

**GLENBROOK HIGH SCHOOLS  
Board Meeting – October 26, 2009  
District Business Office**

**TO:** Dr. Riggle  
Hillary Siena

**FROM:** Kimberly L. Ptak

**DATE:** October 26, 2009

**RE:** **DISCUSSION/ACTION: Water Detention Plans**

**ESSENTIAL QUESTIONS**

Q1: Should the Board vote to approve a \$55,000 expenditure to design water detention plans for submission to MWRD for potential artificial field installation at the two high schools?

Q2: Should the Board give tentative approval to the timeline that outlines installation of an artificial field at both high schools in the spring/summer of 2011?

**RECOMMENDATION**

R1: It is recommended that the board approve a \$55,000 expenditure for site drawings, detention calculations and detention design which is required as part of the Metropolitan Water Reclamation District (MWRD) permitting process for artificial fields. This permitting process can take 6-12 months.

R2: It is recommended that the board approve the attached recommended timeline for consideration of installing an artificial field at GBN and GBS during the summer of 2011.

**BACKGROUND**

Over the last 18 months, artificial fields have been discussed at several board meetings, facility committee meetings and finance committee meetings. In general, the consensus has been in favor of artificial fields from utilization, safety and environmental perspectives. The hesitancy has been due to the cost of the fields, which are estimated to be approximately \$1.2M - \$1.4M per school.

The recommendation that detention designs for each school be submitted to MWRD is based on the fact that additional water detention would be required at each site for artificial field installation. The MWRD approval process is lengthy and must be completed prior to the projects. Should the district decide not to pursue the installation of artificial fields, the study can be utilized for other projects that may arise in the future.

**UTILIZATION CONSIDERATIONS**

Currently the main fields at GBN and GBS are used exclusively for football, soccer and lacrosse competitions – approximately 37 games at the varsity level per year. Lower level games and practices in these sports are held on other fields on the school campus or within the community with permission of the park districts and other school districts. It is estimated that only 130 students per school play on the main field every year. Of the allowable field time, the main field at each school is used roughly 8% of the time. Due to the extremely low usage it is estimated that the average cost per hour of use is \$411 and the average cost per event is \$1200.

	<b><u>Current Usage w/Grass Field</u></b>	<b><u>Projected w/Artificial Field</u></b>
Physical Education	0	760
Marching Band	30	145
Football (varsity & soph)	30	240
Soccer	50	335
Lacrosse	50	260
Spirit Groups	10	125
Feeder/Park District	0	135
TOTAL HOURS	170 hours	2,000 hours
	<b><u>Current Usage w/Grass Field</u></b>	<b><u>Projected w/Artificial Field</u></b>
Utilization Percent	8%	88%
Cost Per Hour	\$411/hour	\$93/hour
# of Students Impacted	130	All students + community ~ 3500+

**Current Concerns Common to GBN and GBS**

- ✓ The main field is ONLY used for varsity and sophomore football, soccer and lacrosse competitions meaning only 130 students per school benefit from using the field. Games have been rescheduled or moved due to inclement weather causing usage to be even lower.
- ✓ The main fields sit unused during the summer, so the grass can be properly irrigated, fertilized and have time to establish new turf.
- ✓ All practices are held on practice fields unless weather is bad, then the practices are moved to the field house or other locations to protect the practice fields. When this happens, it has a domino effect, as activities such as the cheerleaders are moved from the field house, clubs are moved from gyms, etc. Lacrosse and field hockey are sent off campus to practice.
- ✓ PE never uses the main field and, depending on the condition of the practice fields, are sometimes not able to use the practice fields for curricular activities. As a result, PE spends more time than ideal indoors and needs to be extremely flexible, as it is common for instructors not to know their scheduled location until that morning. This can impact the quality of the curriculum, as the location starts to dictate the activity and type of instruction.

- ✓ The band rarely uses the main field. Instead, they practice in the parking lot, which impacts traffic flow. The GBS parking lot is not properly lit resulting in the need to use the stadium lights to light the parking lot.
- ✓ The district is landlocked preventing it from adding additional fields to increase usage. The only solution to allow an increase in participation for all groups and provide space for future programs is an artificial field surface.

