DRAFT MASTER PLAN for
LOWER MERION HIGH SCHOOL ATHLETIC FACILITIES

LOWER MERION SCHOOL DISTRICT

ELA SPORT
ATHLETIC FACILITIES DESIGN AND CONSULTING
LITITZ • STATE COLLEGE • BUTLER

Sections

1 Background and Goal Setting

2 Investigation of Existing Program and Conditions

3 Development of Alternatives

1 Background and Goal Setting

Background and Purpose

The primary goal of this exercise 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.

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.

Vision Statement

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 all 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.

Goals

Goals to achieve this District's 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.**

Goals (Contd.)

Goals to achieve the District's Vision include:

- **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.**

Fall Sports

BOYS

Football (Varsity) - LM01 / 03

Football (Ninth Grade) - LM01 / 03

Soccer (Varsity) - LM01 / 02

Soccer (Junior Varsity) - LM01 / 02

Soccer (Ninth Grade) - LM02 / SAP

GIRLS

Soccer (Varsity) - LM01 / 05

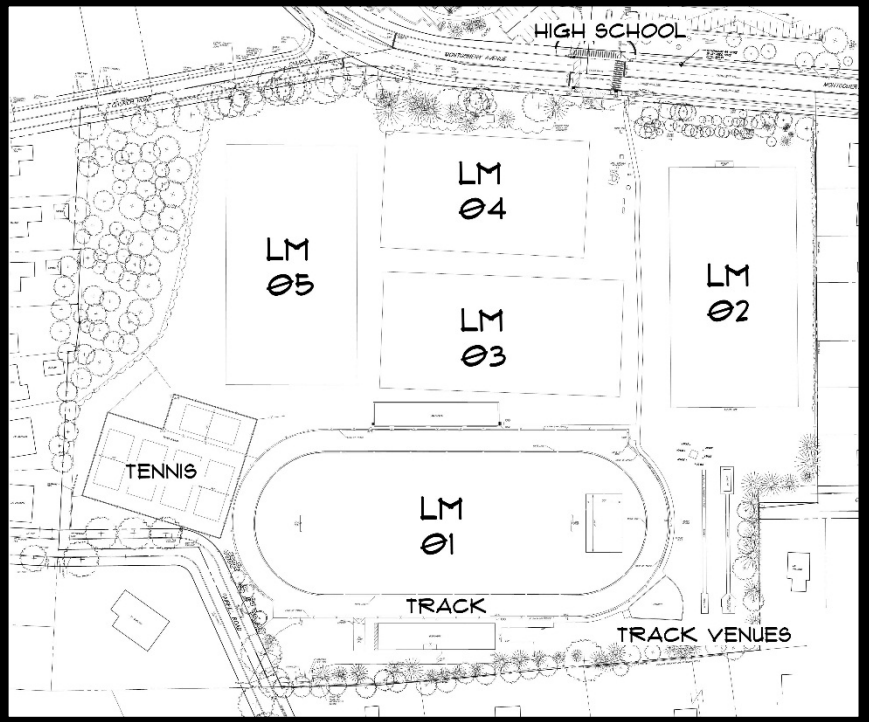
Soccer (Junior Varsity) - LM01 / 05

Field Hockey (Varsity) - LM01 / 04

Field Hockey (Junior Varsity) - LM04 / 01

Tennis (Varsity) - Arnold Field

Tennis (Junior Varsity) - SAP / Arnold Field



Spring Sports

BOYS

Baseball (Varsity) - SAP

Baseball (Junior Varsity) - SAP

Baseball (Ninth Grade) - Vernon Young

Lacrosse (Varsity) - LM01 / 02

Lacrosse (Junior Varsity) - LM01 / 02

Ultimate (Incl. Girls) - LM03 / 05

Tennis (Varsity) - Arnold Field

Tennis (Junior Varsity) - SAP / Arnold Field

GIRLS

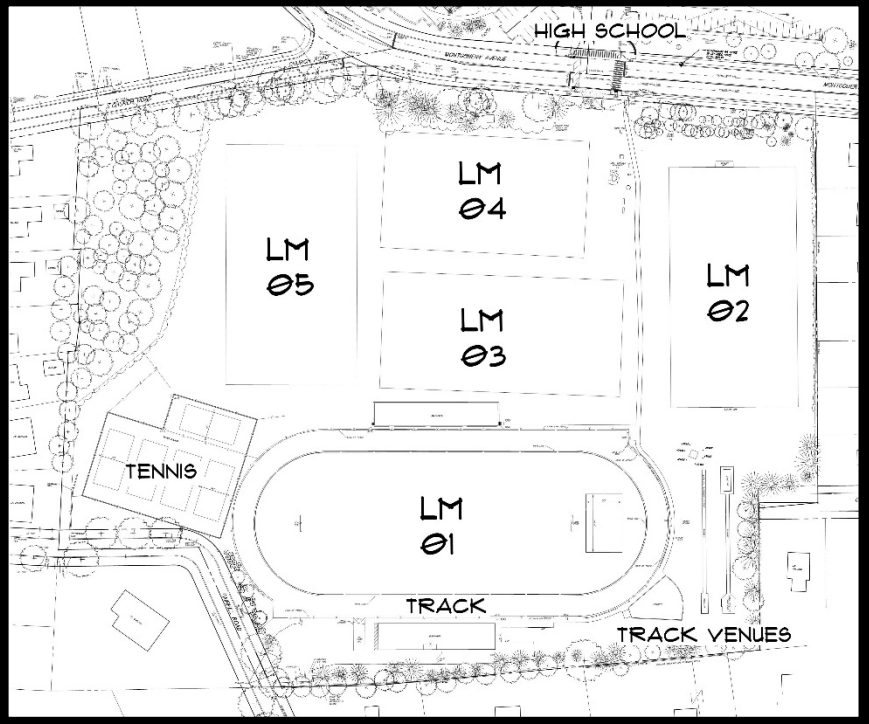
Softball (Varsity) - SAP

Softball (Junior Varsity) - SAP

Lacrosse (Varsity) - LM01 / 05

Lacrosse (Junior Varsity) - LM01 / 05

Track and Field - Track / LM01



2 Investigation of Existing Program and Conditions

LMSD Five Year Facilities Improvement Plan

The following list is improvements taken from the District's Five (5) Year Plan are all 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.

Township Planning Documents

The Greater & Greener Plan 2012-2021 (2012)

- Done during expansion of the high school when coordination with Township was at its peak.
- Praised the cooperation between the District and Township.
- Called for more quality athletic fields throughout the Township.
- Noted the expense of land preventing creation of additional facilities so must maximize current facilities.
- Suggested that District property be considered for passive parks (trails, benches, etc.).

South Ardmore Park – Master Plan Update (2012)

- The District is a major participant in the use of South Ardmore Park.
- The Plan reviewed conditions and recommended upgrades including facilities that are not used by the District.
- Many of the more recent upgrades in the park involved the ballfields and were done by the District. This included fencing and batting tunnels.

Existing Facilities Inspection – Fields and Venues

