for Existing Facilities

Athletic Fields - Currently the District has a very comprehensive testing program on the athletic fields as well as a related Integrated Pest Management and Turf Maintenance Program. The testing and resulting work are:

Soil Tests - This testing is required to see what nutrients are present in the root zone and what amendments are needed to maintain the proper growing medium. The District currently tests all natural grass fields on an annual basis through a contracted service. Based on the test results, the following applications are made:

- All fields treated with a soil amendment program on a monthly basis from April through October (eight (8) applications).
- Specialized soil amendment application (end of season).

Visual Inspection for Weeds/Insects - Fields are checked during maintenance for possible weed or insect infestation. The District's comprehensive maintenance program is effective at reducing weeds but does not stop them. Based on the inspections, the following work is performed:

- All fields treated 2-3 times/year for selective weed control.
- Individual fields treated for insect damages (if present) approximately 1 time/year.
- Non-selective weed control product applications (for spot treatments) made several times/year based on frequency of occurrence.

G-Max Testing - This is a test taken with a mechanical device, that provides a measurement as to the shock attenuation performance of the surface. The higher the reading, the harder the surface. Within the industry, the testing is mostly performed on synthetic turf fields. Currently, the District is having these tests done only on the stadium field (LM01). Due to the increased concern for concussions, professionals in the athletic field industry are suggesting more G-Max testing on natural turf fields be done as well. ELA recommends that the District consider testing LM02 to LM05 and Butcher Field, to confirm the impact attenuation levels as per ASTM F1702. With the comprehensive maintenance plan in place, including aeration, it is very likely the tests will show favorable results.

Deep Cleaning/Infill Depth and Replenishment - There is no testing for debris within the infill. Such debris can only be handled through deep cleaning, which the District does annually through contracted services.

The current grooming and cleaning program is effective in maintaining infill depth as noted in the difference between the 2014 and 2015 Fisher Pro Services report on the turf field. This program must be continued to ensure proper infill depth providing the safest surface for the students. Based on some comments from coaches, occasionally "low spots" occur in high use areas (goal mouths, face off circles, etc.) resulting in playability concerns. These can be remedied by using buckets of pre-mixed infill to essentially perform a "golf divit" like repair. It is a simple process that can be done by coaches as well as maintenance staff. Instruments are available to test infill depth, and our team recommends that the District purchase these to spot check areas prior to the annual inspection by Fisher.

Tennis Courts, Synthetic Running Track and Throwing/Jumping Runways - These facilities are hard surface venues that are subject to either surface failures (peeling/delamination) or subsurface failures (settlement). There are no testing methods for these conditions, which can only be found by visual inspection. The most proactive thing that the District can do is to follow the manufacturer's suggested maintenance to clean surfaces, removing dirt and organics that can lead to quicker degradation of the synthetic materials. After rain events, the venues should be inspected to see if any standing water is noticeable. These "birdbaths" as they are called in the industry, are indications of possible settlement. They also cause damage to the surface by staining it or freezing and breaking up the surface material.

Athletic Field Maintenance Program – The District Staff requested that ELA inspect the current athletic field maintenance program in place at the high school. ELA retained Jones Turf to review the program and their report is included as Appendix E. Jones Turf found that the program demonstrates a successful approach to meet the demands of the District's athletic programs. They felt that it has been developed utilizing all turf industry recommendations for safe, healthy playing surfaces and addresses the physical demands of the users. It was also noted that it is one of the best in the area in terms of providing quality athletic fields. Jones did recommend that the District should evaluate the program annually to make sure it keeps pace with current practices.

8. Athletic Programs and Field Use (Including Community)

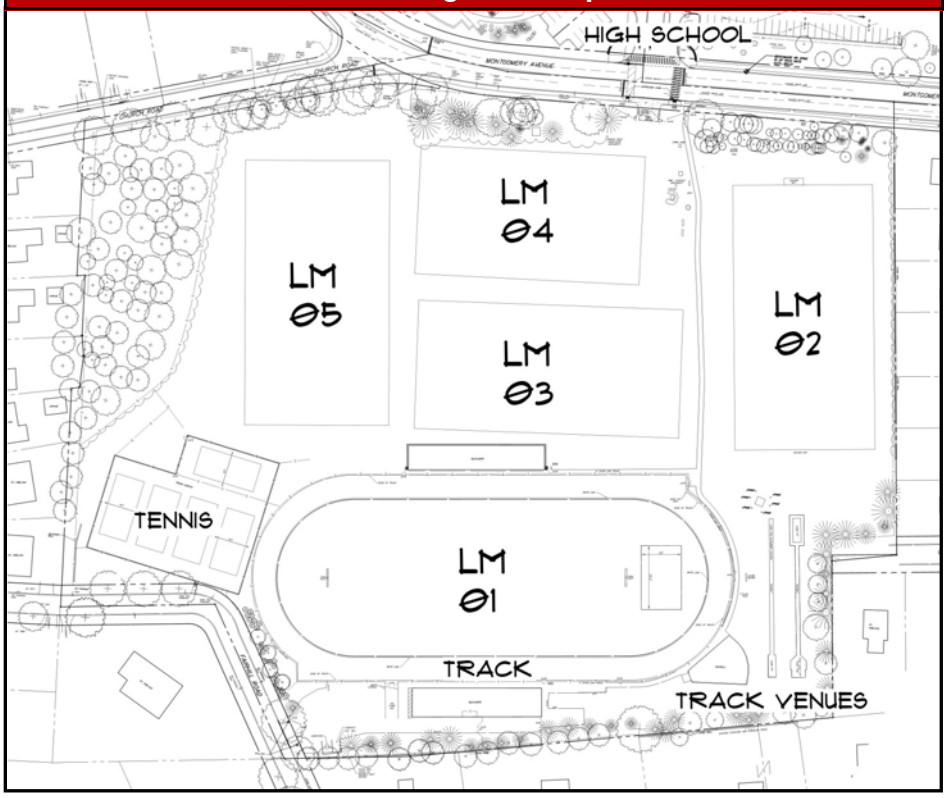
The following chart was provided by Donald Walsh, Athletic Director:

Lower Merion High School Field Use Estimates 2015			
Field No.	**Fall**	**Winter**	**Spring**
LM01	150 prac./43 comp./2 comm.	60 open turf slots for practices	80 prac./27 comp./2 comm.
Track	Open all year/no comp.	Open all year	Open all year/7 comp./24 comm.
LM02	75 pract./14 comp.	No use	60 pract./7 comp./35 comm.
LM03	75 pract./no comp./no comm.	No use	90 pract./no comp./no comm.
LM04	60 pract./6 comp./no comm.	No use	No use
LM05	75 pract./8 comp./no comm.	No use	75 pract./no comp./no comm.
Tennis Courts	Open all year/14 comp.	Open all year	Open all year/9 comp.
SAP Tennis	Open all year/3 comp.	Open all year	Open all year/4 comp.
SAP Softball	Limited Use	No use	30 prac./17 comp.
SAP Baseball	Limited Use	No use	30 prac./15 comp.
Vernon Young Baseball	No Use	No use	30 prac./5 comp.
Penn Wynne Park	6 pract./2 comp.	No use	No Use

The outdoor field sports and current field assignments provided as part of the high school athletic program are outlined in Exhibit A below.

EXHIBIT A

Existing Field Map



Field Use and Need Analysis

One of the goals of the Master Plan is to investigate bringing all sports back to campus which includes base ball and softball. When analyzing field use these sports are not factored in for they are normally considered unique facilities dedicated to one sport. This is due to the fact that part of the playing surface consists of infield mix, which is not acceptable as a surface for other sports.

If either sport were brought back to campus at this time the layout of the existing fields must be changed to accommodate construction of the infield. The area required for the infield would mean a loss of one of the multi-purpose fields.

As part of the reconfiguration of fields at least one multi-purpose field would need to be overlaid on the outfield. This is not a favorable condition for it creates a usage conflict, as well as maintenance concerns. The latter is due to the grading requirements for baseball and softball differing from field sports. Runoff from outfields run to left and right fields where the high use areas are for field sports, creating potential muddy hard to main maintain surfaces. The reverse is true where play fields drain to the sidelines, thereby dumping water onto the infield.

Determining the number of fields required to support public school district athletic programs and justifying the construction of additional fields can often prove difficult. Many diverse opinions exist among the various stakeholders, which are often shaped by the “expectation of quality” and do not consider the maintenance and recovery periods required for athletic fields, as well as the differences in field stress due to the varying intensities of multiple sports. The provision of additional athletic fields and/or synthetic turf fields will reduce turf stress by limiting the number of events to where deterioration is reduced, turf recovery is feasible, and appropriate maintenance can be performed.

This analysis does not include the synthetic turf field (LM01), for which usage is not as much of a factor in “wearing” the surface out as ultraviolet degradation, lack of proper maintenance and simply age. LM01 currently handles four (4) times what a natural grass field can handle (100 events per year – see below) and can handle significantly more.

ELA analyzed field requirements using two widely accepted methods as described below:

Baseline Field Use/Turf Recovery Method – Natural Grass Field

The following method used in determining field need is based upon the amount of activity (number of sporting events) that a natural turf field can be expected to recover from while undergoing a "normal" maintenance regimen over a period of three to four months (including reseeding, spot repair, aeration, and similar practices). This method requires certain assumptions regarding field conditions and maintenance practices, and assumes that uses/activities will be reasonably distributed over a period of several months (such as a fall or spring sports season). Physical education and special events use is not included in the analysis, as such usage is limited in time and not as intensive as high school sports.

It is widely accepted and documented that certain sports, such as football, lacrosse, and ultimate have a far greater impact on turf stress than other sports and generally result in greater damage to natural turf fields. Also, higher levels of competition, such as high school varsity sports (in contrast to junior high sports), can have a higher level of impact. These variances can be considered in establishing the maximum baseline use number, which generally averages between 25 to 50 events per season (50 – 100 per year), depending on the type and level of play associated with the sport. However, in an effort to simplify the approach, all sporting activities will be assumed to have a similar impact. The yearly event baseline for each grass field shown in Figure 1 has been set at the highest level (100) due to the high level of maintenance on the fields.

The table below illustrates how this method is applied:

Figure 1 - Baseline Field Use/Turf Recovery Method – Natural Grass Field

Field Name	Fall Events	Spring Events	Total Events	Baseline Events	Variance of Events
LM02	89	102	191	100	91
LM03	75	90	165	100	65
LM04	66	0	66	100	-34
LM05	83	75	158	100	58
TOTAL					**180**

180 Event Access / 100 Events Per Field = 1.8 Fields Needed (Use 2)

Based on the above methodology field use by the high school field sports programs exceeds the maximum use level by 180 events. Using a baseline of 100 events per field, **an additional two (2) fields (180 events/100 maximum yearly baseline) are required to support the high school sports programs (both games and practices**). As noted previously, this calculation does not take into account the impacts from physical education or special events.

0.5 Field/Sport Team Ratio Method

Another approach to analyzing field use and need analysis includes providing one (1) "premier" field (stadium facility) plus one (1) field per team (ether a competition field and a practice field or a practice field and use of the stadium field). In most cases, all fields are scheduled for both fall and spring use, resulting in a common ratio of 0.5 fields for each team/sport. Based upon this methodology, the total multi-purpose fields needed by the high school sports programs are outlined in Figure 2 (below).

Figure 2 - 0.5 Field/Sport Team Ratio Method

Sport	Teams	Ratio	Field Count
Football	2 (Boys' Varsity and 9th Grade)	0.5	1.0
Soccer	4 (Boys' and Girls' Varsity and JV)	0.5	2.0
Field Hockey	2 (Girls' Varsity and JV)	0.5	1.0
Lacrosse	4 (Girls' Varsity and JV and Boys' Club Varsity and JV)	0.5	2.0
Stadium	1 "Premier" Competition Multi-Purpose Field	1	1.0
Total Multi-Purpose Fields Needed			**7.0**
Total Existing Multi-Purpose Fields			**5.0**
Deficiency of Fields			**2.0**

*5 dedicated "full size" multi-purpose fields / 13 sports teams = 0.38 fields are provided per sports team.

Based upon the previous method (figure 2) of determining the number of fields needed, **two (2) additional fields must be constructed to support the high school sports programs**, taking into account such variables as turf stress/wear and appropriate turf recovery periods under normal maintenance practices.

Synthetic Turf vs. Natural Turf Cost Per Event Analysis

As noted with the prior two analyses two additional fields are needed to meet the current number of teams at the high school. It is obvious that two additional multi-purpose fields will not fit onto the complex. In order to meet the number of required events consideration should be made for using synthetic turf as an alternative approach. Where a natural turf field similar to the current fields can handle approximately 100 events per year (three seasons) it is generally accepted in the athletic industry that a turf field can handle up to 1,500 events (four seasons).

When synthetic turf is consider as an option the concern is the upfront cost to install the field compared to a natural turf field. For fields of comparable size synthetic always costs more primarily due to the stone subbase, turf and infill (Approx. $11.00 / SF[1]). Installation of a higher quality natural grass native soil field as currently exists on the complex will fall in the higher range of cost of natural grass construction (Approx. $5.25 / SF[2]).

When comparing the costs over a period of time and factoring in maintenance expenditures the cost benefit of synthetic turf per event becomes evident as illustrated in this table:

	Natural Grass	Synthetic Turf
Initial Cost Installation Cost / SF:	$5.25 / SF = $472,500	$11.00/SF = $990,000
Maintenance:	$20,000[3] x 10 years = $200,000	$5,000[4] x 10 years = $50,000
Total:	$672,500	$1,040,000
Annual Number of Events:	100 x 10 Yrs. = 1,000 Events	1000 x 10 Yrs. = 10,000 Events
Average Cost Per Event:	$672.50	$140.00

So although valid concerns exist for the upfront cost of a synthetic field the cost per event proves to be significantly less.

[1] Square Foot Cost based on Sportsturf Managers Association publication "A Guide to Synthetic and Natural Turfgrass for Sports Fields" Current Edition

[2] Id

[3] Mowing, maintenance, water, equipment at $30,000, overseeding at $600, fertilizer at $8000, wetting agents at $1200, weed treatment at $500

[4] Includes prorated sweeper cost, 30 turf sweepings, miscellaneous repairs

9. Potential Growth/Decline in Sports Programs/Participation

Introduction

To determine the five-year participation trends locally, statewide and nationwide, ELA researched two sources. We obtained local data from the Athletic Director, while the state and national data is from the National Federation of State High School Associations (NFHS), of which PIAA is a member. In all three databases there are some fluctuations from year to year where participation may have increased/decreased one year to only go back the next year to the original number two years prior. Our goal is to discover any long-term trends to identify the sports that are growing or declining.

Boys Sports – Table 1

National (2010 to 2015)

- Lacrosse is by far the largest growing sport steadily growing and increasing by 13.3%.
- Soccer is the next largest growing sport with an increase of 8.6%.
- Largest drop is tennis at 2.6% with football dropping at 2.2%.
- Although slightly falling in participation, football by far is the largest participatory sport with nearly 1.1 million participants. The next largest is track and field with 580,000 student athletes.

Statewide (2010 to 2015)

- As with national numbers, lacrosse is by far the fastest growing with an increase of 16.2%.
- Surprisingly, all other sports are little changed with the exception of tennis, which has dropped 5.6%.

