

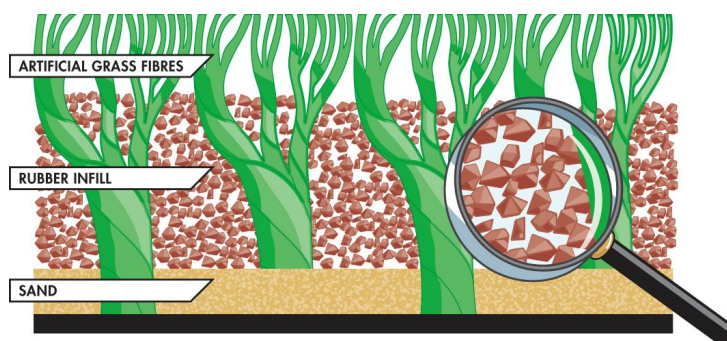
Synthetic Turf Background Information:

What is synthetic turf?

Synthetic turf is a carpet-like surface covering made of man-made materials that are grass-like in appearance and function. When used on playing athletic fields, it provides a consistent playing surface built to withstand extended use without downtime for recovery.

What is a synthetic turf system?

Most systems installed today include a drainage layer, a composite or multi-layered backing system, and resilient grass blades that are infilled with a granular filler to resemble natural turf. "Infilled" means that the surface contains grass blades made of man-made materials interspersed with a top soil made of sand or rubber or a combination thereof that provide the stability and uniformity needed. Each blade customarily stands above the infill material. The typical length and quality is determined by the specific activity requirements.



How does one determine what product or system to select?

General parameters and established guidelines may be developed by independent professional architects, engineers, designers or consultants experienced in synthetic turf systems.

How does one select the right provider?

The size of the installation; the activities of the installation; the intensity of use; the budget; and the quality desired all play a role in choosing the right firm and the right product.

How do I know the so-called new generation systems are player friendly?

When artificial turf surfaces were introduced, there were many myths and perceptions about injuries. These perceptions have changed with the knowledge that injuries are usually sport specific and not related to the playing surface whether it be natural or synthetic.

What are the real benefits of synthetic turf?

Benefits differ from activity to activity and also depend upon the quality and design specified. In general, synthetic fields are always ready for use. They hold up to frequent use, and maintenance saves time and expense.

SAFETY CONSIDERATIONS

The Risk of Injury

We found that many injury risks are related to the type of activity rather than the type of field or surface in use. Concussions, sprains, twists and jams are common to all sports and are highest in collision sports regardless of the type of surface.

The Risk of Exposure to MRSA and Other Infectious Diseases

Further research was conducted on MRSA infections, which is believed to be a leading concern by opponents of synthetic surfaces. Our research indicates that MRSA infections are commonly linked to abrasions sustained by athletes while competing. It's true that athletes are more susceptible to abrasions when playing on synthetic fields; however abrasions occur on all types of playing surfaces. Athletes also get abrasions while playing on natural grass. An abrasion is an open wound that if left untreated, can lead to infection. Trainers take them very serious and treat them immediately. Unlike other types of injuries, athletes continue to play with abrasions and hesitate to get them treated. That's why they can pose such a problem.

To gain more insight from a local perspective, we contacted two senior members of our training staff. Each offered insight into the concerns regarding surface abrasions. Our trainers have treated many types of abrasions sustained by our athletes. Abrasions are easily cared for, but must be monitored closely by the trainer and the athlete to avoid infection. It is usually poor hygiene or neglect that leads to infection. Athletes can limit their exposure by wearing more protective gear like undergarments, elbow and knee pads. It is also important that athletes get treatment early when abrasions are sustained. Coaches and trainers can educate athletes about these matters prior to playing.

The Risk from Exposure to Heat Related Illnesses and CO2 Exposure

Synthetic fields are more susceptible to changes in temperatures. However, there are many strategies that the District employs to combat heat issues. While the heat index is a factor, it is not a major concern, because as a district, we continually monitor the heat index throughout the day to determine whether conditions are safe for students to engage in physical activity. This is a practice that has been in place for many years and will be continued and expanded to include monitoring the heat index near the surface of the synthetic turf.

The Risk Related to Sanitary Conditions

There is no significant advantage or disadvantage to synthetic or natural turf with respect to the presence of foreign materials ending up on the surface. As a precaution, animal/bird feces should be monitored and removed as soon as possible. If site conditions necessitate, deterrents should be investigated further. Foreign materials such as gum, candy, spilled drinks, sunflower seeds or peanut shells should be strictly prohibited around the field area. When these materials are observed within the field surface, they should be removed promptly and cleaned following the manufacturer's specifications and recommendations.