**FINANCIAL CONSIDERATIONS**

The cost of an artificial field is approximately \$1.2-\$1.4M per school, depending on detention requirements. Projected probable costs prior to the completion of detention design:

Site Work/Drainage	\$440,000
Detention System	\$300,000 - \$500,000
Synthetic Surface	\$435,500
Grooming/Equipment	\$3,900
	\$1,179,400 - \$1,379,400

It is projected every 8-10 years the artificial field surface (i.e. carpet), which is the backing and artificial blades, needs to be replaced, however longevity is subjective and insufficient field evidence for this replacement cycle exists. The infill is removed, cleaned and reused. This cost is approximately \$550,000. The annual operating cost is estimated at \$3,000/year. In addition, the cost of a new running track is estimated at \$425,000 per school. Replacement of the running track is planned in FY 2018 and repair work in FY 12/13 (gbn) and FY 13/14 (gbs).

**GRANT OPPORTUNITIES**

The district is aggressively pursuing two grant opportunities: One through the US Soccer Foundation and one through the NFL Grassroots Program. Through its grant program, the US Soccer Foundation helps ensure that the technology for artificial turf is more affordable for communities throughout the nation. The goal of the NFL Grassroots Program is to provide non-profit, neighborhood-based organizations with financial and technical assistance to improve the quality, safety and accessibility of local football fields. The application deadline for each grant is October 31, 2009 and the district will be notified by February 2010. Potential grant opportunity is \$200K per school, per grant.

**ENVIRONMENTAL CONSIDERATIONS**

From an environmental standpoint, there are many benefits to an artificial field –

- ✓ Water conservation – artificial fields reduce the need for constant watering. In addition, there are opportunities to capture rain water beneath the field and use it to water other natural grass fields.
- ✓ Elimination of fertilizer and pesticides – also reduces the risk of groundwater contamination

- ✓ EPA considers synthetic turf to be non-hazardous
- ✓ Product is environmentally friendly –
  - Blades are made from recycled plastic
  - Infill is made from recycled tires (20,000 per field) or other recycled products
  - Infill is continuously reused and biodegradable options are available.

### **HEALTH AND SAFETY CONSIDERATIONS**

There have been recent concerns in the media. Attached is report from Field Turf that is a compilation of a variety of studies that have been completed on the various concerns. The concerns include –

1. Illness due to inhalation, ingestion or contact with artificial turf
2. Higher likelihood of sports related injuries on artificial turf
3. Harmful to environment
4. Infill is carcinogenic
5. Reduction of natural grass contributes to global warming
6. MRSA/Staph infections are caused by bacteria on turf fields
7. Artificial fields can cause silicosis
8. Heat index can get too high on artificial fields
9. Lead is found in artificial fields

## ARTIFICIAL TURF - Project Team and Timeline

Overall project steering committee will consist of superintendent, principals, athletic directors, assistant athletic directors, Hillarie Siena and Kim Ptak. The board's finance committee members and facility committee members will serve as ad hoc members to the committee.

Key tasks and project leads:

### FINANCIAL – Hillarie Siena

- ✓ Determine if district should pay cash or borrow funds to pay for the balance of the artificial fields
- ✓ Research alternative sources of funding
- ✓ Set up a district account (non foundation) for fundraising funds to be deposited

### FACILITIES – Kim Ptak

- ✓ Work with architect and engineer on MWRD process
- ✓ Establish total cost of fields and possible track work at each school – final cost will depend on findings from MWRD
- ✓ Oversee bid spec process, bidding, construction
- ✓ Facilitate meetings with appropriate building personnel to determine the type of turf system to spec

### FUNDRAISING – Buildings – Leads TBD

- ✓ Create a strategy for fundraising efforts
- ✓ Create necessary PR material
- ✓ Track funds raised through fundraising efforts

### TIME LINE

September 29, 2009 Facility committee meeting – discuss timeline

October 26, 2009 BOE reviews facilities overall list (including fields) and gives direction

November 2009 Kick-off meeting with steering committee

November 2009 Fundraising lead(s) meet to develop fundraising plan

December 2009 MWRD Process and fundraising begins

January – August 2010 Selection of turf product is determined

August 2010	Final costs are determined based in MWRD findings Fundraising efforts are concluding
September 2010	Finance Committee Meeting: Determine how district portion will be funded
October 2010	Board approves the final project and financing
December 2010	Board issues bonds (if necessary)
January 2011	Board issues bids for artificial turf fields
Summer 2011	Project complete



OVERVIEW OF THE  
LATEST  
ATTACKS AGAINST  
ARTIFICIAL TURF

# OVERVIEW OF THE LATEST ATTACKS AGAINST ARTIFICIAL TURF

The success of artificial turf sports fields has had an impact on the suppliers of natural grass fields. As the growth of artificial turf increases dramatically, on a global scale, it now represents a considerable threat to this established industry.