Lower Merion High School (2012 to 2016)

- Contrary to the national and state data Lacrosse has actually dropped in participation. The drop is at 18.9% (10 students) and is the largest drop in boys sports.
- Largest growth is track and field at 118% (45 students).
- The second largest growth is ultimate at 24% (11 students) with football as close third at 21% (12 students).

Summary

- At the local school level, varsity sports tend to fluctuate in numbers of participants for a variety of reasons. This includes, but is not limited to, class size, number of athletes, team success, and coaches and peer involvement. Looking at both state and nationwide statistics will provide a better idea of how the sport is doing demographically.
- Contrary to other parts of the country and state, lacrosse has been established in this area for a much longer time. While it is actually the oldest sport in the country, lacrosse is viewed as a “new” trendy sport elsewhere, hence the growth. The reason for a drop in participation at Lower Merion (-18.9% or 10 students) is not clearly evident. In addition to the factors noted above, this sport has seen incredible growth with non-school related club teams. These teams have begun to schedule games year round, including the spring, conflicting with school teams.
- The tremendous rise in the numbers for football (+21% / 12 students) is contrary to both the State and Nationwide, whose slight decline can be attributed to concussion concerns and the shift of many spring sports to being nearly year-round. Frequent reasons for such increases include a large class coming up and/or the program being run in a manner that attracts students.

- The growth in soccer is surprising, considering US Soccer's expansion of their academy system, which essentially forces the best players not to play scholastically. Since that decision came down in 2012, it is possible that the pool of non-academy players now see an opportunity to play.
- The reason for the substantial drop in tennis participation (-12.9% / 4 students) is not clearly evident. In other areas, the drop has been mostly attributed to the rapid growth of Lacrosse, which is not applicable here.
- The dramatic rise in track and field (118%, 45 students) is somewhat of a statistical anomaly. It is understood that the reason for this dramatic increase is due to the active recruiting of students for specific sprint and field events. This also falls in line with a national trend where students from off season sports participate in track to maintain conditioning.

TABLE 1

NATIONWIDE PARTICIPATION - BOYS

SPORT	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	TREND
Baseball	471,025	474,219	474,791	482,629	486,567	Up 3.3%
Cross Country	246,948	248,494	249,200	252,547	250,981	Up 1.6%
Football	1,108,441	1,095,993	1,086,627	1,093,234	1,083,617	Down 2.2%
Lacrosse	95,683	100,641	101,687	106,720	108,450	Up 13.3%
Soccer	398,351	411,757	410,982	417,419	432,569	Up 8.6%
Tennis	161,367	159,800	157,247	160,545	157,240	Down 2.6%
Track & Field	579,302	575,628	580,672	580,32	578,632	Steady

STATEWIDE PARTICIPATION - BOYS

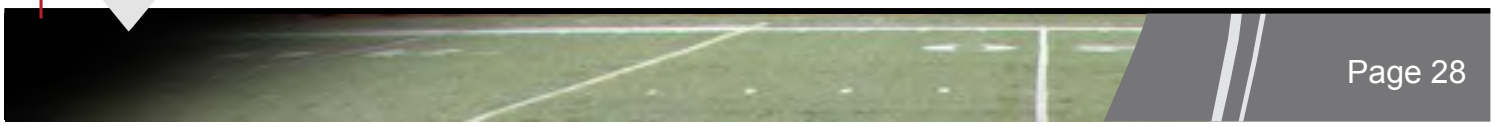
SPORT	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	TREND
Baseball	21,728	21,632	21,248	21,248	21,504	Down 1%
Cross Country	11,380	11,240	11,200	11,180	11,320	Steady
Football	26,505	26,370	26,280	26,100	26,010	Down 1.9%
Lacrosse	5,344	5,600	5,760	5,984	6,208	Up 16.17%
Soccer	20,475	20,440	20,265	20,020	20,055	Down 2%
Tennis	4,968	4,824	4,776	4,680	4,692	Down 5.6%
Track & Field	24,160	24,840	24,240	24,280	24,400	Steady

LOWER MERION HIGH SCHOOL PARTICIPATION - BOYS

SPORT	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	TREND
Baseball	46	43	42	45	43	41	Down 10.9%
Cross Country	49	59	40	40	45	50	Up 2%
Football	57	54	52	36	43	69	Up 21%
Lacrosse	53	63	54	42	48	43	Down 18.9%
Soccer	55	53	48	51	53	59	Up 7.3%
Tennis	31	33	35	28	27	28	Down 9.6%
Track & Field	38	33	42	42	44	83	Up 118%*
Ultimate	N/A	N/A	N/A	N/A	45	56	Up 24%

Largest Student Increases: Track & Field - 39 (2016) / Football - 26 (2015) / Ultimate - 11 (2016)
Largest Student Decreases: Cross Country - 19 (2012) / Football - 16 (2013) / Lacrosse - 12 (2014)

*Dramatic increase in participation numbers for 2016 Track & Field are primarily due to a maximum effort by the coach to increase participation.



Girls' Sports – Table 2

National (2010 to 2015)

- Lacrosse is by far the largest growing sport, steadily growing and increasing by 13.2%.
- Cross country is the next largest growing sport with an increase of 8.3%, with soccer coming in at an increase of 3.9%.
- Largest drop is softball at 2.5%, with field hockey dropping at 2.3%.

Statewide (2010 to 2015)

- As with national numbers, lacrosse is by far the fastest growing with an increase of 23.2%.
- All other sports are either holding steady or dropping. The drops are field hockey at 5%, tennis at 4.7% and softball at 1.5%.

Lower Merion High School (2010 to 2016)

- The largest growth is track and field at 33.9% (21 students), softball is second with a 32% (10 student increase).
- Most all other sports have either held steady or grown in participation, with the exceptions being lacrosse dropping 36.4% (16 students), and field hockey dropping 24.4% (6 students).
- Interesting to note that Track and Field has the three largest increases between seasons and the most significant decrease of 38 students, which is more than double the next highest amount.

Summary

- A noteworthy observation is that the number of girl's sports growing at the school is at a higher percentage than both the state and national levels (Local: 50% / State:14% / National: 43%).
- Cross country's and track's growth are likely attributed to the same factors as the boys, where students are participating to maintain conditioning for their primary sport.
- Softball's growth is contrary to both the local and national trends.

TABLE 2

NATIONWIDE PARTICIPATION - GIRLS

SPORT	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	TREND
Cross Country	204,563	212,262	214,369	218,121	221,616	Up 8.3%
Field Hockey	61,996	60,607	61,883	61,471	60,549	Down 2.3%
Lacrosse	74,927	74,993	77,258	81,969	84,785	Up 13.2%
Soccer	361,556	370,975	371,532	374,564	375,681	Up 3.9%
Softball	373,535	367,023	362,488	364,297	364,103	Down 2.5%
Tennis	182,074	180,870	181,116	184,080	182,876	Steady
Track & Field	475,265	468,474	472,939	478,885	478,726	Steady

STATEWIDE PARTICIPATION - GIRLS

SPORT	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	TREND
Cross Country	11,380	11,220	11,200	11,200	11,400	Steady
Field Hockey	10,325	10,185	9,975	9,940	9,800	Down 5%
Lacrosse	5,376	5,728	5,856	6,368	6,624	Up 23.2%
Soccer	18,795	18,935	18,935	18,760	18,865	Steady
Softball	19,860	19,710	19,440	19,170	19,560	Down 1.5%
Tennis	5,064	4,896	4,860	4,800	4,824	Down 4.7%
Track & Field	24,400	24,840	24,120	24,280	24,400	Steady

LOWER MERION HIGH SCHOOL PARTICIPATION - GIRLS

SPORT	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	TREND
Cross Country	42	32	32	40	53	48	Up 14.3%
Field Hockey	45	39	43	41	36	39	Down 24.4%
Lacrosse	44	50	39	42	44	28	Down 36.4%
Soccer	38	46	38	36	45	39	Steady
Softball	21	21	23	21	25	31	Up 32%
Tennis	36	31	31	43	32	39	Up 8%
Track & Field	62	76	95	57	76	83	Up 33.9%
Ultimate	N/A	N/A	N/A	N/A	45	43	Down 4.4%

Largest Student Increases: Track & Field - 19 (2015) / Track & Field - 19 (2013) / Track & Field - 14 (2012)
Largest Student Decreases: Track & Field - 38 (2014) / Lacrosse - 16 (2016) / Tennis - 11 (2013)

10. Site Visits to Similar Athletic Facilities

District Staff is currently planning visits to various synthetic turf and athletic field facilities. The intent is to view similar facilities and current design standards.

Master Plan

3 Development of Alternatives

◊ Alternatives, Concept Plans (“Sketches”), Cost Estimates and Phasing

Arnold Field Master Plan

Historical Perspective

This 17-acre site has been utilized for many years as the sports facility for both the high school and community. As seen in the historical aerial photos, the facilities grew over the years to accommodate the growing student population and number of field sports. The site underwent a major renovation when the high school expanded requiring construction of a temporary parking lot. Following completion of the expansion, new multi-purpose fields were constructed excluding any ball fields.

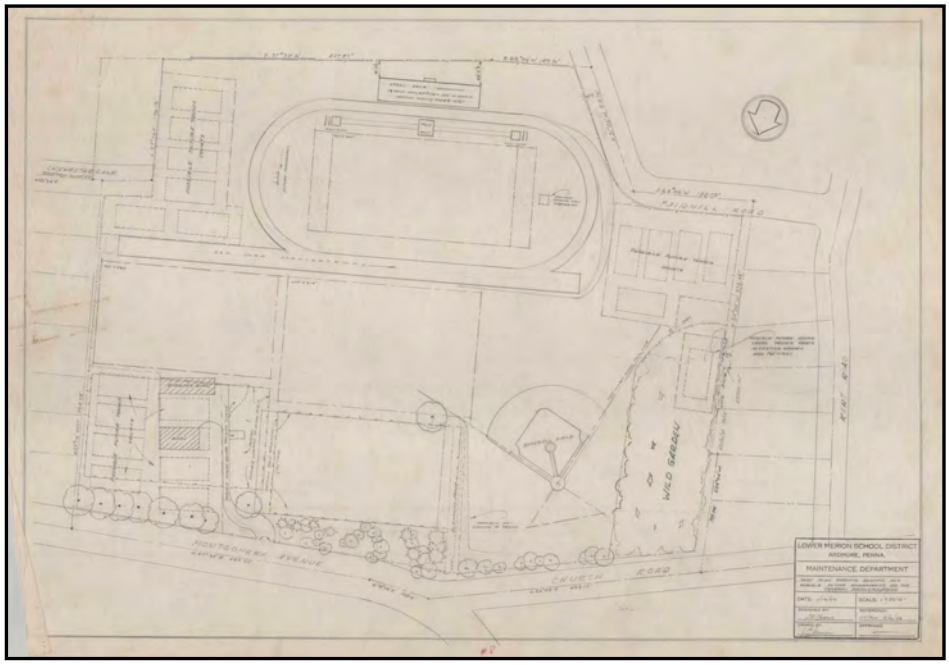
1942

1958

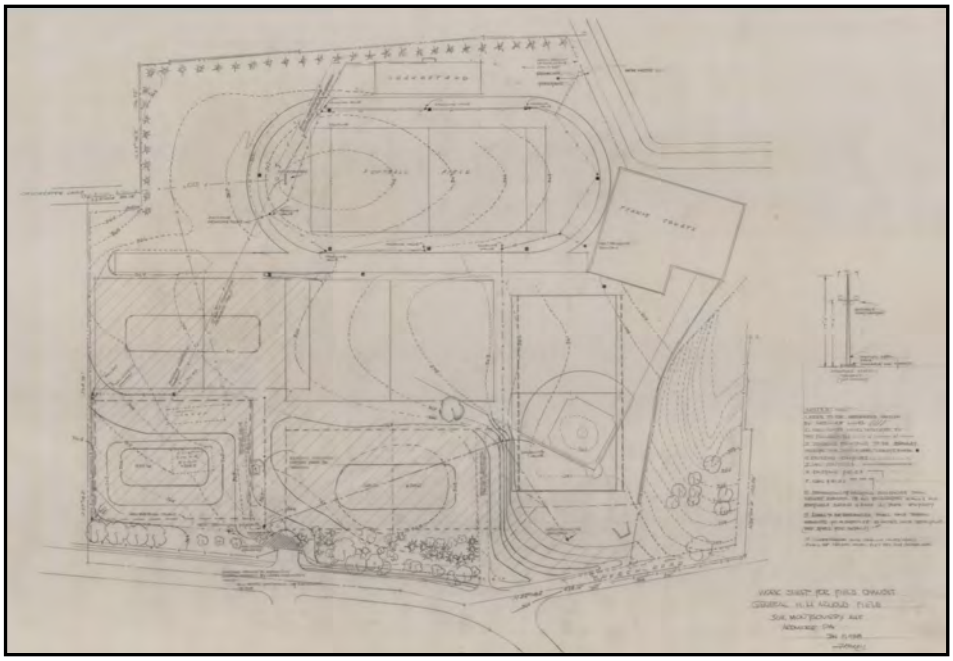
1971

2014

The District took it upon themselves to investigate possible expansion as shown in the historical documents below:



1950 Master Plan



1968 Master Plan

Site Limitations and Deficiencies

Although 17 acres in size, the site has limitations that have impacted field layout in the past and will continue to do so as the Master Plan is developed. These limitations include:

Existing Infrastructure - The stadium and tennis courts are significant infrastructures, that have been in place for many years and will be very costly to relocate. Both facilities have received improvements over time to address maintenance or needed upgrades.

Woods - Located on the west side of the lots, this area has served as a "tree bank" where the District has planted vegetation in response to municipal requirements during land development projects. It also has a historical/cultural element to it, serving as a buffer to the residential lots to the west. For those reasons, as well as the low elevation of the area, which would require significant regrading and cost to any project, it would be difficult to expand here with fields.

Effective Lot Area - The existing stadium, tennis courts and woods are located within a 17-acre parcel; however, only 8.5 acres are available for development. These existing facilities also reduce the average depth of the lot to 400', which is relatively shallow for multiple field complexes. This is evident in the relatively narrow width of LM02 and LM03.

ADA Issues - With the effective lot size, another impact to consider when developing a Master Plan is the need to incorporate ADA access to areas of the site where it currently does not exist. This includes ramps to grandstands, seating areas, sufficient reserved parking and access to the field house. Access must also be established to the fields and tennis courts.

Field Usage - Based on field usage analysis, the number of field sports offered by the high school requires an additional two multi-purpose fields. The current layout is the maximum number of fields that can be placed on the lot. In order to address the additional need, the District will need to consider utilizing synthetic turf, which as illustrated previously in this study, can handle significantly more events than natural grass.

Sports on Campus - District staff has indicated that it is their desire to consolidate as many sport programs back on campus as possible in order to focus on using District funds on District facilities and making athletic services more cost efficient by centralizing teams. The most significant sports currently off campus are baseball and softball, which both play at South Ardmore Park. Having teams back on campus reduces transportation costs, maximizes the time for practices or games, allows for trainer coverage and instills a sense of pride in the school since the teams are now truly home.

Aging Facilities - Both grandstands were built to local code requirements in place at the time of construction. If any renovations are performed, the structures will be required to meet current codes for accessibility and safety. This also applies to the existing field house located under the home grandstand.