The Risk of Exposure to Crumb Rubber and Silica Sand

Some synthetic turf systems use crumb rubber and silica sand infill combinations while others, manufacture their infill material. Several turf companies offer an environmentally friendly infill option other than using crumb rubber and silica sand. The EPA does provide warning information on silica sand (stating it as a known carcinogen) used on synthetic fields.

Summary

While comparing natural and synthetic turf, the research equally supports both. We believe that the identified risks are manageable and within the normal range of risks assumed at this time by the district with natural turf.

FIELD USAGE CONSIDERATIONS

Significant Findings & Recommendations

- Current Philosophy – Inefficient/Under-utilization of stadium space
- Tremendous Projected Potential (5% to 78%) of TTL Allowable Time
- Projected Use %'s
 - Physical Education 41%
 - After School Athletics 26%
 - Band/Spirit Groups 15%
 - Summer Use (C, Ath, Act.) 18%
- Increased Contests Use – (Fewer Cancellations)
 - Reduces Off-Site Needs – Saves Time, Transportation, Rental Fees
- Reduces over-use of Current Practice Facilities (Allows for more Field Rotation)
- New Potential for Curricular Use on a daily basis (106 Days)
- New Potential for Regularly Scheduled Band Use
- New Potential for Summer Use
 - Curricular
 - Athletics
 - Activities
 - Summer Leagues/etc.

Philosophy of Stadium Usage-Current

At present, the main fields in each District 211 stadium are employed for the conduct of Varsity/Junior Varsity Boys and Girls Soccer, Varsity /Sophomore Football and some Varsity Lacrosse games. Additional contests are conducted at the discretion of the individual schools. The numbers of contests ranged from a low of 49 to a high of 72 during the 2006-2007 school year. In addition, the band and spirit groups experienced a limited amount of usage averaging as low as zero to 2 sessions per week during the fall and spring. The physical education classes have thus far been excluded from use of the natural grass during the school day. Employing the current philosophy of stadium usage – we have found that District 211 Stadium fields are only utilized 5% of the maximum usable/allowable time. This low percentage mark represents a severe **under-utilization** of our already limited facility space for the students in physical education, athletics and extra-curricular activities and creates severe over-usage of existing practice fields and natural turf.

Philosophy of Stadium Usage-Projected

It is the belief of the committee that District 211 stadiums equipped with artificial surfaces would be employed for all levels of Boys and Girls Soccer, Boys and Girls Lacrosse and Boys Football. These uses would entail the potential for upwards of 220 athletic contests and hundreds of hours of practice time outside of the normal school day. In addition, physical education classes could employ stadium fields as teaching stations during the Fall and Spring. The curricular use of stadium fields for eight class periods per day during approximately 107 school days. Stadium fields would also be ideal for marching band practice as well as practice space for other spirit groups. Summer use of stadium fields would be an option for the first time in all three areas: Physical Education, Athletics and Activities (Spirit Groups) accounting for 560 hours of usage. The opportunity for community use of our fields on 31 Saturday and Sundays afternoons would represent an historical shift of usage philosophy and provide a greater service to our communities. Finally, in summary the potential utilization of District 211 fields as described would represent a significant increase for our students. The potential of usage would climb from our current (5%) of total usable/allowable time to (78%) of the maximum usable/allowable time. These facility upgrades allow for the continued pursuit of excellence in our schools provided for all students in District 211.