The natural grass industry generates over \$40 billion in sales each year in the US alone. This includes the sales of some 8 billion pounds of dangerous herbicides, pesticides and fertilizers - causing experts to now question how "natural" natural grass really is.

Artificial turf has also had an impact on the local communities where such fields are installed. The installation of any new artificial turf field means kids can now play on it day and night - without fear of destroying the grass or creating mud baths in bad weather. As a result, many installations are often followed by the installation of lights, increased usage during the day and night and the subsequent crowds that such activity brings.

Concessions, traffic and other inconveniences cause concern for the homeowners nearby who feel threatened by new construction. Unless the homeowners have children who use the facilities, their reaction is usually based on protecting the peace and quiet of their lives and the value of their property, which they fear will be affected.

Unfortunately, most local residents have limited input in such decisions. In the past they have been unable to stop progress. But now the natural grass industry and those who have issue with artificial grass (or anything artificial) are using the local residents to put forward their own agenda to try to stop the installation of new artificial turf fields. There is nothing like an environmental or health scare to put the brakes on any new construction. The natural grass industry, with lobby groups and committees designed solely to attack artificial turf in every way possible, have been feeding local communities with misleading and false information. When residents bring this information to their town halls and the local media, these scare tactics make headlines.



So much study has already been done on this subject. Hundreds of reports and tests have created thousands of documents of very detailed medical reports. While headlines and ten second sound bites are effective in scaring the public, making sense of the complex scientific literature and making it available and understandable to the general public is a far more difficult task.

Everyone who reviews the facts understands the truth. But hysteria and wild claims of imminent danger, fed by the natural grass industry, their lobbyists, PR groups and those with their own industry agenda have found it easy to make headlines this way - and so such tactics continue to be effective.

In the attack against artificial there have been many such claims.



# OVERVIEW OF THE LATEST ATTACKS AGAINST ARTIFICIAL TURF

**First it was Silicosis**, with threats that playing on artificial turf, with sand in the infill meant inhaling silica, which causes silicosis. This proved to be a ridiculous assumption, since the size of the smallest particle of silica sand is many times larger than the particle size the lung is able to ingest. In any case, it required locating many of the countless studies published to prove that it was in fact an empty threat. If not, walking on the beach would be hazardous to your health.



**Then it was Heat.** This threat purported dangers of kids dying on hot artificial grass fields, fuelled by a few tragic incidents where young athletes died of heat exhaustion and related conditions. These horrible events actually took place on natural grass, not on artificial turf. While artificial fields get hotter than natural grass in warm climates, watering a field for a few minutes will greatly reduce its temperature for hours.

**Next was Staph / MRSA.** Artificial turf was blamed for serious infections that were making headlines. As it turned out, this was completely false. 85% of all MRSA cases occur in a medical environment - such as hospitals or extended care facilities. MRSA has never been found in artificial turf, although it has been found throughout the locker room environment - on towels, whirlpool baths, massage tables and weight room equipment.

**Then it was Global Warming,** blaming artificial turf for increasing temperatures on earth. A scientific review of global warming contributions from shopping center parking spaces alone, made such claims microscopic in comparison. These claims assume that where artificial turf replaces natural grass we are removing needed oxygen from the environment. Natural grass sports fields do not produce oxygen.

**Then it was the Rubber Crumbs,** suggesting dangers of cancer-causing materials. This created a lot of excitement, purporting that PAHs (Polynuclear Aromatic Hydrocarbons) and Zinc were found in the rubber made from recycled tires. PAHs are a naturally occurring substance found everywhere in our environment. Testing at artificial turf fields showed levels similar to those found in the ambient air or water. The levels of Zinc were found to be six times higher in rainwater than in artificial turf.

**And the latest scare - Lead.** Lead was found in old style, carpet-like turf systems containing nylon fibers. FieldTurf uses only polyethylene fibers. NJDHSS tested 12 artificial turf fields and found no issues with any FieldTurf fields. NJDHSS testing found lead levels in FieldTurf fields to range between 1 ppm and 1.6 ppm. The U.S. Consumer Product Safety Commission's recall level for toys with lead paint is 600 ppm. U.S. and European Union packaging standards limit lead to an upper limit of 100 ppm in packaging. Proposed legislation in Canada would limit lead, in children's toys that can be put in the mouth, to 90 ppm. To put this in perspective, according to the lowest limits, Mr. Potato head can safely contain about 90 times more lead than a FieldTurf field.

The following pages look at these claims and some of the facts that have not been reported, or have been conveniently omitted where it serves another agenda.