Zoning - The tract lies within the R-3 Residential Zoning District and is subject to the zoning regulations of that District. As noted earlier in the study, there are many non-conformities that exist primarily due to yard setbacks. When looking to upgrade athletic facilities, these setbacks will likely come into play again. This is primarily due to the effective lot depth combined with dimensional requirements of the athletic fields.

Storm Water Control - When the grass fields were restored upon completion of the high school expansion, the decision was make to place storm water attenuation underground. This was likely done to maximize the playing area for the fields. Any future development will need to continue that design element to maintain the largest play area possible.

Summary

The most significant limitation is the available area for developing a Master Plan concept. That, in conjunction with the desire to bring baseball and softball back to campus while maintaining as many multi-purpose fields as possible, will require the use of overlay fields to maximize the space.

Other issues such as ADA access and the renovation of existing grandstands and buildings have limited impact on design options. If a new field house is considered, it should be located near the stadium and will have some design implications with existing track venues.

Priorities

The Master Plan shall:

1) Be designed as a top-of-the-line facility that is aesthetically pleasing, easy to maintain and sustainable.
2) Provide as many multi-purpose fields as possible to meet the needs of the sports programs.
3) Be sensitive to the surrounding neighborhood.
4) Allow for varsity baseball and varsity softball back on campus.
5) Allow access for all students, staff and spectators to all venues on the complex.
6) Have the capability of being developed in phases allowing capital investment over a period of time.

Descriptions of the Exhibits

Inventory - Sheet 1 of 2

This is an existing conditions plan that outlines the sport facilities on Arnold Field. A chart on the left side of the plan shows the year constructed/renovated, expecting remaining life, current maintenance practices, current condition and associated sports. This information is based on visual inspection, historical data and information provided by District staff.

The facilities needing the most attention include the synthetic turf field, both grandstands and the field house. The field will need replacement in one to two years. As for the structures, their renovation needs are not as pressing, but will be significant in scope when done. The work will be mostly related to bringing the facilities up to code with accessibility, bathrooms and modern lighting, and utilities.

Master Plan Concept - Sheet 2 of 2

This concept was developed based on the stated priorities of the Master Plan and shows all possible improvements. The main feature is a 234,000 SF synthetic turf field area supporting both ball field sports, as well as two overlay fields for sports such as field hockey, soccer, lacrosse and Ultimate Frisbee. LM02 is converted to a standalone synthetic turf field sized to allow for football.

Other significant features include a new field house, renovated press box, new smaller visitor grandstand, ADA parking with access to the home grandstand, renovated tennis courts and ADA access to all venues. With LM02 being converted to synthetic turf, at least two if not all three of the field throwing venues must be relocated to Butcher Field.

The reasons for the smaller visitor grandstand were to address the more reasonable spectator numbers, allow for room for the relocated track jumping venues and be more compliant with current number of parking spaces on campus.

This plan suits each of the stated priorities in the following ways:

1) Be designed as a top-of-the-line facility that is aesthetically pleasing, easy to maintain and sustainable.

   The Master Plan implements current design practices and aesthetics. During development, the plan was graded schematically yielding the need for small retaining walls. These walls will serve to properly grade the field as well as provide a visual element to enhance the appearance. A landscape area along Montgomery Avenue will allow a “front yard” view of the complex and visual tie-in to the school. A new complex sign information kiosk and related statue can be placed here to enhance visual appeal.

Synthetic turf, concrete and PVC coated fence are all easy to maintain. Renovations to the structures will involve materials that are durable and require a similar or lower level of maintenance than what currently exists.

2) Provide as many multi-purpose fields as possible to meet the needs of the sports programs.

   The area of the new synthetic turf complex and the conversion of LM02 provides three turf fields allows for two multi-purpose fields. Additional turf area lies around the fields providing additional space for practice as needed.

3) Be sensitive to the surrounding neighborhood.

   The most significant Improvements are focused on the central part of the available acreage away from the neighbors. Visually, the new facility has more impact on the high school across Montgomery Avenue. Renovations to existing facilities will have limited to no visual impact on the surrounding neighborhoods as long as existing buffers and vegetation are maintained.

4) Allow for varsity baseball and varsity softball back on campus.
   Both baseball and softball fields are provided. Dugouts/Shelters are shown for both fields as are bull pens and batting tunnels. Backstops will be a pole/net system that can be taken down off-season, lessening the visual impact on surrounding area. A portable mound is to be used for baseball so that it can be removed, opening up the field to use by other field sports.

5) Allow access for all students, staff and spectators to all venues on the complex.

   This concept provides access to all venues through expansion of the path system, inclusion of ADA parking on the complex, and ramp access to both grandstands.

6) Have the capability of being developed in phases allowing capital investment over a period of time.

   The concept can be easily broken into phases to accommodate capital budget needs. Renovations to existing facilities are independent of the new synthetic fields. Those renovations will likely have little to no storm water impact making them easier to be reviewed and permitted by the Township.

The synthetic turf complex can be developed in one phase or with minor medications into two phases. One phase is the most probable due to the need to get the fields back into operation as quickly as possible, since alternative sites are limited. Storm water mitigation will be required, and the concept is to expand off of the existing underground stormwater storage system. When the fields were being designed, grading was aptly considered to make sure that the system can be used.

Unlike the renovations, the synthetic turf complex will require zoning approvals through the Special Exception and Variance process (§155-130 and §155-138) of the Zoning Ordinance. These are primarily due to the aforementioned yard setback issue in relationship to the dimensional needs of the sports fields.

To illustrate the possible phased approach to developing the Master Plan, the cost estimate has been prepared focusing on individual improvements. Costs for each are shown, which can be used individually or jointly when planning implementation in the future.

LOWER MERION SCHOOL DISTRICT
ATHLETIC FIELDS/FACILITIES MASTER PLAN STUDY
SCHEMATIC DESIGN OPINION OF PROBABLE COST

INDIVIDUAL POTENTIAL PROJECT COST SUMMARY

A Stadium Field (LM01) Synthetic Turf Carpet Replacement

A.1	Preconstruction and Preparation	$	13,000.00
A.2	Synthetic Turf Carpet System and Markings	$	494,070.00
	Subtotal Improvement Cost:	**$**	**507,070.00**
	Bonds:	$	7,606.05
	Soft Costs and Construction Contingency:	$	39,887.39
	Total Estimated Project Cost:	**$**	**554,563.44**

B Tennis Court Renovations

B.1	Project Management and Demolition	$	66,880.00
B.2	Tennis Court Renovations	$	241,700.00
	Subtotal Improvement Cost:	**$**	**308,580.00**
	Bonds:	$	4,860.14
	Design and Scope Contingency:	$	15,429.00
	Soft Costs and Construction Contingency:	$	55,907.75
	Total Estimated Project Cost:	**$**	**384,776.89**

C Team Shelters for Baseball and Softball Fields (South Ardmore Park)

C.1	Project Management and Preparation	$	6,880.00
C.2	Team Shelter Construction (30' Long X 10' Wide)	$	75,760.00
	Subtotal Improvement Cost:	**$**	**82,640.00**
	Bonds:	$	1,301.58
	Design and Scope Contingency:	$	4,132.00
	Soft Costs and Construction Contingency:	$	9,027.54
	Total Estimated Project Cost:	**$**	**97,101.12**

D Grandstand Renovations, New Grandstands, and ADA Parking

D.1	Home Grandstand Renovations	$	276,100.00
D.2	New Visitor Grandstands	$	188,200.00
D.3	ADA Parking Area Construction	$	76,960.00
	Subtotal Improvement Cost:	**$**	**541,260.00**
	Bonds:	$	8,524.85
	Design and Scope Contingency:	$	27,063.00
	Soft Costs and Construction Contingency:	$	85,085.06
	Total Estimated Project Cost:	**$**	**661,932.90**

E New Field House/Renovate Existing Restrooms and Storage Building

E.1	New Field House Construction (incl stormwater and site const cost)	$	896,000.00
E.2	Existing Restrooms and Storage Building Renovation	$	120,400.00
E.3	Misc. Site Improvements for New Track & Field Venues and Site	$	221,400.00
	Subtotal Improvement Cost:	**$**	**1,237,800.00**
	Bonds:	$	19,495.35
	Design and Scope Contingency:	$	61,890.00
	Soft Costs and Construction Contingency:	$	207,771.69
	Total Estimated Project Cost:	**$**	**1,526,957.04**

F New Synthetic Turf Athletic Field (LM02)

F.1	Mobilization, Project Management, Site Preparation	$	59,200.00
F.2	Earthwork	$	114,760.00
F.3	Stormwater Management System	$	203,960.00
F.4	Storm Drainage/Storm Sewer System	$	35,700.00
F.5	Synthetic Turf Field Base Construction	$	195,500.00
F.6	Synthetic Turf System (+/-210' X 385' Turf Limits)	$	349,500.00
F.7	Paving, Fencing, and Site Improvements	$	194,740.00
	Subtotal Improvement Cost:	**$**	**1,153,360.00**
	Bonds:	$	18,165.42
	Design and Scope Contingency:	$	57,668.00
	Soft Costs and Construction Contingency:	$	162,868.13
	Total Estimated Project Cost:	**$**	**1,392,061.55**

G Multiuse Synthetic Turf Complex (LM03 - LM06)

G.1	Mobilization, Project Management, Site Preparation	$	105,800.00
G.2	Earthwork	$	411,000.00
G.3	Stormwater Management System	$	438,020.00
G.4	Storm Drainage/Storm Sewer System	$	84,200.00
G.5	Synthetic Turf Field Base Construction	$	517,530.00
G.6	Synthetic Turf System	$	1,060,400.00
G.7	Paving, Fencing, and Site Improvements	$	959,480.00
	Subtotal Improvement Cost:	**$**	**3,576,430.00**
	Bonds:	$	56,328.77
	Design and Scope Contingency:	$	178,821.50
	Soft Costs and Construction Contingency:	$	400,215.93
	Total Estimated Project Cost:	**$**	**4,211,796.20**

Total Cost of All Projects

Subtotal of All Improvement Costs:	$	7,407,140.00
Bonds:	$	116,282.15
Design and Scope Contingency:	$	345,003.50
Soft Costs and Construction Contingency:	$	960,763.50
Total Estimated Cost of All Projects:	**$**	**8,829,189.15**

LOWER MERION SCHOOL DISTRICT
ATHLETIC FIELDS/FACILITIES MASTER PLAN STUDY

INVENTORY OF EXISTING FACILITIES

The following information is an inventory of existing facilities of Arnold Field. It is written in a manor, which to easily compare conditions of one facility to another when determining renovation priorities.

EXISTING TRACK JUMPING AND THROWING VENUES

Constructed:	1990
Resurfaced/Repaired:	2013
Expected Remaining Life:	Running surface: 20 years until synthetic surface repair Throwing venues: > 25 years
Current Maintenance:	Debris removal; patch repair when warranted; import pit sand when warranted
Current Condition:	Excellent
Sports:	Track And Field

EXISTING SYNTHETIC SURFACED TRACK

Constructed:	<1942 (cinder track)
Renovated:	1990 (converted to paved w/synthetic surface)
Resurfaced/Repaired:	2013
Expected Remaining Life:	20 years until complete synthetic surface replacement. 10 years for surface recoat.
Current Maintenance:	Debris removal; patch repair when warranted
Current Condition:	Excellent
Sports:	Track; cross country and team training

EXISTING GRANDSTAND ATHLETIC AND STORAGE FACILITY

Constructed:	1950
Renovated:	1968
Resurfaced/Repaired:	2013
Expected Remaining Life:	>25 Years with Current Maintenance Continued
Current Maintenance:	Common Structural Repairs (Painting, Sealing, HVAC, Plumbing, Electrical, Etc.)
Current Condition:	Grandstand – fair to satisfactory. Need to be repainted in areas; seats must be tightened; press box is significantly undersized and in fair condition Building – fair to satisfactory
Code Issues:	Grandstand – no ADA access; no mid aisle handrails on vertical aisle; guardrail system inadequate Building – inadequate bathroom facilities; bathrooms do not comply with current ADA access; no ADA parking outside building

EXISTING SYNTHETIC TURF STADIUM FIELD – LM01

Constructed:	<1942 (grass)
Renovated:	2006 (converted to synthetic turf)
Expected Remaining Life:	1 to 2 years (turf normally has a 10 to 12 year life when properly maintained)
Current Maintenance:	Grooming; repairs (as needed); infill replacement (as needed); and g-max testing
Current Condition:	Fair (surface worn and at the end of normal life)
Sports:	Football; soccer (boys and girls); lacrosse (boys and girls) and field hockey

EXISTING TENNIS COURTS

Constructed:	<1942 (unknown material)
Renovated:	1991 paved courts repaired with stone dust overlay, paving and synthetic surfacing
Expected Remaining Life:	5 years maximum (based on condition)
Current Maintenance:	Surface cleaning; crack sealing and patching; fence repair
Current Condition:	Fair (cracks and depressions appearing on court – fence being repaired)
Sports:	Tennis

EXISTING NATURAL TURF FIELD – NO. LM02

Constructed:	Unknown
Renovated:	Irrigation installed in 2012
Expected Remaining life:	>25 years until current maintenance practices
Current Maintenance:	Following done annually: mowing; debris removal; field lining; soil testing; soil amendments; selective and non-selective weed control; deep slice aeration; over seeding; top dressing and insect/pest damage repairs; irrigation.
Current Condition:	Excellent
Sports:	Soccer (boys); lacrosse (boys)

EXISTING NATURAL TURF FIELD – LM03

Constructed:	2012
Renovated:	N/A
Expected Remaining Life:	>25 years until current maintenance practices
Current Maintenance:	Following done annually: mowing; debris removal; field lining; soil testing; soil amendments; selective and non-selective weed control; deep slice aeration; over seeding; top dressing and insect/pest damage repairs; irrigation.
Current Condition:	Excellent
Sports:	Football and ultimate

EXISTING NATURAL TURF FIELD – LM04

Constructed:	2012
Renovated:	N/A
Expected Remaining Life:	>25 years until current maintenance practices
Current Maintenance:	Following done annually: mowing; debris removal; field lining; soil testing; soil amendments; selective and non-selective weed control; deep slice aeration; over seeding; top dressing and insect/pest damage repairs; irrigation.
Current Condition:	Excellent
Sports:	Field hockey

EXISTING NATURAL TURF FIELD – LM05

Constructed:	2012
Renovated:	N/A
Expected Remaining Life:	>25 years until current maintenance practices
Current Maintenance:	Following done annually: mowing; debris removal; field lining; soil testing; soil amendments; selective and non-selective weed control; deep slice aeration; over seeding; top dressing and insect/pest damage repairs; irrigation.
Current Condition:	Excellent
Sports:	Soccer (girls); lacrosse (girls); ultimate

EXISTING ATHLETIC FIELD/FACILITY INVENTORY

EXISTING JUMPING, AND THROWING VENUES (TRACK AND FIELD)

CONSTRUCTED:	1990
RESURFACED/REPAIRED:	2013
EXPECTED REMAINING LIFE:	RUNWAY SURFACES: 20 YEARS UNTIL SYNTHETIC SURFACE REPAIR THROWING VENUES: >25 YEARS
CURRENT MAINTENANCE:	DEBRIS REMOVAL; PATCH REPAIR WHEN WARRANTED; IMPORT PIT SAND WHEN WARRANTED
CURRENT CONDITION:	EXCELLENT
SPORTS:	TRACK AND FIELD