	Conant		Fremd		Hoffman		Palatine		Schaumburg	
	Current Hours	Projected Hours	Current Hours	Projected Hours	Current Hours	Projected Hours	Current Hours	Projected Hours	Current Hours	Projected Hours
Fall										
PE Curriculum	0	225	0	225	0	250	0	250	0	225
Football										
Practices	0	70	0	72	0	60	0	72	0	70
Contests	40	50	34	44	20	50	20	46	20	46
Boys Soccer										
Practices	0	60	0	90	0	70	0	64	0	70
Contests	64	82	44	60	32	50	52	68	32	54
Activities										
Band	18	125	18	135	0	125	5	125	10	135
Spirit Groups	0	64	0	70	0	64	10	70	0	72
Powder Puff	0	0	0	0	2	42	2	42	2	42
Spring										
Girls Soccer	56	140	110	138	32	156	24	100	32	126
Boys Lacrosse	24	100	16	120	24	100	12	100	24	100
Girls Lacrosse	0	0	12	100	0	0	12	100	6	100
PE	0	330	0	360	0	350	0	320	0	315
Activities	1	58	0	18	0	50	0	35	1	81
Summer Curriculum										
PE *	0	60	0	60	0	60	0	60	0	60
Summer Athletics										
Football	0	120	0	120	0	120	0	120	0	120
Boys Soccer	0	110	0	110	0	110	0	110	0	110
Girls Soccer	0	110	0	110	0	110	0	110	0	110
Boys Lacrosse	0	40	0	40	0	40	0	40	0	40
Girls Lacrosse	0	0	0	40	0	0	0	40	0	40
Summer Activities										
Band	0	16	0	16	0	16	0	16	0	16
Spirit Groups	0	50	0	50	0	50	0	50	0	25
Summer Rentals										
Feeders	0	48	0	48	0	48	0	48	0	48
Park District	0	48	0	48	0	48	0	48	0	48
Misc.	0	16	0	16	0	16	0	16	0	16
Total Hours	203	1922	234	2090	110	1985	137	2050	127	2069

OTHER FIELD CONSIDERATIONS

- Soccer field width of 65 yards is recommended, wider where possible
- Eight (8) lane tracks are a consideration
- Eight (8) lane straight sections are necessary
- Boys & Girls Lacrosse fields are different sizes
- Assume a five (5) year replacement cycle for turf & a ten (10) year replacement cycle for track surfaces
- There are some environmental issues, good & bad, to consider
- Cost comparisons, by hours of use, are updated
- With minor exception, repairs cannot be completed by D211 staff
- Consideration should be given to current needs & future modifications
- A ten (10) week construction window is required for the turf-only component
- Drainage issues are extensive. Large pipe, under the new turf, may be the best solution

Field & Running Track Considerations

- Soccer field width = 55 – 75 yds (Recommend 65 yards or greater)
- Track lane width = 42 inches
- Football field width = 160 feet
- Lacrosse field width = 60 yds (Girls & Boys fields are different sizes)

Field Event Locations

- Pole Vault*
- Long Jump/Triple Jump , (2 per site are needed. Recommend no sand by field)
- Shot & Discus
- High Jump

* Pole vault pits to be in concrete and overlaid with track material

Eight lane tracks are preferred. If not possible, eight lane straight sections are necessary

Cost Per Use (per event)

Set up	\$144.00
Striping	\$125.00
Utility (lights & sound)	\$ 31.00
Security	\$760.00
EMS	\$370.00*
Clean up	<u>\$358.00</u>
	\$1,788.00

*Actual charges based on use

Product Life Expectancy

In the 2002 report, a product life of 10 years, for the surface & infill was assumed.

- Is this still accurate?
- Are there any installations that old?
- Manufacturer warranties & guarantees?

- Actual data is not available. Track surfaces will last much longer than Turf products. Assume a 5 year replacement cycle for Turf & 10 years for Tracks. Track & Turf do not have to match. (Turf replacement cost est. at \$400,000 to be included in O/M replacement cycle.)

Turf will be added to the District replacement cycle & evaluated annually for budget inclusion.

A thicker & softer track is preferable. (¾” thick is appropriate)

An off-track location for drinking water is desired.