Existing Track Jumping And Throwing Venues

Constructed:	1990.
Resurfaced/Repaired:	2013.
Expected Remaining Life:	Running surface: 10 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 Facilities Inspection – Fields and Venues

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 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. Solar orientation not favorable.
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 Facilities Inspection – Fields and Venues

Existing Natural Turf Field – 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. Solar orientation favorable.
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. Solar orientation not favorable.
Current Condition:	Excellent.
Sports:	Football and Ultimate.

Existing Facilities Inspection – Field and Venues

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. Solar orientation not favorable.
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. Solar orientation favorable.
Current Condition:	Excellent.
Sports:	Soccer (Girls); Lacrosse (Girls); Ultimate.

Existing Facilities Inspection - Structures

SCHRADERGROUP Architecture Summary

Fieldhouse Building

- The 5,000 SF existing fieldhouse building is a sound structure located below the home bleachers, 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.

Pressbox

- 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.
- 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.

Existing Facilities Inspection - Structures

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.
- 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.
- Current Code issues observed during the inspection are:
  - No mid-aisle hand rails on the vertical aisles.
  - Guardrail system inadequate per current codes.
  - 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.
- 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.

Existing Facilities Inspection - Structures

Stadium Solutions Summary (Contd.)

Visitor Grandstands - Conclusions and Recommendations

- The bleacher structure was in satisfactory condition and all systems functioning properly.
- Current Code issue observed during the inspection was limited to no handicap ramp per ADA legislation.
- Maintenance Issues
  - Non slip tape (contrasting color) should be applied on stairs and vertical aisles.
- Structural Concerns
  - None observed on the grandstand.

Athletic Staff Questionnaire

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.)*

Athletic Staff Questionnaire

Spring Sports (Contd.)

- 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.

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.

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 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.
- 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.
- 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.

Township Ordinance, Code and ADA Review

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.

Township Ordinance, Code and ADA Review

ADA Review (Contd.)