EXISTING SYNTHETIC SURFACED RUNNING TRACK

CONSTRUCTED:	<1942 (CINDER TRACK)
RENOVATED:	1990 (CONVERTED TO PAVED W/ SYNTHETIC SURFACE)
RESURFACED/REPAIRED:	2013
EXPECTED REMAINING LIFE:	20 YEARS UNTIL COMPLETE SYNTHETIC SURFACE REPLACEMENT 10 YEARS UNTIL SURFACE RE-COAT
CURRENT MAINTENANCE:	DEBRIS REMOVAL; PATCH REPAIR WHEN WARRANTED
CURRENT CONDITION:	EXCELLENT
SPORTS:	TRACK AND FIELD; CROSS COUNTRY; TEAM TRAINING

EXISTING GRANDSTAND AND ATHLETIC STORAGE FACILITY

CONSTRUCTED:	1950
RENOVATED:	1968
RESURFACED/REPAIRED:	2013
EXPECTED REMAINING LIFE:	>25 YEARS WITH CURRENT MAINTENANCE CONTINUED
CURRENT MAINTENANCE:	GRANDSTAND: FAIR TO SATISFACTORY; NEEDS TO BE REPAINTED IN AREAS; SEATS MUST BE TIGHTENED; PRESS BOX IS SIGNIFICANTLY UNDERSIZED AND IN FAIR CONDITION. BUILDING: FAIR TO SATISFACTORY
CODE ISSUES:	GRANDSTAND: NO ADA ACCESS; NO MID AISLE HANDRAILS ON VERTICAL AISLE; GUARDRAIL SYSTEM INADEQUATE BUILDING: INADEQUATE RESTROOM FACILITIES; RESTROOMS DO NOT COMPLY WITH CURRENT ADA ACCESS; NO ADA PARKING OUTSIDE BUILDING

EXISTING SYNTHETIC TURF STADIUM FIELD - NO. LM01

CONSTRUCTED:	<1942 (GRASS)
RENOVATED:	2006 (CONVERTED TO SYNTHETIC TURF)
EXPECTED REMAINING LIFE:	1 TO 2 YEARS (SYNTHETIC TURF NORMALLY HAS A 10-12 YEAR LIFE WHEN PROPERLY MAINTAINED)
CURRENT MAINTENANCE:	GROOMING; REPAIRS (AS NEEDED); INFILL REPLACEMENT (AS NEEDED); AND G-MAX TESTING
CURRENT CONDITION:	FAIR (SURFACE WORN AND AT THE END OF NORMAL LIFE)
SPORTS:	FOOTBALL; SOCCER (BOYS & GIRLS); LACROSSE (BOYS & GIRLS); AND FIELD HOCKEY

EXISTING TENNIS COURTS

CONSTRUCTED:	<1942 (UNKNOWN MATERIAL)
RENOVATED:	1991 PAVED COURTS REPAIRED WITH I STONE DUST OVERLAY, PAVING, AND SYNTHETIC SURFACING.
EXPECTED REMAINING LIFE:	5 YEARS MAXIMUM (BASED ON CONDITION)
CURRENT MAINTENANCE:	SURFACE CLEANING; CRACK SEALING AND PATCHING; FENCE REPAIR
CURRENT CONDITION:	FAIR (CRACKS AND DEPRESSIONS APPEARING ON COURT - FENCE BEING REPAIRED)
SPORTS:	TENNIS

EXISTING NATURAL TURF FIELD - NO. LM02

CONSTRUCTED:	———
RENOVATED:	IRRIGATION INSTALLED IN 2012
EXPECTED REMAINING LIFE:	>25 YEARS WITH CURRENT MAINTENANCE CONTINUED
CURRENT MAINTENANCE:	ANNUAL/REGULAR MAINTENANCE: MOWING; DEBRIS REMOVAL; FIELD LINING; SOIL TESTING; SOIL AMENDMENTS; SELECTIVE AND NON-SELECTIVE WEED CONTROL; DEEP SLICE AERATION; OVER-SEEDING; TOP-DRESSING; INSECT/PEST DAMAGE REPAIRS; IRRIGATION
CURRENT CONDITION:	EXCELLENT
SPORTS:	SOCCER (BOYS); LACROSSE (BOYS)

EXISTING NATURAL TURF FIELD - NO. LM03

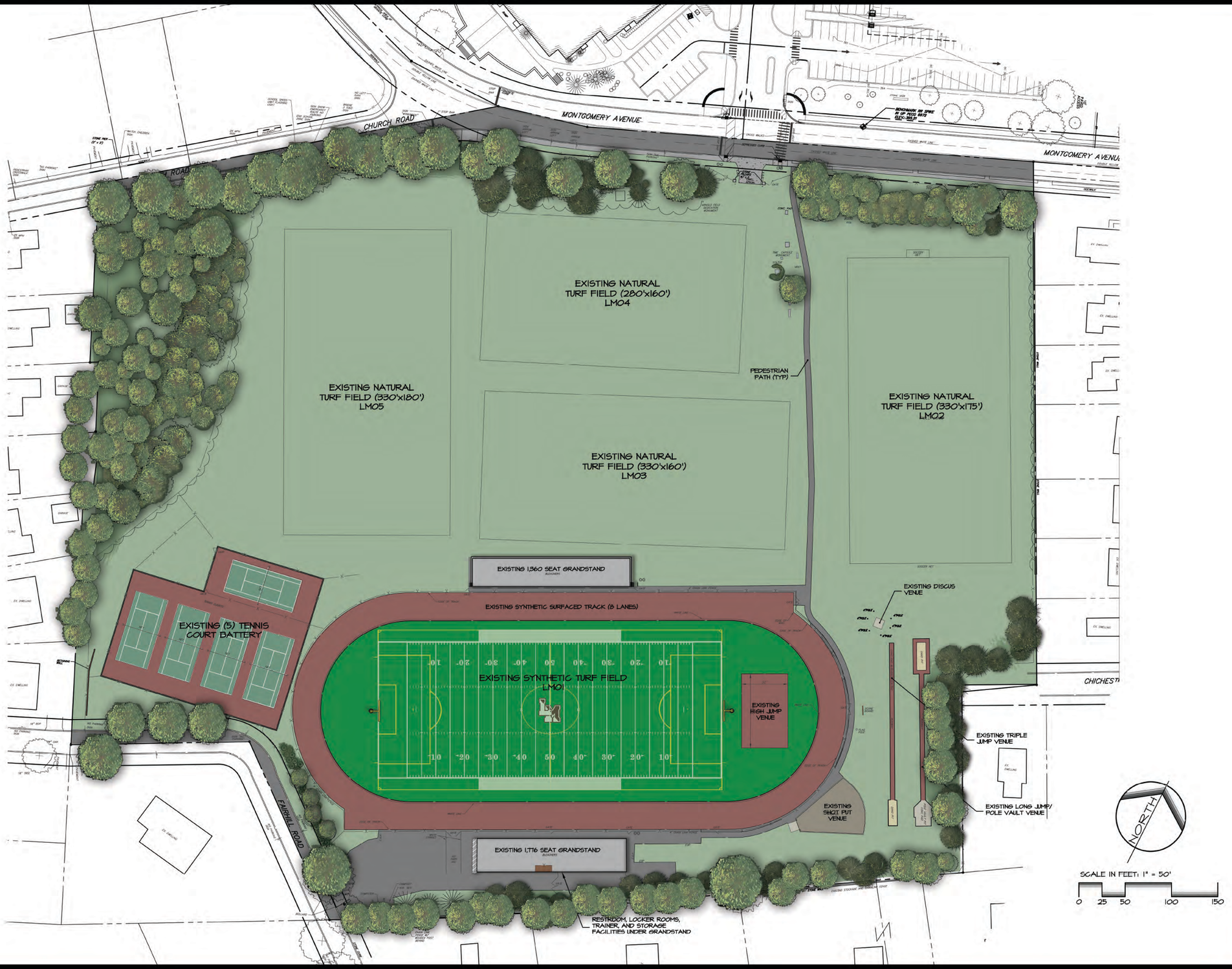
CONSTRUCTED:	2012
RENOVATED:	N/A
EXPECTED REMAINING LIFE:	>25 YEARS WITH CURRENT MAINTENANCE CONTINUED
CURRENT MAINTENANCE:	ANNUAL/REGULAR MAINTENANCE: MOWING; DEBRIS REMOVAL; FIELD LINING; SOIL TESTING; SOIL AMENDMENTS; SELECTIVE AND NON-SELECTIVE WEED CONTROL; DEEP SLICE AERATION; OVER-SEEDING; TOP-DRESSING; INSECT/PEST DAMAGE REPAIRS; IRRIGATION
CURRENT CONDITION:	EXCELLENT
SPORTS:	FOOTBALL AND ULTIMATE FRISBEE

EXISTING NATURAL TURF FIELD - NO. LM04

CONSTRUCTED:	2012
RENOVATED:	N/A
EXPECTED REMAINING LIFE:	>25 YEARS WITH CURRENT MAINTENANCE CONTINUED
CURRENT MAINTENANCE:	ANNUAL/REGULAR MAINTENANCE: MOWING; DEBRIS REMOVAL; FIELD LINING; SOIL TESTING; SOIL AMENDMENTS; SELECTIVE AND NON-SELECTIVE WEED CONTROL; DEEP SLICE AERATION; OVER-SEEDING; TOP-DRESSING; INSECT/PEST DAMAGE REPAIRS; IRRIGATION
CURRENT CONDITION:	EXCELLENT
SPORTS:	FIELD HOCKEY

EXISTING NATURAL TURF FIELD - NO. LM05

CONSTRUCTED:	2012
RENOVATED:	N/A
EXPECTED REMAINING LIFE:	>25 YEARS WITH CURRENT MAINTENANCE CONTINUED
CURRENT MAINTENANCE:	ANNUAL/REGULAR MAINTENANCE: MOWING; DEBRIS REMOVAL; FIELD LINING; SOIL TESTING; SOIL AMENDMENTS; SELECTIVE AND NON-SELECTIVE WEED CONTROL; DEEP SLICE AERATION; OVER-SEEDING; TOP-DRESSING; INSECT/PEST DAMAGE REPAIRS; IRRIGATION
CURRENT CONDITION:	EXCELLENT
SPORTS:	SOCCER (GIRLS); LACROSSE (GIRLS); ULTIMATE FRISBEE



DRAWING: W:\ela sport\AZ\60 Lower Merion SD\az60-003 - LMHS Master Plan\Feasibility Study\TBLK.dwg - PLOTTED: Apr 12, 2016 1:46 pm

ELA SPORT
ATHLETIC FACILITIES DESIGN AND CONSULTING

ATHLETIC FIELDS / FACILITIES - INVENTORY PLAN

LOWER MERION HIGH SCHOOL - ARNOLD FIELD

LANDSCAPE AREA WITH SIGNAGE TO BUFFER FIELD

MAINTAIN ENTRANCE FOR MAINTENANCE & EMERGENCY ACCESS

CHURCH ROAD

MONTGOMERY AVENUE

6' HIGH BLACK PVC CHAIN LINK PERIMETER FENCE

RETAINING / MEMORIAL WALL AT ENTRANCE

20' BACKSTOP POLE & NETTING

MONTGOMERY AVENUE

BALL STOPPER NETTING

BLEACHER AREA

DUGOUT (TYP OF 2)

SIGNAGE/KIOSK

PEDESTRIAN PATH (TYP)

BATTING CAGE

BULL PEN (TYP OF 2)

PROPOSED SYNTHETIC TURF BASEBALL FIELD (300'-350'-300' OUTFIELD) LM06

PROPOSED SYNTHETIC TURF FIELD OVERLAY MULTIPURPOSE (360'x195') LM04

PROPOSED SYNTHETIC TURF SOFTBALL FIELD (200' OUTFIELD) LM05

SOFTBALL BULLPENS

PROPOSED SYNTHETIC TURF FIELD (330'x180') LM02

DUGOUT (TYP OF 2)

KENT ROAD

PROPOSED SYNTHETIC TURF OVERLAY MULTIPURPOSE FIELD (330'x195') LM03

BLEACHER PAD

BALL STOPPER NETTING

30' BACKSTOP POLE & NETTING

ADA PATHWAY

CONCRETE BLEACHER PAD

NEW 500 SEAT GRANDSTAND (WITH ADA ACCESS)

NEW LONG/TRIPLE JUMP

ADA PATHWAY

EXISTING SYNTHETIC SURFACED TRACK (8 LANES)

EXISTING (5) TENNIS COURT BATTERY (TO BE RENOVATED)

EXISTING SYNTHETIC TURF FIELD (195' x 360') LM01 (TO BE RESURFACED)

NEW 4,500 SF FIELD HOUSE

EXISTING HIGH JUMP VENUE

CHICHESTER LANE

FAIRHILL ROAD

RETAINING WALL

EXISTING 1,716 SEAT GRANDSTAND (TO RECEIVE ADA ACCESS)

EXISTING SHOT PUT VENUE

EXISTING LONG JUMP/ POLE VAULT VENUE

EXISTING TRACK FIELD VENUES TO REMAIN

A PARKING LOT - 15 SPACES

RENOVATED RESTROOM, LOCKER ROOMS, TRAINER, AND STORAGE FACILITIES UNDER GRANDSTAND

NEW PRESSBOX

OMEN ROAD

NORTH

SCALE IN FEET: 1" = 50'

0 25 50 100 150

ELA SPORT

ATHLETIC FACILITIES DESIGN AND CONSULTING

Athletic Fields / Facilities - Master Plan Concept

Lower Merion High School - Arnold Field

Master Plan

4 Appendix

- Appendix A - Fieldhouse and Press Box Evaluation
- Appendix B - Grandstand Evaluation
- Appendix C - Coach Feasibility Study Questionnaire
- Appendix D - Zoning Data
- Appendix E - Athletic Field Maintenance Program Review

ARNOLD FIELD HOUSE EVALUATION

LOWER MERION SCHOOL DISTRICT

prepared by SCHRADERGROUP architecture

ARNOLD FIELD HOUSE EVALUATION

Along with ELA Group and ELA Sport, SCHRADERGROUP architecture (SGA) was instrumental in the master planning and evaluation of the existing field house building below the bleachers. SGA had the opportunity visit the site, visually evaluate the existing conditions, and gain insight to develop an initial program and options for future program needs, and for meeting life safety, current ADA requirements, and codes and industry standards for state-of-the-art athletic facilities for the Lower Merion School District.

Having completed several projects of this magnitude, it is in our professional opinion - based on the conditions of the existing facility, current codes, regulations, ADA accessibility requirements and comparable programs - that the District should consider the following in their planning for the future of their athletic facility needs and 21st Century safe field of play for the next 50 years.

A driving force behind the sizing of a fieldhouse building lies in the anticipated spectator seating and quantity of public facility fixtures and spaces required by code. For the purpose of the evaluation we assume the seating capacity of 2,000 spectators. A practical perspective would consider the allowable parking capacity to be used to evaluate the fixture count. 1 parking space/5 seats = 600 spaces. The north side of the LMHS site has 460 spaces. Therefore 460 spaces x 5 spectators = 2,300 spectators. From a realistic planning perspective we propose to size the toilet facilities based on 2,000 spectators.