Natural vs. Synthetic Cost Analysis

- Current cost of annual maintenance
- Resurfacing options

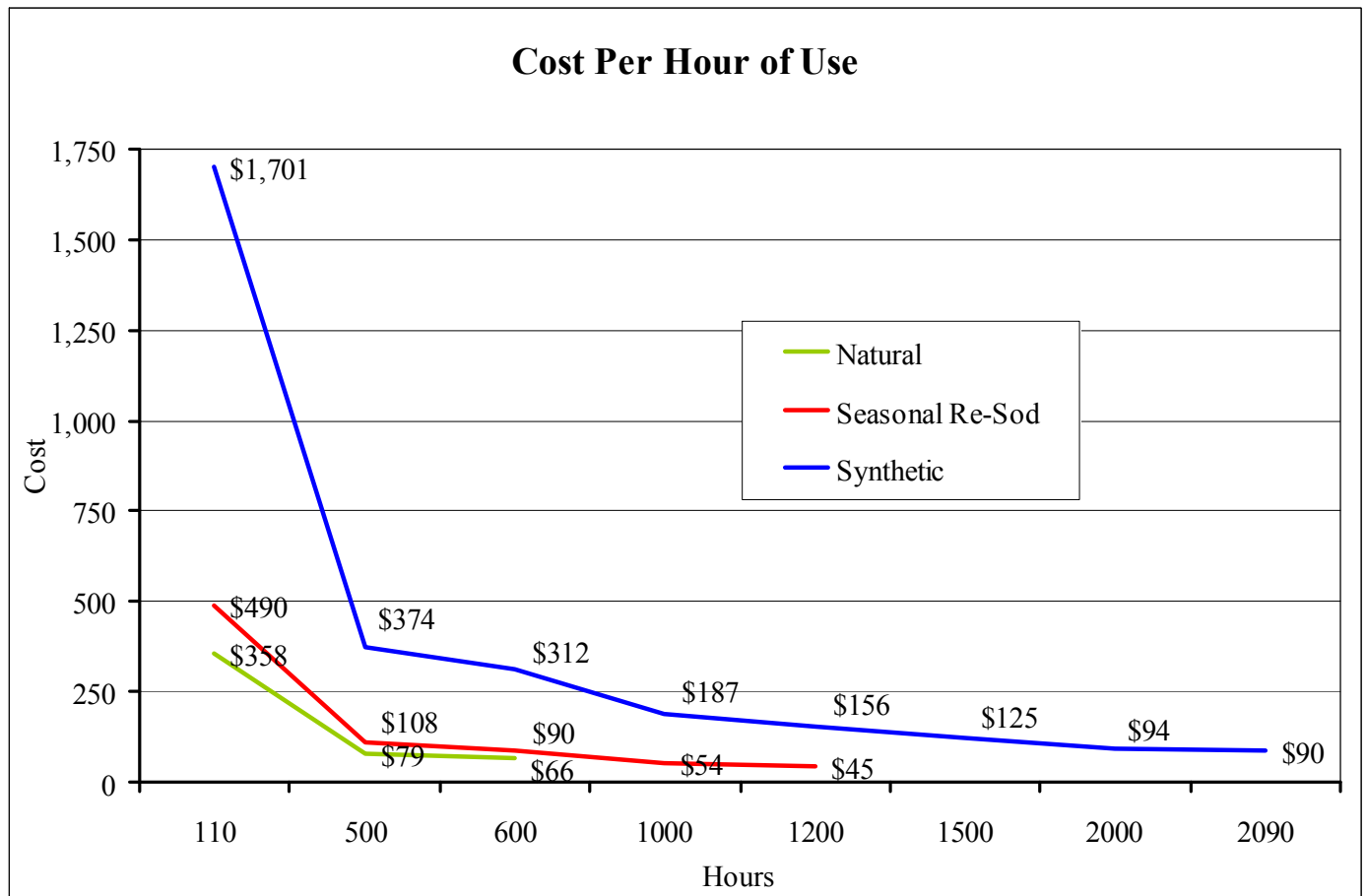
Do we have “Green” component?

- Eliminate pesticides & fertilizers
- Some infill material is a recycled product
- Reduction in paint use

Other Concerns

- Bacteria and mold can live on synthetic materials
- Silica sand is a carcinogen
- Disposal of old infill material may be regulated waste

Cost Per Use (best case / worst case)



- Use comparison graph
- Off-site cost savings

Repair Costs & Considerations

In the 2002 report, repair costs were not addressed.

- Should extra product be stocked? (10% for stock)
- Who can make repairs? (Installer only, possible minor repairs by 211 staff)
- Vandalism issues? (Fence heights may need review)

Center logos & end zone lettering should be avoided

Security cameras & lights may need to be added.

Some risk of fire damage

Third-Party warranties are available

Instruction / Disposal

- Desire to salvage & re-use existing turf
- Desire to salvage & re-use existing amended top soil
- Salvage irrigation heads, valves & timers
- “D” areas, turf or track surface? (Track material)
- Striping plans? (Lane Tech HS was reviewed)

Exterior team rooms (Future) should be considered for utility connections & possible locations

Timing

- Lighting relocation
- Metropolitan Water Reclamation District (MWRD), ROE & Village Permits
- Bids for field work due
- Ten week installation period (Turf area only. Extra time needed for tracks, fences, etc.)