# OVERVIEW OF THE LATEST ATTACKS AGAINST ARTIFICIAL TURF

## Silicosis - The Claim:

That the sand used in artificial turf fields can cause silicosis.



## Silicosis - THE FACTS:

Diseases from sand are caused by respirable crystalline silica. As you might surmise you can't get silicosis from going to the beach, or working your way around sand traps, because of the sizes of the sand involved. If the sand particles you breathe are too large they never get down into the lungs. If they are too small they pass right through the lungs and do not cause harm.

Respirable crystalline silica is so small as to be invisible to the naked eye, and is caused by activities involved in sand blasting or in mining where the forces involved are actually fracturing the sand. Diseases associated with this require exposures to these harmful sizes for years and / or fewer but massive amounts of exposure. Cases of silicosis in this country have been declining markedly over the past 80 years. It is completely preventable now and recent court decisions have found that the silicosis issues of today are generated by plaintiffs' lawyers out to make money rather than by any true incidence of silicosis as a health concern today.

## Heat - The Claim:

Artificial turf gets dangerously hot.

## Heat - THE FACTS:

There is no question about it. Artificial turf is warmer than natural grass. With almost 5,000 installations, many are located in desert climates, from Nevada to the Middle East. In hot weather artificial turf gets hot - just like sand, sidewalks, asphalt and rooftops. Contrary to public perception, it is the fibers that heat up, not the crumb rubber.

While common sense usually ensures that athletes are not practicing during high temperatures, FieldTurf R&D has developed some unique solutions and continues to find new ways to improve this. However, simply watering the field for 10 minutes will drop its temperature approximately 40 degrees. The temperatures remain lowered for almost 2 hours.

## Staph / MRSA Infection - The Claim:

That staphylococcus infections / MRSA are caused by parasitic bacterium present on the playing surface of artificial turf fields.

## Staph / MRSA Infection - THE FACTS:

Some makers of antiseptic sprays and coatings have tried to promote the dangers of infection to enhance their business. However, no staph infections have ever been found in artificial turf fields, although they have been found in almost every other part of the athletic environment, including; benches, clothing, towels, tubs, showers, tables and dressing room floors.

85% of all MRSA cases occur in a medical environment - such as hospitals or extended care facilities. If spraying antiseptic really solved this problem of staph infections, then it would be commonly used in every hospital around the world - which it is not.

# OVERVIEW OF THE LATEST ATTACKS AGAINST ARTIFICIAL TURF

## Global Warming – The Claim:

The replacement of natural grass with artificial turf contributes to global warming and eliminates the production of oxygen.



## Global Warming – THE FACTS:

With over 30 million acres of lawns, natural grass is by far America's largest irrigated crop. Artificial turf represents less than .000002 of this green space - a microscopic portion of the asphalt urban jungle with its reflective glass wall buildings that generate heat in every city in America. For each artificial turf field installed, over 2 million asphalt parking spaces are being built.

Only 30% of our oxygen comes from land based resources. 70% comes from the oceans. Of the 30% which is land based, only living rainforests and peat bogs produce oxygen and remove carbon dioxide - dependent upon the untouched natural order of growth, decay and regeneration. Natural grass sports fields are not a factor in the production of oxygen.

## SBR – The Claim:

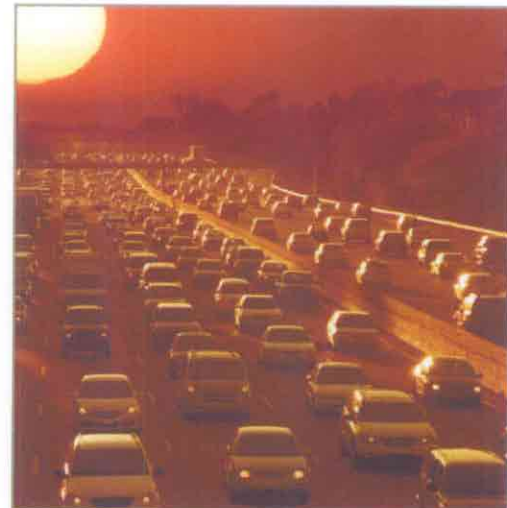
That the crumb rubber, used as infill in artificial turf fields, is toxic.

## SBR – THE FACTS:

Some 50 billion tires have been ground up on our highways and city streets. And more are being shredded by trucks, buses, cars and planes every single day. Aside from tires, SBR can be found in many products including chewing gum and erasers.