The following IBC table and code sections have been utilized to calculate the minimum number of fixtures required for a renovated or new facility based on the seating capacity.

FIXTURES, FAUCETS AND FIXTURE FITTINGS

TABLE 403.1 —continued
MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES[a]
(See Sections 403.2 and 403.3)

NO.	CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS (URINALS SEE SECTION 419.2)		LAVATORIES		BATHTUBS/ SHOWERS	DRINKING FOUNTAIN[e] (SEE SECTION 410.1)	OTHER
				MALE	FEMALE	MALE	FEMALE			
1 (cont.)	Assembly	A-4	Coliseums, arenas, skating rinks, pools and tennis courts for indoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520 and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink
		A-5	Stadiums, amusement parks, bleachers and grandstands for outdoor sporting events and activities	1 per 75 for the first 1,500 and 1 per 120 for the remainder exceeding 1,500	1 per 40 for the first 1,520and 1 per 60 for the remainder exceeding 1,520	1 per 200	1 per 150	—	1 per 1,000	1 service sink

1109.2.1 Family or assisted-use toilet and bathing rooms. In assembly and mercantile occupancies, an *accessible* family or assisted-use toilet room shall be provided where an aggregate of six or more male and female water closets is required. In buildings of mixed occupancy, only those water closets required for the assembly or mercantile occupancy shall be used to determine the family or assisted-use toilet room requirement. In recreational facilities where separate-sex bathing rooms are provided, an *accessible* family or assisted-use bathing room shall be provided. Fixtures located within family or assisted-use toilet and bathing rooms shall be included in determining the number of fixtures provided in an occupancy.

Exception: Where each separate-sex bathing room has only one shower or bathtub fixture, a family or assisted-use bathing room is not required.

Minimum Public Toilet Requirements

Based on Table 403.1
Based on 2000 seats – 1000 male & 1000 female
M toilets 1000/75 = 14 fixtures
F toilets 1000/40 = 25 fixtures
M Lav 1000/200 = 5 fixtures
F Lav 1000/150 = 7 fixtures
Min. 1 Family Toilet Room
2 drinking fountains (1 ADA)
1 wash sink

In addition, several “out” buildings or program needs should be included such as: a concession stand, ticket booth, accessible restrooms, adequately sized team rooms, team room toilets, storage, coaches rooms, officials rooms and accessible paths of travel around the facilities for both home and visitor athletes and spectators.

As part of this process SGA developed a typical program we find meets the needs of an athletic facility of this size. The program is further delineated below and will be used to generate conceptual budget numbers for the District to consider. This program would be refined once all District stakeholders are engaged in the actual planning and development stage of an approved project. SCHRADERGROUP architecture's initial approach is to develop a building program and strategy to properly size a facility based on the desired program elements that would be part of the athletic field complex. In doing so, we have outlined a program and square footage to include:

- Concession
- Ticket
- Men's Public Toilet
- Women's Public Toilet
- Family Toilet
- Home Team room – 35 players
- Away team room – 20 players
- Official's Room
- Janitor Room
- Mechanical/Electrical
- Storage
- Maintenance Storage

TOTAL PROJECT PROGRAM SUMMARY

Date: 3/25/2016

Lower Merion School District - High School Athletic Field

SECTION	Description	Unit Type	Area/ Unit	Proposed Units	NSF	Grossing Factor		GSF	Total
1.1.1.0	**Field House**			10	3929	10	%	393	4322
1.1.2.0	**Ticket**			3	150	10	%	15	165
			Subtotal	13	4079	10	%	408	4487 s.f.
					4079 n.s.f				4,487 g.s.f.
1.0.0 FIELD COMPLEX BUILDINGS									
1.0 FIELD COMPLEX BUILDINGS									
1.1.1.0	**Field House**								
1.1.1.2	Concession		350	1	350	10	%	35	385
1.1.1.4	Men's Public Toilet		534	1	534	10	%	53	587
1.1.1.5	Women's Public Toilet		570	1	570	10	%	57	627
1.1.1.6	Family Toilet		110	1	110	10	%	11	121
1.1.1.7	Home Team room & Lockers - 35		750	1	750	10	%	75	825
1.1.1.8	Away Team room - 20		550	1	550	10	%	55	605
1.1.1.9	Official's Room		115	1	115	10	%	12	127
1.1.1.10	Janitor Room		50	1	50	10	%	5	55
1.1.1.11	Mechanical/Electrical		250	1	250	10	%	25	275
1.1.1.12	Storage		650	1	650	10	%	65	715
			Subtotal	**10**	**3929**	**10**	**%**	**393**	**4322**
1.1.2.0	**Ticket Booths**								
1.1.1.14	Tickets		50	3	150	10	%	15	165
			Subtotal	**3**	**150**	**10**	**%**	**15**	**165**
	TOTAL FIELD COMPLEX BUILDING SPACES			**13**	**4079**	**10**	**%**	**408**	**4487**

It is SCHRADERGROUP architecture's opinion that there are two options for future consideration when evaluating the fieldhouse building that support the Arnold Stadium Athletic Fields:

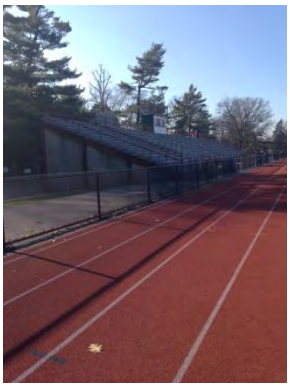
OPTION 1: Renovate the existing fieldhouse buildling below the bleachers within the ground floor footprint to meet current codes, standards and program needs. Storage needs would have to be considered if the existing fieldhouse building foot print was fully utilized for the athletic program.

The existing fieldhouse building is a sound structure located below the bleachers, consisting of approximately 5,000 sq. ft., of which approximately 1,600 sq. ft. utilizes space for team rooms and public restrooms; the remainder of the ground floor space is utilized for athletic equipment storage and other district storage. There is an existing mezzanine level above the ground level utilized for storage of approx. 3,200 sq. ft. The existing toilets located in the field house building are functional: in good condition but do not fully meet current ADA standards, quantities, clearances and maneuverability requirements. The existing waterless urinals in the Men's Restroom appear to be new and could be reutilized in any future project.

Partial aerial view of Stadium Complex

Based on the "test program" developed, the existing ground floor footprint can be renovated to accommodate the space needed for both team functions and public facilities. This option does not allow for the facility to be centrally located on the site.

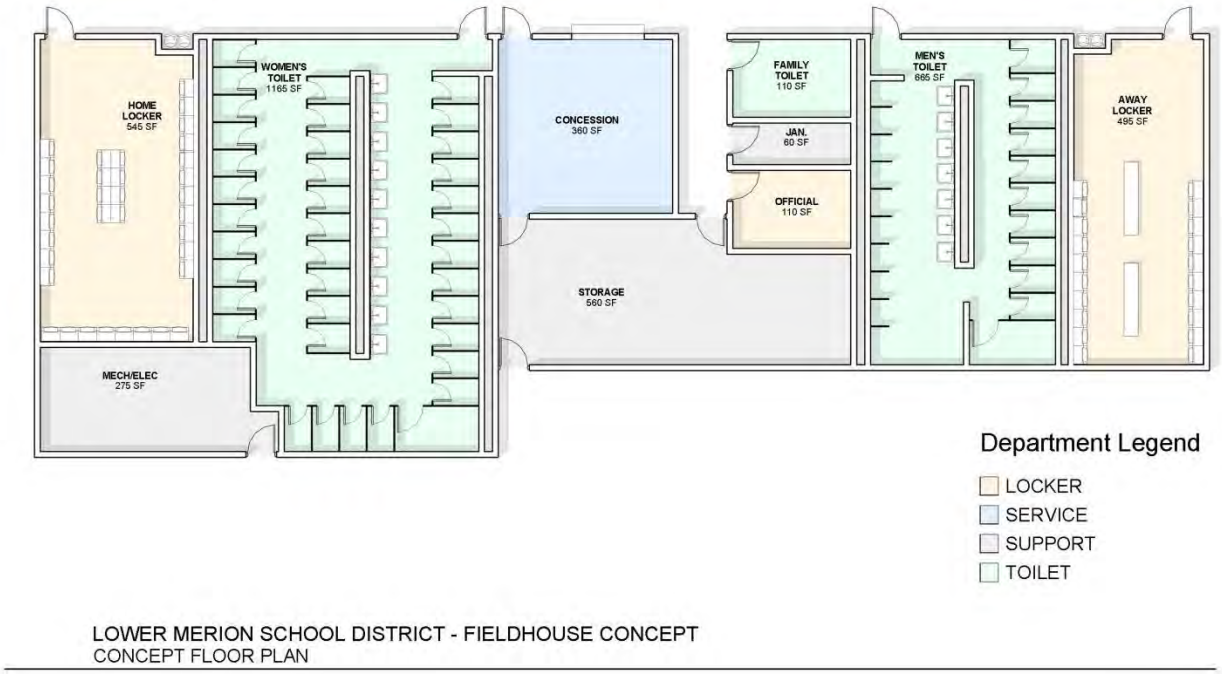
Consider reuse of existing waterless urinals in any future project.



Accessible slope along existing bleachers exceeds 1:12 slope.

Existing fixture count is below the required based on the seating capacity.

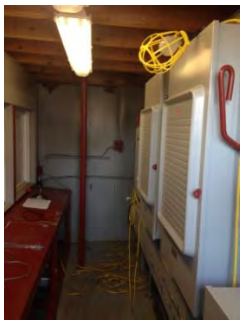
OPTION 2: Construct a new approx. 4,500 sq. ft. state-of-the-art fieldhouse building/team room/concession structure centrally located on the stadium field perimeter. The existing fieldhouse building would remain and be utilized for athletic and district storage in its entirety. Centrally locating a new fieldhouse at field level will allow the District improved accessibility and access as well as flexibility for the entire complex and all the fields, not just the stadium field. This will support the entire complex. The concept plan begins to identify possibilities for consideration only and identifies a program to support a complex of this magnitude.



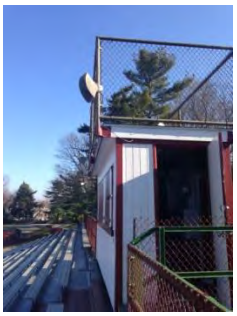
LOWER MERION SCHOOL DISTRICT - FIELDHOUSE CONCEPT
CONCEPT FLOOR PLAN

PRESSBOX (as part of both options)

In evaluating the existing pressbox, several factors surface for consideration. The building appears structurally sound and in fair working condition; however, it appears to be original to the stadium and far below current standards for stadium fields. The existing pressbox is approx. 80 sq. ft. in comparison to a typical pressbox sized at 500 sq. ft. or larger to accommodate several people including announcers, statisticians, press and home team and visiting coaches. Existing electrical switch gear and fuse panels are housed inside the pressbox which also diminish space inside. The electrical cabling appears extensive connecting to the surrounding adjacent neighborhood. It is recommended the pressbox be replaced. Further evaulation in the extent of the existing electrical service is needed to determine viable costs for renovation and/or replacement.



Existing Interior View of the Press Box and Electrical Panels



Existing Exterior View of the Press Box

Lower Merion School District

SGA Project # CONCEPT

Conceptual Fieldhouse

5/9/2016

Estimate is based on historical average yearly inflation, 2016 RS Means and historical cost data. This estimate may fluctuate based upon higher than projected inflation, contractor participation during bidding, and material availability.

COST ESCALATION SET AT:	DESIGN PERIOD	2	MONTHS
5% **PER YEAR**	CONSTRUCTION PERIOD	6	MONTHS
0.42% **PER MONTH**	CONSTRUCTION MID POINT	5	MONTHS

1 AREA SUMMARY

Existing Building Demolition	-	**SF**
New Building Area	4,500	**SF**
Total Building Area	4,500	**SF**
Total Demolition	-	**SF**

2	**DEMOLITION COST**	**$ / SF**	
	GENERAL DEMOLITION	$0.00	**$ -**
3	**RENOVATION COST**	**$ / SF**	
	GENERAL CONSTRUCTION	$0.00	$ -
	HVAC CONSTRUCTION	$0.00	$ -
	PLUMBING CONSTRUCTION	$0.00	$ -
	FIRE PROTECTION	$0.00	$ -
	ELECTRICAL CONSTRUCTION	$0.00	$ -
	SUBTOTAL	**$0.00**	**$ -**
4	**ASBESTOS ABATEMENT COST**	**$ / SF**	
		$0.00	**$ -**
5	**NEW CONSTRUCTION COST**	**$ / SF**	
	GENERAL CONSTRUCTION	$85.00	$ 382,500
	HVAC CONSTRUCTION	$35.00	$ 157,500
	PLUMBING CONSTRUCTION	$20.00	$ 90,000
	FIRE PROTECTION	$8.00	$ 36,000
	ELECTRICAL CONSTRUCTION	$25.00	$ 112,500
	SUBTOTAL	**$173.00**	**$ 778,500**
6	**SITE WORK**		
	SITE WORK		**$ -**
	SANITARY SEWER		**$ -**
	SITEWORK TOTAL		**$ -**
7	**EQUIPMENT**		
	BUILT IN EQUIPMENT (CASEWORK, ATHLETICS, ETC.)		**$ -**
	FOOD SERVICE EQUIPMENT		**$ -**
	EQUIPMENT TOTAL		**$ -**
	SUBTOTAL STRUCTURE COST		**$ 778,500**
8	**SUSTAINABLE DESIGN**		
	LEED SILVER BUILDING	**0.00%**	**$ -**
	SUBTOTAL STRUCTURE COST W/O LEED		**$ 778,500**
	REGIONAL CONSTRUCTION FACTOR	**1**	**$ -**
	ESCALATION TO MID POINT	**2.08%**	**$ 16,219**
	SUBTOTAL ADJUSTED STRUCTURE COST		**$ 794,719**
	ESTIMATING CONTINGENCY	**4.00%**	**$ 31,789**
	SUBTOTAL STRUCTURE COST		**$ 826,508**
9	**CONSTRUCTION RELATED SOFT COSTS**		
	CONSTRUCTION CONTINGENCY	3.00%	$ 24,795
	CONSTRUCTION TESTING & INSPECTION	1.75%	$ 14,464
	ASBESTOS MONITORING	0.00%	$ -
	REGULATORY AGENCY FEES	0.60%	$ 4,959
	BUILDING PERMIT FEE	0.25%	$ 2,066
	SUBTOTAL CONSTR. SOFT COSTS	**5.60%**	**$ 46,284**
	SUBTOTAL CONSTRUCTION & CONSTRUCTION SOFT COSTS		**$ 872,792**
10	**ADDITIONAL SOFT COSTS**		
	ARCHITECT, STRUCTURAL & MEP ENG'S	8.00%	$ 69,823
	CONSULTANTS		
	ASBESTOS CONSULTANT		$ -
	CIVIL ENGINEER		$ -
	GEOTECH		$ -
	FOOD SERVICE		$ -
	CODE REVIEW		$ -
	SITE SURVEY		$ -
	REIMBURSE/ PRINTING	0.15%	$ 1,309
	SUBTOTAL		**$ 71,133**
11	**FINANCING**		
	FINANCING FEES	0.00%	**$ -**
12	**MOVEABLE FIXTURES / EQUIPMENT**		
	FURNITURE/EQUIPMENT	0.00%	$ -
	SUBTOTAL NON-CONSTR. SOFT COSTS	**8.15%**	**$ 71,133**
	Constr. & Non Constr. Soft Costs	**13.75%**	
	TOTAL PROJECT COSTS		**$ 943,924**
	Preliminary Base PDE Reimbursement		$ -
	Preliminary PDE Reimbursement for Renovating Existing Facility		$ -
	Preliminary PDE Reimbursement for LEED Building		$ -
	TOTAL REIMBURSEMENT ("ROUGH" Preliminary Reimbursement that must be verified with the Financial Consultant)		**$ -**
	TOTAL LOCAL CONTRIBUTION AFTER REIMBURSEMENT		**$ 943,924**

LOWER MERION
HIGH SCHOOL
FOOTBALL GRANDSTAND
ARNOLD FIELD
HOME SIDE
VISITOR SIDE
INSPECTION

Stadium Solutions, Inc.