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.

Athletic Programs and Field Use

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

Field Use and Need Analysis

Baseline Field Use/Turf Recovery Method – Natural Grass Field

The baseline use number for natural grass turf fields 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. In case of Arnold Field 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. LM01 is not considered here since it is a synthetic turf field.

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).

Field Use and Need Analysis

0.5 Field/Sport Team Ratio Method

Another approach to analyzing natural grass 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 Figure 2, 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 it is generally accepted in the athletic industry that a turf field can handle up to 1,500 events.

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 the table on the following slide.

Synthetic Turf vs. Natural Turf Cost Per Event Analysis

	Natural Grass	Synthetic Turf
Initial Cost Installation Cost / SF:	$5.25 / SF = $472,500	$11.00/SF = $990,000
Maintenance:	$20,0003 x 10 years = $200,000	$5,000 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.

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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

Potential Growth / Decline in Sports - Boys

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.

To focus on the trends at LMHS we provide the following table:

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).

Potential Growth / Decline in Sports - Boys

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.

- Contrary to the State (+16.17%) and National (+13.3%) trends Lacrosse has actually dropped 18.9% in participation (10 students) and is the largest drop in boys sports. The sport has been established in the Main Line area for a long time lacrosse but is viewed as a “new” trendy sport elsewhere, hence the growth. The reason for a drop in participation at Lower Merion 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 the school team season.

- The largest growth is in track and field (118%, 45 students). This 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

- The second largest growth is Ultimate at 24% (11 students). There are no national or state records for Ultimate.

Potential Growth / Decline in Sports - Boys

Summary (Contd.)

- The tremendous rise in the numbers for football (+21% / 12 students) is contrary to both the State (-1.9%) and Nationwide trends (-2.2%), 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.

Potential Growth / Decline in Sports - Girls

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)

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%).
- The largest growth is track and field at 33.9% (21 students), softball is second with a 32% (10 student increase).

Potential Growth / Decline in Sports - Girls

Summary (Contd.)

- Most all other sports have either held steady or grown in participation, with one exception being lacrosse dropping 36.4% (16 students), which like Boys Lacrosse is contrary to both the State (+23.2%) and National (13.2%) trends. The Club team issue is a possible factor as well as the more standard possibilities (class size, peers etc.)

- Field hockey dropped 24.4% (6 students) over the six years analyzed. Both State (-5%) and National (-2.3%) are showing a drop in participation but to a much lesser degree.

- Softball's growth (+32%) is contrary to both the State (-1.5%) and National (-2.5%) trends.

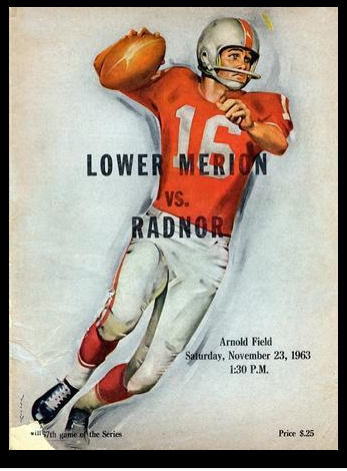
- Interesting to note that Track and Field has the three largest increases between seasons and the most significant decrease of 38 students, which is more than double the next highest decrease.

- 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.