Artificial turf represents less than .0000004 of the SBR that is part of the atmosphere and the air we breathe every day. Claims of PAHs in SBR should be balanced with the fact that burning fossil fuels, heating and cooking are, in fact, the #1 causes of PAHs in our atmosphere. The total reduction of PAHs in tires would have an impact of less than 2% of the PAHs in our environment.

Crumb rubber has been studied extensively over the past 25 years and has been proven in hundreds of studies to be safe for humans and safe for the environment.



# OVERVIEW OF THE LATEST ATTACKS AGAINST ARTIFICIAL TURF

## Lead – The Claim:

That high levels of lead were found in some artificial turf fields.

## Lead – THE FACTS:

The scare came from a story regarding an old style, non-infilled field in New Jersey, made with nylon fibers. FieldTurf uses only polyethylene fibers. A ten-year investigation ('97-'06) of 763,216 childhood exposures to lead identified no risks from synthetic turf. During this 10-year investigation, while the number of synthetic fields installed in New Jersey increased over 1000%, the blood lead levels in children tested fell from 23.22% to 1.52%.



*The following are some current standards:*

- U.S. Consumer Product Safety Commission ground water level - 400 ppm.
- U.S. Consumer Product Safety Commission recall level for toys with lead paint - 600 ppm.
- U.S. and European Union packaging standards - 100 ppm.
- Proposed Canadian legislation for toys that can be put in the mouth - 90 ppm.
- Toxic Substances and Disease Registry for natural soil - 20 ppm.

Tests on FieldTurf fields showed a maximum level of 1.6 ppm.

Here are some other misleading claims made about artificial turf.

## Health and Safety – The Claim:

The materials used in artificial turf fields can affect the health of the athletes who play on it.

## Health and Safety – THE FACTS:

Not a single injury has been ever reported where an athlete or anyone else has fallen sick or was injured as a result of inhaling, having skin contact with or ingestion of artificial turf infill materials.

Given this fact, perhaps we should be more aware of the real issues and put the emphasis where it belongs - like preventing real and present everyday dangers.

According to the Sports Concussion Institute, more than 750,000 Americans report injuries sustained during recreational sports each year, with 82,000 involving brain injuries. Up to 86% of athletes that suffer a concussion will experience Post-Traumatic Migraine or some other type of headache pain. Brain injuries cause more deaths than any other sports injury. In football, brain injuries account for 65% to 95% of all fatalities. Football injuries associated with the brain occur at the rate of one in every 5.5 games. In any given season, 10% of all college players and 20% of all high school players sustain brain injuries.



A five-year study comparing FieldTurf artificial turf to natural grass has shown that artificial turf resulted in 55% fewer Neural injuries, 47% fewer Cranial Cervical Injuries, 45% less time lost to injury (22+ days), 38% fewer 3rd degree injuries and 35% less time lost to injury (1-2 days).

# OVERVIEW OF THE LATEST ATTACKS AGAINST ARTIFICIAL TURF

**Environmental Concerns - The Claim:**  
That artificial turf is dangerous to the environment.



## **Environmental Concerns - THE FACTS:**

Burning of fossil fuels remains the #1 global concern. Getting fixated on the unproven potential of a possible miniscule contribution by artificial turf requires some common sense and balance, considering the injury prevention and health and safety benefits allowing children and adults of all ages greater access to exercise thanks to the extended availability of artificial turf.

The environmental benefits of artificial turf include the recycling of old tires, the elimination of over 8 billion pounds of pesticides, chemicals and fertilizers and billions of gallons of clean drinking water used to maintain natural grass playing fields.

The does not include the added benefit from the reduction of emissions and heat generated from mowers and grooming equipment. And don't forget about all the chlorine, bleach and soap required to wash natural grass stains off millions of tops, shorts and players' uniforms each day.

**Maintenance - The Claim:**  
That maintaining an artificial turf field is difficult and costly.

## **Maintenance - THE FACTS:**

A FieldTurf artificial turf field requires brushing once or twice per month to remove debris. Maintenance is drastically reduced, regardless of how much use the field gets. Savings achieved in the reduction of equipment, fuel, pesticides, chemicals and fertilizers is considerable. An average natural grass playing field costs \$50,000 to properly maintain each year. An artificial grass field costs \$5,000 to maintain.

City and Parks Administrations, Sports Facility and Stadium Managers, Athletic Directors, Coaches and Field Maintenance Staff in schools and colleges from coast to coast consistently confirm that the savings and economic benefits of artificial turf are a fact. Over a ten year period, the average cost per hour of use of an artificial turf field is less than 25% the cost of use of a natural grass field. Over the life of the field, artificial turf can save up to \$1 million.