Main office:
408 N. Main St. Suite 300
Butler, PA 16001
Telephone: 724-287-5330
Facsimile: 724-287-5331

Warehouse:
897 Winfield Rd.
Cabot, PA 16023
Telephone: 724-352-4258
Facsimile: 724-352-4268

January 14, 2016

Stadium Solutions, Inc.

Stadium Solutions, Inc. is the authorized distributor of GT Grandstands in Ohio, New York, Pennsylvania, West Virginia, Maryland, Delaware, and New Jersey. The company started with one individual in 1983 and has grown to include an office staff of three in Butler, Pa., three sales professional, one project manager, one design engineer and two authorized installation crews that erect bleachers in the states listed above. Additionally we are proud to have on staff an industry leader that conducts all of our bleacher inspections.

Code Requirements

Many of the bleachers in service today pose a fall hazard, especially to children. This is due in part because these bleachers were built and installed when the building codes did not require guardrails and allowed openings that were big enough to permit a child to fall through them. New bleacher design has this type of hazard eliminated through the use of additional closure in the decking and guardrail systems to keep children from falling to the ground. The IBC, ICC 300 NFPA 102 and BOCA codes require existing bleacher systems (both old and new) be inspected annually to ascertain that key safety issues are identified so the owner can rectify any dangerous situation. We inspect all bleachers and grandstands in accordance with IBC and ICC 300 (specifically Chapter 5 of ICC 300)

Main office:
108 Elliott Dr., Butler, PA 16001
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Telephone: 724-287-5330
Facsimile: 724-287-5331

Warehouse:
897 Winfield Rd.
Cabot, PA 16023
Telephone: 724-352-4258
Facsimile: 724-352-4268

YOUR BENCHMARK OF QUALITY®

TABLE OF CONTENT

PURPOSE AND SCOPE OF INSPECTION

The purpose of the report is to render an opinion as to the condition of the major inspected elements of the referenced property on the date of inspection. Report findings are based on a limited time/scope inspection performed according to Terms and Conditions of the Inspection Order Agreement and in a manner consistent with bleacher inspection industry standards.

Evaluations are basically limited to a visual assessment, are not technically exhaustive, and only include installed and specified structural and mechanical systems components, unless otherwise stated.

Furthermore, any deficiencies identified may require additional evaluations by an appropriate professional. Due to the normal and stated limitations of a bleacher system inspection, no representations or guarantees are made with respect to latent deficiencies or any future conditions. The report, including all supplemental information and any addenda, should be reviewed in its entirety.

LIMITATIONS

Stadium Solutions, Inc. assumes no liability to any party for damages that may result from the Inspection, or the contents of the Inspection Report. Nor does Stadium Solutions, Inc. assume any liability for bodily injury caused by any of the inspected components or property damage to others. Stadium Solutions, Inc. IS NOT RESPONSIBLE FOR CONSEQUENTIAL OR SECONDARY DAMAGES or other conditions resulting form the failure or malfunction of the components of the bleachers. Stadium Solutions, Inc. specifically disclaims any liability for the adequacy of the capacity of the design of any component or its failure to comply with any local, state, or national code. In addition, Stadium Solutions, Inc. will not be liable for costs necessitated by normal maintenance or for damages that result from neglect or misuse, shifting or setting of land, frost heaves, subsidence, wind, floods, surface water, war, or any act of aggression and other acts of God.

INSPECTION TERMINOLOGY

The following terms are used to describe inspected element conditions in the report.

SATISFACTORY – The element was functional at the time of inspection. Element condition is sufficient for its minimum required function. Element is in working or operating order with no readily visible evidence of substantial defect.

FAIR – The element was functional at the time of inspection but with limitations and/or exceptions. Element exhibits an existing defect or has a high potential for a defect to develop, is near or beyond its normal design life, has a limited service life, and/or does not meet normal condition expectations.

POOR – The element is not functional at the time of inspection or exhibiting conditions conducive to imminent failure. An element that shows considerable wear or has a substantial defect, is missing when it should be present, and/or is not in working or operating order.

NOT APPLICABLE – Elements or components were not present, were not observed, are not within the scope of the inspection, and/or were not inspected due to other factors, stated or otherwise.

NOT CHECKED (NOT EVALUATED) – Element was not accessible, was not visible, exhibited improper or unsafe conditions for inspection, was outside the scope of the inspection, and/or was not inspected due to other factors, stated or otherwise.

SEE COMMENT – Review inspector comments, addenda, or SUPPLEMENTAL INFORMATION related to the specified element(s).

LIMITATIONS – Items listed under LIMITATIONS indicate conditions that may have impeded completion of a standard limited time/scope inspection pursuant to industry standards.

A SUBSTANTIAL DEFECT is a condition of an element which may require an expenditure over $2000.00 to repair, replace, or otherwise correct, and expenditure which represents a significant portion of the estimated replacement cost of the listed element, and/or a defect that must be corrected now or in the future for proper element function.

LEFT HAND/RIGHT HAND ORIENTATION is as viewing the seating structure from the playing field.

JOBSITE

HOME SIDE

Inspection Date:

December 7, 2015

Owner:

Lower Merion High School
315 East Montgomery Avenue
Ardmore, PA 19003

Location:

Football Field (Arnold Field)

General Description of the Seating Structure:

Number of structures = 1

Home Side:

Length of each bleacher = 162'-0"
Number of rows = 18
Row rise/Run = 8"/24"
Front walkway elevation = 22-23"
Number of vertical Aisles = 3 per structure
Number of stairs = 3 total—one stair at lower end of each vertical aisle
Number of ramps = none
Total gross seats = 1,994 (based on 18" industry standard)
Total net seats = 1776 (based on 18" industry standard)

FOUNDATION

Foundation Type:

Concrete: spread footings.

Design:

Spread footings below frost line—not verified.
Steel base plate for columns

Concrete Mix Strength:

Not checked.

Concrete Reinforcement Design:

Not checked.

Condition of the exposed concrete:

Satisfactory – no apparent fractures, some surface spalling.

Footer Stability:

Visually satisfactory with no noticeable movement, sinking, or upheaval observed.

Anchorages:

Cast in place ¾" diameter anchor bolts
Pattern: two (2 ea.) per column—"H" frame design
Finish: Painted steel
Condition: Fair with some oxidation..

.STRUCTURAL SUPPORT FRAMING

Material:

Rolled Steel, I-beam / angle members.

Framing Design:

Open bay, I-beam column pattern on 18'-0" c/c

Framing Description:

6-3/4" x12" wide flange stringers
3-1/2" x 2-1/2" wide flange Columns @ 18'-0" c-c longitudinal spacing
Angle stepped deck mounting weldments

Column Bracing:

Transverse = None observed
Longitudinal = None observed

Structural Steel Finish:

Painted. Condition: Satisfactory

Structural Steel Condition:

Condition: Satisfactory

Connections:

Made with various sizes structural bolts.
Connection: Fair with some oxidation of the bolts

Framing Support:

Columns supported on concrete foundations (see foundation section)

Visual Appearance:

Columns and stringers had no noticeable deflection, and mounting weldments had no noticeable deflection. This was inspected under "no load" conditions. This was a limited inspection.

DECKING

Decking Material:

Rolled steel

Decking design:

Fully closed deck

Method of Attachment:

Spot welded on angle support
Condition: Not observed

Butt Joint Detail:

Flush with adjacent deck member.
Condition: Satisfactory

Decking Finish:

Painted steel
Condition: Satisfactory

Live load performance:

Satisfactory (reflects minimal deflection). This was inspected under a “no load” condition.

BENCHES AND SEATING

Seat Style:

Nominal 10” flat bench profile

Seating material:

Extruded anodized aluminum with end caps

Seating detail:

Actual 1-3/4”x 9½”, 4 rib

Seating Finish:

Anodized - Condition: Satisfactory

Live Load Performance:

Satisfactory

Seat Support Brackets

Style = Painted steel angle - riser mounted
Design = Direct vertical column load
Frequency = At @ 6’-0” Longitudinal c/c

Method of Seat Support Attachment

Condition: Satisfactory

End caps:

All in place

Condition:

Satisfactory

SAFETY-GUARD RAILINGS

Rail Material = 1½" and 2" painted steel angle and channel

Rail Post Support = Painted Steel Angle

Rail Opening Barrier = 9 gage painted 2" chain link fence fabric

Bleacher Rail Detail:

Front = 36" height by 2 rail with no mesh closure fabric
Condition = Fair - Satisfactory

Rear = 37" height by 3 rail with 2" chain link fence mesh fabric closure
Condition = Fair - Satisfactory

Sides = 36" height by 3 rail with 2" chain link fence mesh fabric closure
Condition = Fair - Satisfactory

Ramp = Not applicable

Stair Guardrail:

No guardrails present - handrail made of steel angle
Condition = Satisfactory

Mesh Fabric Terminations

Tension bars, properly installed for functionality
Finish Condition = Satisfactory

Performance of total system = Fair - Satisfactory

Note: Existing guardrail system does not comply with current code requirements

HANDRAILS

Hand Rail Material = Aluminum and Steel pipe

Hand Rail Detail:

Stairs:

Location of handrail at both sides of exit - painted steel angle
Terminations = at grade
Condition of handrail: Satisfactory

Ramps:

Not applicable - no handicap ramp attached this structure

Mid and End Aisles:

No mid aisle handrails exist on the vertical aisles
There are no end aisles

CONCLUSIONS AND RECOMMENDATIONS

The home side bleacher structure was in fair - satisfactory condition and all systems functioning properly.

CODE COMPLIANCE IBC (ICC 300) current edition

This inspection was conducted in compliance with Chapter 5 of the current edition of ICC 300. Chapter 5 addresses existing structures for safety, proper maintenance, replacement of damaged, broken or badly deteriorated elements.

Code issues observed during the inspection are:

1. No mid aisle hand rails on the vertical aisles.
2. Guardrail system inadequate per current codes. This is a safety issue which should be addressed in the near future.
3. No handicap ramp per ADA legislation

Maintenance issues observed during the inspection are:

1. The painted steel needs attention. The paint is peeling and exposing the steel it is to protect. The steel is oxidizing where this condition has occurred.
2. Some of the butt joint cover for the seat board extrusions are loose and should be properly attached.

NEW CONSTRUCTION CODE ANOMILIES

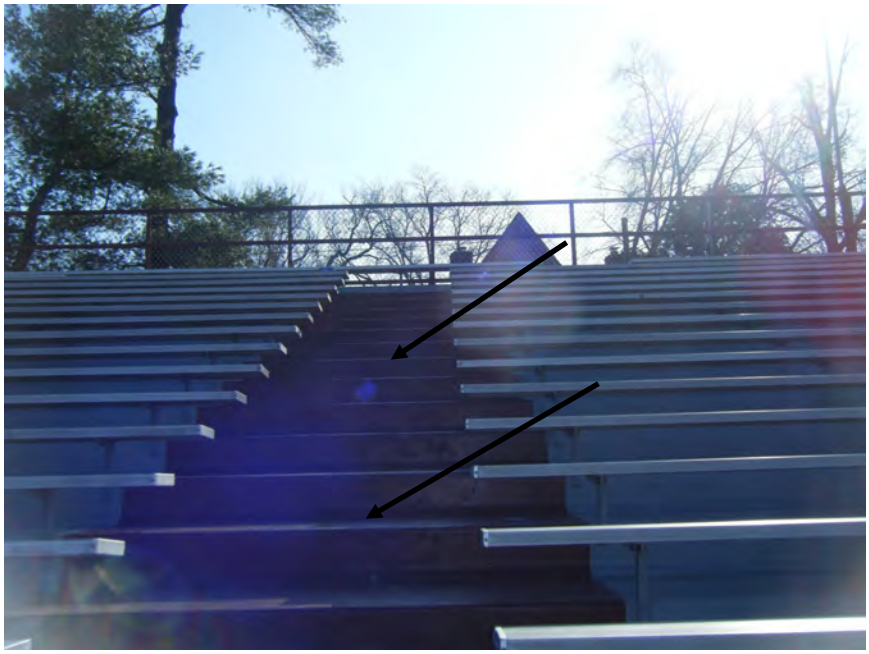
No handrails on the vertical aisles

STRUCTURAL CONCERNS:

None were observed
This is an old grandstand and it appears a lot of remedial maintenance has been done with the structure to keep it as a viable grandstand

Code Compliance Issues

No handrails on vertical aisles



Mid aisle hand rails should be installed.

Paint peeling away from structural steel throughout

The permanent solution is to sandblast and repaint

Old “stick built” press box

The press box was not inspected by Stadium Solutions

JOBSITE

VISITOR SIDE

Inspection Date:

December 7, 2015

Owner:

Lower Merion High School
315 East Montgomery Avenue
Ardmore, PA 19003

Location:

Football Field (Arnold Field)

General Description of the Seating Structure:

Number of structures = 1

Visitor Side:

Length of each bleacher = 168’-0”’
Number of rows = 14
Row rise/Run = 8”/24”
Front walkway elevation = 37”
Number of vertical Aisles = 4 per structure
Number of stairs = 4 per structure
Number of handicap egress = none on this structure
Total gross seats = 1,456 (based on 18” per industry standard)
Total net seats = 1,360 (based on 18” per industry standard)

FOUNDATION

Foundation Type:

Concrete slab supporting angle frame understructure

Design:

Assumed 4” thickness with wire reinforced on gravel substructure

Concrete Mix Strength:

Not checked

Concrete Reinforcement Design:

Not checked

Condition of the exposed concrete:

Satisfactory—no apparent fractures or surface spalling.

Footer Stability:

Visually satisfactory with no noticeable movement, sinking, or upheaval observed.

Anchorages:

Cast in place 3/4” diameter anchor bolts
Pattern: located along grade angle
Finish: hot dip galvanized
Condition: Satisfactory with no visual deterioration.

STRUCTURAL SUPPORT FRAMING

Material:

Galvanized steel angle members.

Framing Design:

Galvanized skid type framing system.

Framing Description:

Galvanized steel frames @ 6'-0" c-c longitudinal spacing

Column (frame) Bracing:

Transverse = None
Longitudinal = Aluminum angle bracing @alternate bays.