Grading & Drainage Requirements

- Crown of field (Slight crown is desired)
- Underground drainage, existing vs. required
- Site surveys and topography

Other Considerations

- What items should be addressed?
 - Light poles, new and/or relocated
 - PA systems & speaker locations
 - Water for drinking (drainage of area)
 - Wireless systems, referees, coaching headsets, public address, internet,
 - Telephones
 - Hard wired systems, coaching headsets, public address, internet, telephones,
 - Security cameras
 - Flag pole locations
 - Dedication monuments
 - Field event locations
 - Scoreboard locations
 - Relocation of trees, other landscaping

Power, portable heat and A/C
25 second play clocks
Irrigation (required cleaning & cooling the field)
Concession & ticket sales location
Team rooms, restrooms, equipment storage
End zone power & data cable
Sideline voice/data cable

Maintenance Procedures (See Synthetic Turf Council Maintenance manual addendum)
Turf Systems Specifications (See Synthetic Turf Council suggested guideline addendum)

Hydrophobicity & Static (Treat with detergent & fabric softener)

Snow Removal (Rubber edge plow)

FINANCE CONSIDERATIONS

Product costs/options:

There has been a considerable amount of information about artificial surfaces published. Synthetic turf is most visible in the design of professional and collegiate athletic fields, but the products have evolved dramatically in the past several years. The products today are generally composed of a synthetic fiber that is “tufted” and infilled with rubber, sand, or a combination of both. This generation of products is becoming a more popular choice for schools, park districts, and cities when designing or upgrading athletic and activity facilities.

Costs for a synthetic field installations range from \$900,000 to \$1,300,000 (including running tracks; resulting in significant cost differentials between product lines). Life expectancy warranties from the manufacturers are generally 8 years, if the surface is managed properly. Based on the number of expected uses for District 211, we are projecting a life expectancy of 5 years.

STADIUM SURFACE COST ESTIMATE

Site Engineering	\$11,000
Stripping of existing turf/ Soil	\$75,000
Regrading of playing area	\$4,000
Soil Amendments, Calcined Clay, Improve Drainage	\$100,000
Irrigation system installation	\$25,000
10" Gravel Sub Base	\$250,000
Seasonal water	\$500
Grooming of surface per manufacturer guidelines	\$871
Synthetic, surface & Underlayment	\$407,000
New Combined Football/Soccer goals	\$10,000
Purchase of grooming equipment	\$2,000
Installation of Athletic Track	\$414,629
Total:	\$1,300,000

Short-Term Cost/Long-Term Replacement Costs: The life-cycle of a surface consists of three different costs.

- Initial capital Cost
 - Excavation, paving, drainage and installation of synthetic turf.
 - Operating equipment required – sweeper/brush.
- Future Capital Cost
 - Field replacement is done by determining the useful service life interval. Sub-base repairs should be minimal at the time of replacement. Old turf may have a resale, salvage value.
 - Operating maintenance equipment replacement either per capital costs or per annualized depreciation.
- Annualized Operating Cost
 - Materials required include: water/disinfectant for cleaning.
 - Labor to sweep/brush field (to redistribute infill), wet/wash-down field.

Five Fields/Installation Timeline (2 yr. install): While District 211 maintains quality grass fields, the decision to consider the installation of artificial surfaces is driven by the fact that turf fields may be used with unlimited frequency for various sports (football, soccer, lacrosse) plus activities (band competitions, drill teams, intra-murals) and physical education classes. Consistent with District past practice, artificial surfaces would need to be installed at all five high schools in order to have equal facilities across the District.

Should the District consider artificial surfaces, there are a number of steps in determining the desired performance requirements, selecting the surface, and arranging the installations.

- Assess the need –
 - High schools are landlocked and practice fields are limited.
 - Reduces maintenance costs
 - Increases the range of use of our school facilities.
- Researching the various surface materials-
 - Evaluate which combination and quality of material will produce the desired performance requirements.
 - Playing characteristics
 - Durability – is affected by the quality of materials used in its construction; the intensity and frequency of use; and frequency and quality of maintenance.

Field installation at all five high schools– layered strategy (yr. 1 – 2 fields; yr. 2 – 3 fields).

Funding Considerations:

A project of this nature have been funded through several sources, including local and state sources, community/business contributions, and other non-government sources (i.e. foundations, fundraiser, grants). Some of the strategies used to fund projects include:

Outright purchase (Operations/Maintenance Fund):

Installing artificial surfaces at all five schools would be approximately \$1,300,000 per field or \$6,500,000 overall. Existing Operations/Maintenance funds can be used to accommodate this expense. Currently, District 211 has recognized additional funds in its Operations/Maintenance Fund available to fund these projects on an outright purchase basis as shown below. This is our recommended method of funding and reason for reassessing the artificial surface projects at this time. In 2003, lack of funding was a major consideration for deferring Board of Education consideration.