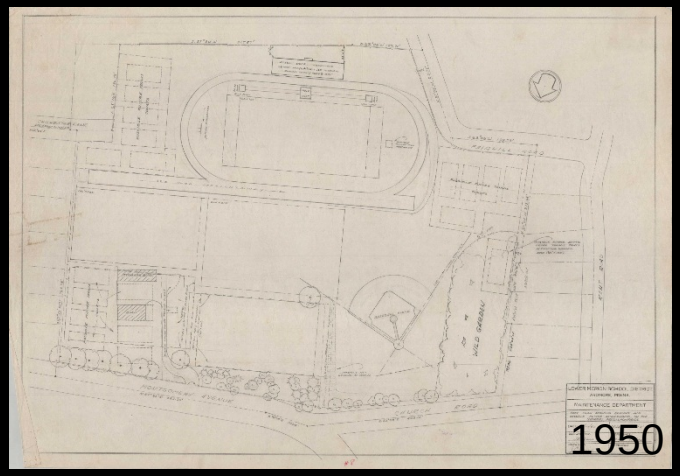
3 Development of Alternatives

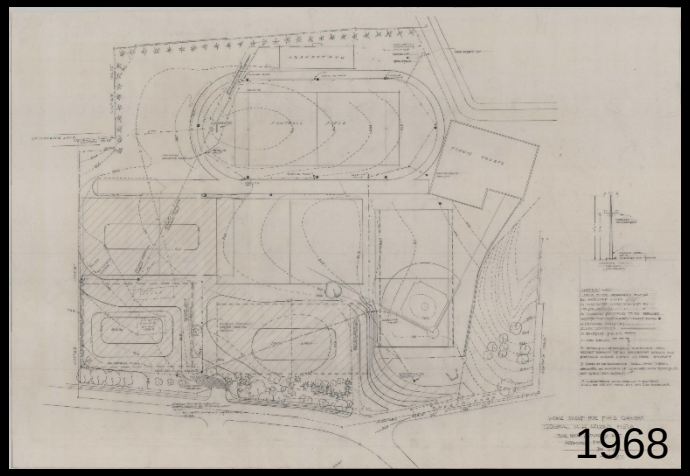
Historical Perspective

Arnold Field has existed as the athletic complex for Lower Merion High School for well over 75 years.

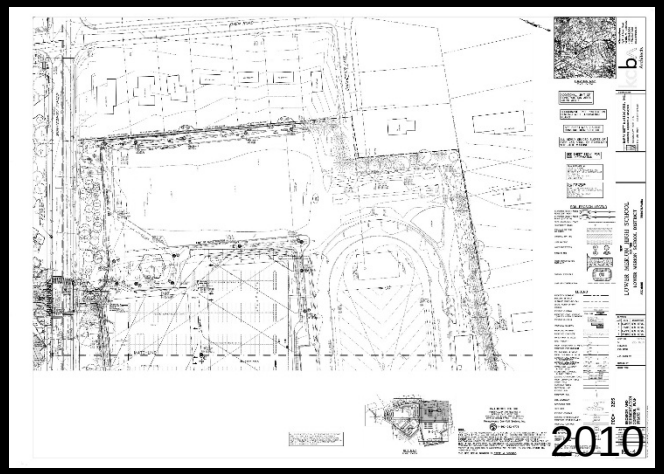


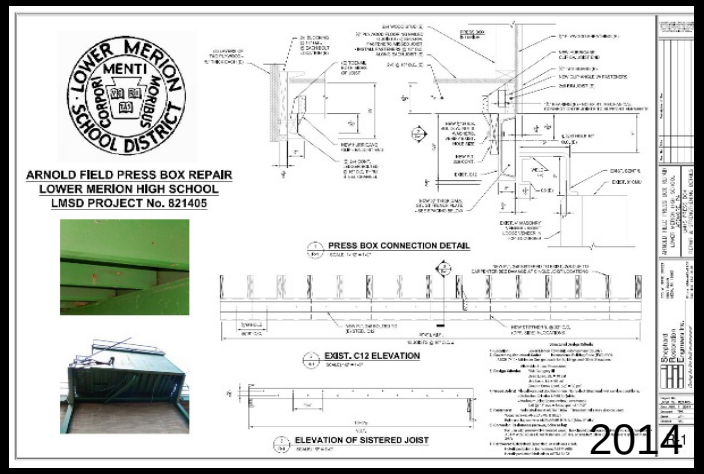
Historical Perspective





Planning for the facility has been done continually over the years





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.

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

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.

Site Limitations and Deficiencies

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 Master Plan, 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.

Site Limitations and Deficiencies

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, 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.

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.

Inventory Plan

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 (UNDER 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:	1998
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:	2008 (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 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 & GIRLS); LACROSSE (BOYS & GIRLS)

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 (BOYS & GIRLS); LACROSSE (BOYS & GIRLS); ULTIMATE FRISBEE

ELA SPORT
ATHLETIC FACILITIES DESIGN AND CONSULTING

Athletic Fields / Facilities - Inventory Plan

Lower Merion High School - Arnold Field

Draft Master Plan

ELA SPORT
ATHLETIC FACILITIES DESIGN AND CONSULTING

ATHLETIC FIELDS / FACILITIES - MASTER PLAN CONCEPT
LOWER MERION HIGH SCHOOL - ARNOLD FIELD

Draft Master Plan

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. 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.

Draft Master Plan (Contd.)

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.

Draft Master Plan (Contd.)

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.

Cost Estimate

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.

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**

Cost Estimate (Contd.)

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**

Cost Estimate (Contd.)

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**

Cost Estimate (Contd.)

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**

Please Send Us Your Comments

Please send comments on the Draft LMHS Athletic Field Master Plan Study to capitalcomments@lmsd.org