Steel Angle Finish:

Galvanized - Condition: Satisfactory

Structural Steel Angle:

Condition: Satisfactory

Connections:

Made with various sizes structural bolts.
Connection: Satisfactory

Framing Support:

Columns supported by grade angle connected directly on concrete slab.

Visual Appearance:

Angle frame understructure had no noticeable deflection with no noticeable deflection. This was inspected under "no load" conditions. This was a limited inspection.

DECKING

Decking Material:

Extruded mill finish aluminum footboard extrusions

Decking design:

Semi closed decking system (with individual extrusion)

Decking detail:

Standard aluminum extrusion planking

Method of Attachment:

Concealed hold down clips
Condition: Satisfactory

Butt Joint Detail:

Flush with adjacent deck member.
Condition: Satisfactory

Decking Finish:

Mill finish
Condition: Satisfactory

Live load performance (bleacher):

Satisfactory (reflects minimal deflection). This was a limited inspection; the struc ture not observed under full load conditions.

Live load performance (stair):

Satisfactory (reflects minimal deflection). This was a limited inspection; the struc ture not observed under full load conditions.

BENCHES AND SEATING

Seat Style:

Nominal 10” flat bench profile

Seating material:

Extruded anodized aluminum angle end caps

Seating detail:

Actual 1-3/4”x 9½”, 3 rib – secured to brackets with hold down clip assemblies

Seating Finish:

Condition: Satisfactory

Live Load Performance:

Satisfactory

Seat Support Brackets

Style = Galvanized seat post vertical
Design = “T” style through decking
Frequency = Varies @ 6’-0” Longitudinal centers

Condition: Satisfactory

End caps:

End caps in place throughout the bleacher

SAFETY-GUARD RAILINGS

Rail Material = 1½" and 2" diameter aluminum pipe—two rail system.

Rail Post Support = Mill finish aluminum channel on front walk way and rear of bleacher
Mill finish aluminum angle on side guardrail

Rail Opening Barrier = 9 gage galvanized 2" mesh steel fabric

Bleacher Rail Detail:

Back = 50" height - 3 rail system with 9 gage galvanized 2" mesh fabric
Condition = Satisfactory

Front = 40" height - 2 rail system with 9 gage galvanized 2" mesh steel fabric
Condition = Satisfactory

Sides = 48" height - 3 rail with 9 gage galvanized 2" mesh steel fabric
Condition = Satisfactory

Handicap egress = None on this bleacher

Mesh Fabric Terminations

Tension bars, properly installed for functionality
Finish Condition = Satisfactory

Performance of total system = Satisfactory

HANDRAILS

Hand Rail Material = Aluminum and Steel pipe

Hand Rail Detail:

Stairs:

Location of handrails at both sides of exit
Termination = blunt plug
Condition of handrail: Satisfactory

Mid Aisle:

Location of handrail = Satisfactorily centered longitudinally in all vertical aisles.
Termination = Newel to deck
Condition of handrail: Satisfactory

CONCLUSIONS AND RECOMMENDATIONS

The bleacher structure (visitor side) was in satisfactory condition and all systems functioning properly.

CODE COMPLIANCE IBC (ICC 300) current edition

This inspection was conducted in compliance with Chapter 5 of the current edition of ICC 300. Chapter 5 addresses existing structures for safety, proper maintenance, replacement of damaged, broken or badly deteriorated elements.

Maintenance issues observed during the inspection are:

1. Non slip tape (contrasting color) should be applied on stairs and vertical aisles

NEW CONSTRUCTION CODE ANOMILIES

No handicap ramp per ADA legislation

STRUCTURAL CONCERNS:

None observed on the grandstand.

STADIUM SOLUTIONS, INC.
408 N. Main St. Suite 300, Butler, PA 16001 Office: 724-287-5330
www.stadiumsolutionsinc.com Facsimile: 724-287-5331

April 7, 2016

PROPOSAL/SCOPE OF WORK
Lower Merion High School
Ardmore, PA 19003

Enclosures include:

Proposal Drawings

Scope of Work Includes:

10 Row x 93', 42" Elevated Bleacher Featuring:

- Approx. 508 total net seats
- (6) wheelchair spaces with companion seating included
- (1) ADA ramp per proposal drawings
- (2) Stairs at 5'-2" wide front crosswalk
- 24" tread with 8" rise
- Aluminum angle frame understructure
- Bleacher is designed to be installed on concrete pad foundation
- Fully closed no penetration interlocking mill finish aluminum deck
- Nominal 2" x 10" anodized aluminum seats
- Anodized aluminum risers
- (3) Aisles, 4'-6" wide, equipped with 1.66" O.D. mid-aisle handrail and contrasting nosing
- 9 gauge galvanized 2" mesh chain link guard rail system
- Engineer signed and sealed drawings included
- ***Three year warranty*** on fabricated grandstand (Industry standard is one year)
- ***Three year warranty*** on grandstand installation (Industry standard is one year)
- Finishing and assembly hardware
- Galvanized Anchor Bolts
- Freight
- Unloading of materials at jobsite
- **Prevailing wages**

Exclusions (list is not all inclusive):

- Demolition of any/all structures
- Permit or plan review fees
- Concrete testing or soil bearing verification fees
- Liquidated damages
- Oxidation of mill finished aluminum plank
- Individual seat number of seat boards
- Any insurance other than that needed to erect the grandstand/bleacher
- Bonding
- Licenses
- **Sales/use tax or any tax of any kind**

Qualifications:

- Acceptable AIA based subcontract or other mutually acceptable document
- Progress payments in accordance with the purchasing document
- Owner to provide access to, through, on, and around the entire project site and building areas at no cost to Stadium Solutions, Inc.
- If this project is taxable you are required to provide the taxing district and taxing rate. If this project is not taxable you are required to supply the tax exemption certificate to Stadium Solutions, Inc.
- **This scope of work to become part of the contract**

Completion: As required.

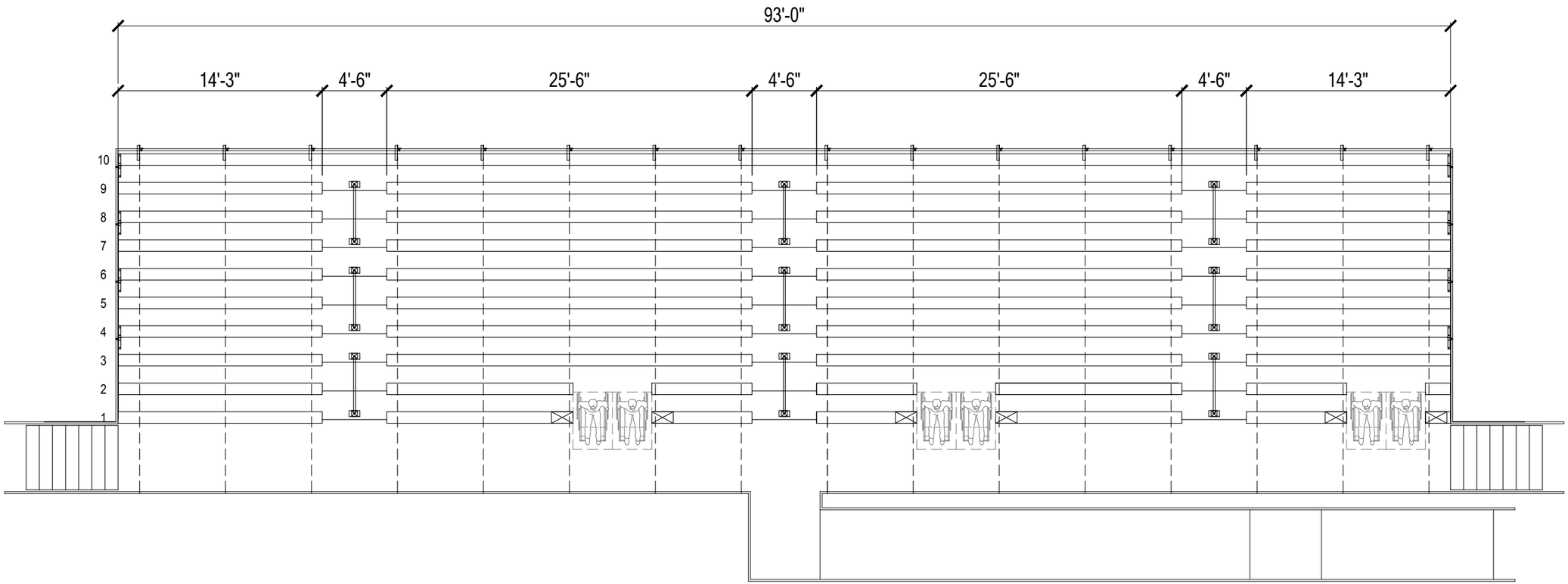
BUDGET PRICE

Grandstand Materials Delivered and Installed = $120,000 – 125,000

This is budget pricing only. For a firm price please contact our offices. Should you have any questions pertaining to this proposal please call at 724-287-5330.

Mark Klopfer

Mark Klopfer
Design Engineer



1 / A1.7 SEATING PLAN
SCALE: 1/8" = 1'-0"

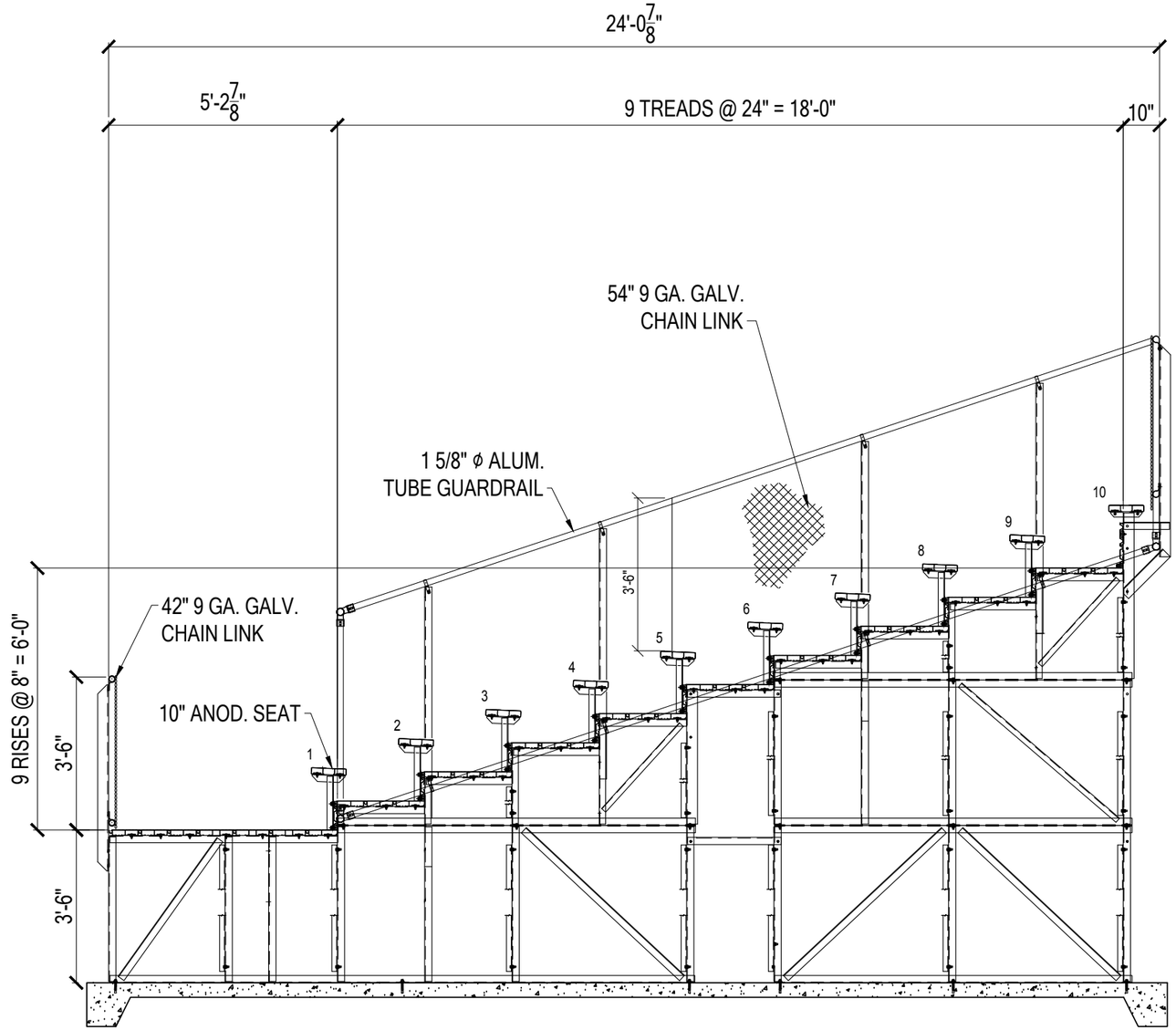
SEATING CAPACITY

NET CHAIR SEATING	-	0
NET BENCH SEATING	-	496
COMPANION SEATS	-	6
WHEEL CHAIR SPACES	-	6
TOTAL SEATING	-	508

SEATING PLAN
10 ROWS X 93'-0"
8"/24" RISE/TREAD

LOWER MERION SCHOOL DISTRICT
ARNOLD FIELD
VISITOR SIDE

DRAWN BY: GOB
CHECKED BY:
DATE: 4/6/2016
SCALE: 1/8" = 1'-0"
REV.
JOB NO.
P16-1602
DWG NO.
A1.1



A / A2.7 TYPICAL SECTION THRU STAND

SCALE: 3/8" = 1'-0"

SECTION AT END OF STAND
10 ROWS
8"/24" RISE/TREAD

LOWER MERION SCHOOL DISTRICT
ARNOLD FIELD
VISITOR SIDE

DRAWN BY:	GOB
CHECKED BY:	
DATE:	4/6/16
SCALE:	3/8" = 1'-0"
REV.	3
JOB NO.	P16-1602
DWG NO.	A2.1

TEAM HEAD COACH FEASIBILITY STUDY QUESTIONNAIRE

Project Name: _____
Project Number: _____
Questionnaire Completed By: _____ **Date:** _____

Feasibility Study Items

1. What sports do you coach?_____

_____

2. What levels are in your sport (Varsity / JV / 9th Grade / Freshman)? _____

_____

3. What is the average number of student athletes at tryouts for each level?_____

_____

4. What is the average number of student athletes do you keep for each level?_____

_____

5. Of this number, what is the average number on varsity? _____ On JV only? _____

_____

6. What field(s) do you use for practice (list all levels)?_____

_____

7. What field(s) do you use for games (list all levels)? _____

_____

8. What are your typical practice dates and times (list all levels)? _____

_____

9. What are your typical number of home games per season and what day(s) and time(s) do you have games?_____

_____

10. Do you, when the practice plan allows, shift goals around the field to lessen the wear in high use areas such as goal mouths and penalty spots? _____

_____

11. Have there been any issues with the playability of your fields (keep wet, divots etc.) over the years?_____

_____

_____

12. Is there any concerns or comments that you will like to make for the Feasibility Study?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

ZONING DATA

Below are excerpts from the Township Zoning, Subdivision and Storm Water Ordinances which pertain to Arnold Field.