OPERATIONS/MAINTENANCE - RESTRICTED FUND BALANCE

REVENUES

Ela Road Property Sale (7/2005)	\$3,024,000
Celotex Asbestos Settlement (11/2007)	\$2,492,312
International Insurance Settlement (3/2008)	\$2,500,000
Interest Transfers from Bond/Interest Fund (6/2004--6/2009)	\$2,025,638
Unencumbered Balance from \$53 mil. Bonds net of arbitrage (6/2006--6/2009)	\$2,515,679
TOTAL:	\$12,557,629

EXPENDITURES

Schaumburg HS Gymnasium Project	\$589,000
District 211 Foundation	\$25,000
Settlement Fees	\$998,462
TOTAL:	\$1,612,462

BALANCE

RESTRICTED FUND BALANCE: \$10,945,167

PROJECT CONSIDERATIONS

5 Artificial Stadium Fields (\$1.3 Mil. per field includes track)	\$6,500,000
Transportation Garage Renovation	\$3,500,000
Additional Scope Contingency	\$700,000
PROJECT TOTAL:	\$10,700,000

Lease/Purchase Option (Max. 10-yr. Term – O/M Fund):

The School Code permits school districts the option to finance capital projects through lease/purchase agreements for a period not to exceed ten years. As a result of a lease obligation (installment loan), a school district may levy 5 cents for Lease purposes. The District can generate approximately \$4,000,000 annually from this levy. The option to finance the artificial surfaces through lease purchase agreements could be accommodated in the O/M Fund, if other budget considerations (reductions/revenue) were adopted. Elgin U-46 financed the installation of an artificial surface at Streamwood High School through a lease purchase option. Given that designated funds are recognized in the Operations/Maintenance fund for these projects, a lease purchase option is not recommended.

Business/Community Partnerships-Fundraiser:

Some districts have funded artificial surface projects through capital campaigns with formal solicitations for donations from the business community. In addition to soliciting donations from the business community, some communities have developed neighborhood campaigns to enable schools and student bodies, residents, school community groups (Parent Booster clubs), municipalities and park districts to participate in these types of projects. Given the diversity in our school demographic communities and philosophy to provide equitable opportunities for all our students and schools, this method funding is not recommended.

Grants:

Selected foundations (i.e. US Soccer Foundation/Nike) offer a synthetic turf package grant program. Through a partnership, the US Soccer Foundation and Nike are putting up seed funds

through the US Soccer Foundation’s Grants Process to give municipalities and schools a “head-start” on the construction of a synthetic field package. The “turf package” provides for a specific turf product, lighting requirements, and sign system boards for advertising. Only \$1,000,000 per year will be awarded in the grant program with a maximum grant per project of \$100,000. Potential grantees must apply and follow all the eligibility requirements. We applied for this grant in 2003 and was denied based the determined level of local resources. Grant recipients represented primarily inner city areas.

Area High School Installations:

The following suburban area high schools have installed synthetic stadium surfaces over the past few years:

<u>High School</u>	<u>Installation Year</u>
Argo	2006
Riverside Brookfield	2006
Barrington	In Progress
Streamwood	2000
Niles North	2007
Lane Tech	2007
Lake Zurich	2005
Wheaton North	2003
Wheaton – Warrenville	2003
Libertyville	2005
Lincolnway – East	2006
Lincolnway – Central	2006
Lake Forest	2007
Grayslake	2007
Romeoville	2007
Bolingbrook	2007
Carmel	2004
Vernon Hills	In Progress (Baseball infield)
West Chicago	2005
Loyola Academy	2008
Lyons Township	2004

CONCLUSIONS/RECOMMENDATIONS

Based on the District’s research and findings, artificial stadium surfaces would afford wider use of existing facilities to include, but not limited to, physical education classes, marching band, football, soccer, and lacrosse practices and contests and are recommended for installation consideration at each of our five high schools. While we recognize the significant benefit of

installing synthetic fields from an increased usage perspective, extensive work has been done to address safety, drainage, maintenance and funding considerations.

Next Steps:

- Develop product selection specifications (Turf types, fiber, backing systems, track surface, infill materials, user interface, maintenance, warranty, drainage, base materials, lines/markings)
- Engage engineering services for site plans, storm water management, and permitting work for two schools.

Cost estimates: (two schools):

Site Plan	\$4,000
Storm water Management	\$5,000
Permitting	\$7,000
Survey	<u>\$11,000</u>
Total Estimate:	\$27,000

- Stadium Surface communication plan to include media contacts, student groups, booster and band groups, and other community wide groups.