Zoning Information

District – R3 Residential District
Use: Public School

The applicable sections of the Ordinances include the following:

§ 155-11. Use Regulations

A building may be erected or used and a lot may be used or occupied for any of the following purposes and no other:

E. Public school. The following requirements shall apply to public schools in the RAA through R-3 Zoning Districts:
   1. Area and width regulations.
      a. Lot area and width. A lot area of not less than 30,000 square feet and a lot width of not less than 60 feet at the street line and extending from the street line to a point 25 feet beyond that point of the proposed building closest to the rear lot line shall be provided for every public school building hereafter erected or used.
      b. Building area. The building area of each lot may not exceed the maximum permitted building area in the underlying zoning district by more than 25%.
   2. Front yard. There shall be a front yard on each street on which the lot abuts, the depth of which shall be at least 40 feet.
   3. Side yards. There shall be two side yards, one on each side of the principal building, neither of which shall be less than 25 feet wide.
   4. Rear yard. There shall be a rear yard, the depth of which shall be at least 25 feet.
   5. Height regulations. The height of a public school building shall not exceed 65 feet. Buildings over 45 feet shall increase the required side and rear yard setback by one foot for every foot or portion thereof by which the building exceeds 35 feet in height, beginning with the story by which the building exceeds 35 feet in height.

J. Accessory use on the same lot with and customarily incidental to any of the foregoing permitted uses. [Amended 11-4-1981 by Ord. No. 1971]

§ 155-95. Parking Facilities Required Parking

Auditoriums, churches, schools, stadiums or any other place of public or private assembly: at least one parking space for each five seats or for each 50 square feet of floor area where fixed seating is not installed. No more than 50% of the total parking spaces required may be held in reserve.

155-130. Regulation of Fences and Walls [Amended 12-18-1985 by Ord. No. 2093; 10-17-1990 by Ord. No. 3209; 2-17-1993 by Ord. No. 3309; 9-15-1999 by Ord. No. 3538]

A. No fence or wall, except a retaining wall or a wall of a building permitted under the terms of this chapter, over eight feet in height shall be erected within any of the required side or rear yard setbacks nor over six feet in height within the required front yard setback for the principal building in the district in which the property is located.
   1. When a fence or wall exceeding four feet in height is erected within the required front yard setback, measured from the street line, the entire fence or wall shall contain openings therein equal to 75% or more of the area of the fence or wall.
      a. An existing fence or wall exceeding four feet in height, and less than 75% open, in the required front yard setback may be replaced if the applicant can demonstrate that the fence conformed to the Zoning Code when it was installed.
   2. When a fence or wall exceeding six feet in height is erected within any required side or rear yard setback, the entire fence or wall shall contain openings therein equal to 75% or more of the area of the fence or wall, unless either of the following conditions exist: **[Amended 1-18-2006 by Ord No. 3770].**
      a. Where a property abuts a railroad the portion of the fence or wall abutting the railroad is not required to be open.
      b. Where a residential property abuts a commercial property, provided that the portion of the fence above six feet is at least 50% open.

C. When the Board of Commissioners finds that a significant need is met by the erection of the fence, the Board of Commissioners may approve a higher solid fence within the required front, side and rear yard setback when such a fence is requested in conjunction with the approval of a development plan.

D. All fences shall be erected with the finished side of the fence facing adjacent properties. The finished side shall be considered the side without the structural supporting members.

E. All fences or walls erected within the front yard setback shall provide an operable gate with a minimum width of 36 inches to provide access to the area between any fence or wall and the cartway of the abutting street, and the property owner is responsible for maintaining this area. There shall be a minimum of one operable gate for each street frontage and at least one operable gate for every 500 feet of fencing along a street.

§ 155-138. Hard-Surfaced Sporting or other Physical Recreation Areas. [Amended 12-19-1979 by Ord. No. 1884; amended 8-3-2005 by Ord. No. 3751]

A. No tennis court or other hard-surfaced area designed or intended to be used for sporting or other physical recreation activities shall be constructed in the required front, rear and side yards in residence districts, commercial districts or manufacturing and industrial districts. **[Amended 3-15-2006 by Ord. No. 3773]**
B. No artificial turf playing field shall be constructed in any required yard in residence districts, commercial districts or manufacturing and industrial districts; except an artificial turf field may be constructed in that portion of the front yard setback occupied by an existing playing field as of the effective date of this ordinance. **[Amended 3-15-2006 by Ord. No. 3773]**
C. Artificial turf playing fields shall not be considered as impervious surface if the Artificial field is designed to be permeable and the applicant can demonstrate that the stormwater runoff coefficient of the artificial playing surface is less than or equal to grass and the drainage system is maintained to continue this runoff coefficient in the opinion of the Township Engineer.

§ 155-139. Residential Outdoor Lighting

In residence districts, any permitted illumination of signs, buildings, structures, tennis courts or **other open areas** shall be subject to the following regulations:

A. Floodlighting or high-intensity lighting shall be selected and installed so that only the sign, building, structure, tennis court or other open area on a lot is directly illuminated.
B. Floodlighting or high-intensity lighting shall be so aimed or shielded that the light shall not be directed onto any adjacent lot.
C. Floodlighting or high-intensity lighting over 150 watts shall be located so that the glare or reflection visible from a street or residence adjacent to the sign, building, structure, tennis court or other open area being illuminated shall not be greater than one footcandle at the property or boundary line.
D. No floodlighting or high-intensity lighting, except surveillance, security, decorative or safety lighting, shall be permitted after 11:00 p.m.

§ 155-4B. Definitions from Zoning Ordinance

Impervious Surface

Any material placed on or above the earth, the artificial impacting of the earth, or any material change in the natural surface of the earth which substantially reduces or prevents the natural percolation of water or which reduces the undisturbed open space areas on a lot. Examples include but are not limited to structures, including eaves, roofs and roof overhangs; parking areas (whether hard-surfaced or not); driveways; sidewalks; patios and decks; sport courts; and pools. The following shall not be considered as impervious surface: **[Added 10-17-1990 by Ord. No. 3208; amended 10-20-1993 by Ord. No. 3337; 4-17-2002 by Ord. No. 3639; 9-25-2006 by Ord. No. 3790]**

2. Pathways six feet or less in width that employ grass pavers or porous paving and which are not intended for automobile use.

Yard

The required open, unoccupied space on the same lot with a building, open and unobstructed from the ground to the sky, except for projections permitted under §§ **155-134** to **155-136**, inclusive.

1. **Front Yard** - A yard extending the full width of the lot along the street line and not less in depth, measured from the street line, than the minimum required in each district or the uniform building line setback set forth in Chapter **A163**, Building Line Ordinances, hereof, whichever is the greater. In the case of rear lots, the front yard shall be designated by the Board of Commissioners as a conditional use applying the standards for rear lot development set forth in this chapter and shall be measured from the point at which the lot attains the minimum lot width forward to the lot line. **[Amended 2-18-1987 by Ord. No. 3034; 6-16-1993 by Ord. No. 3327]**
2. **Side Yard** - A yard extending along the same lot line from the front yard to the rear yard and not less in width, measured from the side lot line, than the minimum required in each district.
3. **Rear Yard** - A yard extending the full width of the lot along the rear lot line and not less in depth, measured from the rear lot line, than the minimum required in each district.

§ 155-2B. Definitions from Subdivision Land Development Ordinance

Land Development

The improvement of one lot or two or more contiguous lots, tracts or parcels of land for any purpose involving:

1. A group of two or more residential or nonresidential buildings, whether proposed initially or cumulatively, or a single nonresidential structure on a lot or lots, regardless of the number of occupants or tenure. **[Amended 5-16-2007 by Ord. No. 3815]**
2. The division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means of or for the purpose of streets, common areas, leaseholds, condominiums, building groups or other features.
3. The transfer of air rights.
4. A subdivision of lands.

Structure

Any form or arrangement of building materials involving the necessity of providing proper support, bracing, tying and anchoring.

§ 121-3B. Definitions from Storm Water Management Ordinance

Chapter 121: Stormwater Management and Erosion Control

Alteration

As applied to land, a change in topography as a result of the moving of soil or rock from one location or position to another; also the changing of surface conditions by causing the surface to be more or less impervious; land disturbance.

Regulated Activity

Action(s) or proposed action(s) which affect the management of stormwater runoff and which are governed by this chapter as specified in **§ 121-2C**.

Seepage Bed/Pit/Trench (Infiltration Bed/Pit/Trench)

Any device which directs stormwater for infiltration into the ground.

JONES TURF
MANAGEMENT, INC.

ATHLETIC FIELD MAINTENANCE REVIEW AND RECOMMENDATIONS

FOR:

LOWER MERION HIGH SCHOOL

315 East Montgomery Avenue

Ardmore, PA 19003

May 4, 2016

Prepared By:

Jones Turf Management, Inc.

960 Swedesford Road

Exton, PA 19341

610-644-7224 Office 610-644-8805 FAX

jonesturf@gmail.com

Table of Contents

Section 1. Review of current maintenance practices.

Introduction: Jones Turf Management, Inc. was present at an "Athletic Facilities Study and Master Plan" meeting on January 7, 2016 at the Lower Merion High School. We also utilized a meeting on January 21, 2016 at the office of Bob Schultz with the Lower Merion School District Grounds Department. These meetings helped acquire information about the current athletic field maintenance practices for Lower Merion High School only. Evaluation does not include other schools within the school district or fields shared with Lower Merion Township at South Ardmore Park.

Fields Overview: The Lower Merion High School has five (5) natural grass athletic fields in use to accommodate various sports throughout the year. This includes all necessary games and practices for multiple age/skill levels. Four fields are together next to the stadium and were reconstructed a few years ago after the high school renovation. These fields were built with an imported rootzone mix and sub-surface irrigation to give greatly improved opportunity for maintenance of high quality field conditions. The final field exists behind the high school. It was not recently rebuilt and is undersized for game play, but receives the same maintenance program as the other fields.

Program Review: LMHS has developed a yearly application program that is more comprehensive than general industry recommendations for athletic field maintenance. Most university and industry guidelines are based on four (4) applications per year to provide sufficient nutrients and manage weeds. LMHS incorporates monthly applications to their athletic fields over eight (8) treatments. This allows greater control and flexibility to adjust to changing conditions and minimize lapses in effectiveness.

Currently, their application program is mostly comprised of liquid applications. This provides the ability to apply multiple products with one pass over the fields. It is an effective time management approach when there is limited availability to access the fields due to sports needs each day. The program does include one granular nutrient application in the fall that is chosen to provide benefits at the end of the playing season. Each liquid application includes fertilizer and soil amendment products tailored for the time of year. At select applications, appropriate weed control products are included. It is 2x-3x per year based on weeds being targeted preventatively or controlling active weeds. Insect and Fungus control is based on the protocol of the district IPM program and products are used when certain damage thresholds are occurring.

Additional maintenance practices: Along with nutrient and control product applications, LMHS includes many other maintenance practices to have their athletic fields to a desired level.

- Mowing – Several mowers, grass trimmers, and blowers are utilized to maintain grass to desired heights for health and playability. Fields are mowed at least 1x per week throughout the growing season. Certain times of the year require additional mowing as well as some mowings are added to achieve game-time conditions.
- Aeration – "Slice" aeration is done 1x per year to loosen soil and break through thatch and compacted areas. This process is being chosen to minimize bringing soil to the surface that may impact field playability. "Core" aeration is done in high wear areas such as goal mouths and center circles.
- Seeding – Perennial Ryegrass seed blends are overseeded to needed areas throughout the year to help encourage regrowth.
- Topdressing – An even application of topdressing is applied typically 1x per year. Heavier amounts are used in worn/bare areas. Topdressing is done when field availability allows.
- Soil Test – Individual fields are tested each year to monitor important nutrients for optimum turfgrass health. Program applications are adjusted to make corrections to field conditions.
- Irrigation – Automatic irrigation is utilized to supplement natural rainfall to maintain proper soil moisture for improved turf conditions. Rain sensors are used to avoid use during rain events.
- Winter Turf Covers – Used by the district to protect and insulate seeded areas to promote improved results prior to the Spring seasons.

Section 2.Comparison of Lower Merion High School practices to other organizations.

In order to compare the athletic field maintenance program at Lower Merion High School to other institutions, there are many decisions that influence the implementation of any program. Leadership expectations, budget availability, number of dedicated employees, coach/team demands, application limitations due to sensitivity issues, site conditions, field use demands, and education are many considerations to how a program is determined.

Lower Merion High School in our experience has a program and approach to their maintenance that is in the top tier of area programs for athletic fields. Most townships/park departments lack the ability to service and fund the maintenance of fields to a higher standard. Most high schools we have encountered fail to implement a plan to address the expectations of their teams and an ability to improve conditions. Colleges and Universities face the same decisions,

but some are more capable of having dedicated professionals to care for fields. They also can limit field usage to allow for more maintenance opportunities.

Section 3: Does current maintenance practices mirror industry standards for athletic field maintenance?

Athletic field maintenance standards all have the same theme when it comes to a yearly approach to maintenance. Universities with turfgrass programs, like Penn State University, also reinforce these standards. Lower Merion High School meets or exceeds all areas to provide for a successful maintenance approach. There are some practices that could use more attention, but are limited because of the time constraints available given to the maintenance staff at certain times of the year. Constant use of fields both affects field conditions and the ability to care for them.

Section 4: Recommendations.

The following recommendations to the existing maintenance program are based on the information provided and do not include visual inspections of the athletic fields. They are meant to highlight areas that are capable of small adjustments to improve the effectiveness of the maintenance staff. It takes a large effort and coordination to meet the expectations of all activities and address the damage incurred from these activities.

- Continue to perform regular soil tests. Spotting potential corrective measures to the soil pH level or other soil nutrients are essential to managing successful athletic fields.
- Evaluate yearly fertilization and application programs for effectiveness. Consider overall results based on field usage effects, weather influences, timing of treatments and product choices to plan for successive years.
- Maintain renovation approaches that include aeration and reseeding steps. It is a proven practice for the management of successful athletic fields.
- The school district has instituted a “rest period” for a chosen field each year on a rotating basis. It is a good opportunity to include an end of season (Late Fall) core aeration (golf-course style plug removal) to the rested field to lessen compacted areas, improve air/water movement in the soil, and promote root health. Combine this activity with a topdressing of soil/organics and seeding to maximize your renovation.
- Field use planning should also include days for maintenance. Excessive or constant use challenges the ability to perform maintenance effectively. Maintenance can’t always be accomplished early in the morning to stay ahead of daily events.
- Establish field use guidelines with all groups that utilize the fields. A major component to improving field conditions is to alter practice habits from using the same field location every day. Rotating locations will lead to improved conditions for games. It takes everyone’s assistance to nurture living athletic fields to become safe, healthy, and pleasing locations

Section 5: Summary.

The current athletic field maintenance program for the Lower Merion High School demonstrates a successful approach to their needs. It has been developed to utilize all turf industry recommendations for safe, healthy playing surfaces. It addresses the physical demands of using the fields along with the high expectations of the teams that rely on them. This yearly maintenance program is near the top in the area for the commitment to providing quality athletic fields.

Even quality maintenance programs need to learn to evolve over time. As fields age and use increases, programs have to adjust and plan ahead to minimize unplayable situations. Lower Merion High School should perform an end of year evaluation on how the program fit with an entire year of changing use, weather, results, timing, and expectations. This evaluation will lead to effective planning for short term and long term needs to manage an ever changing outdoor environment.