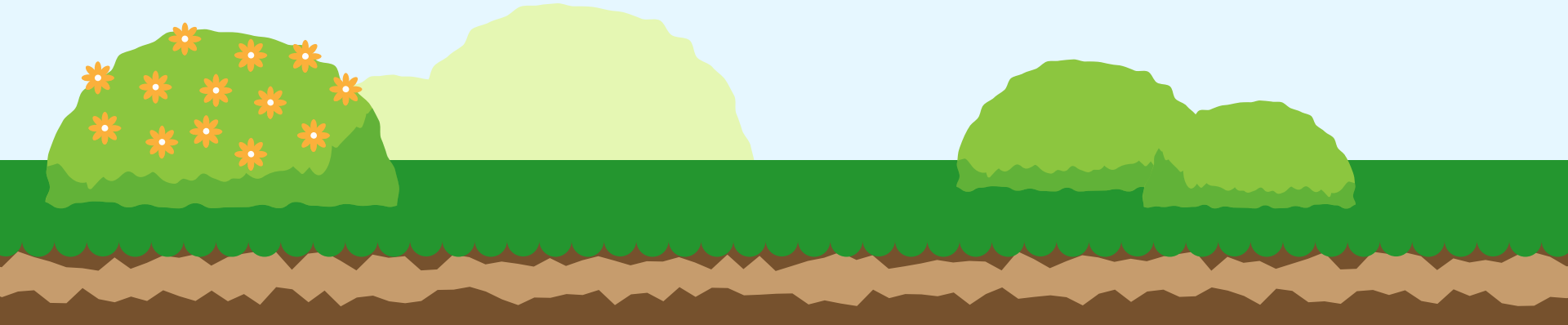


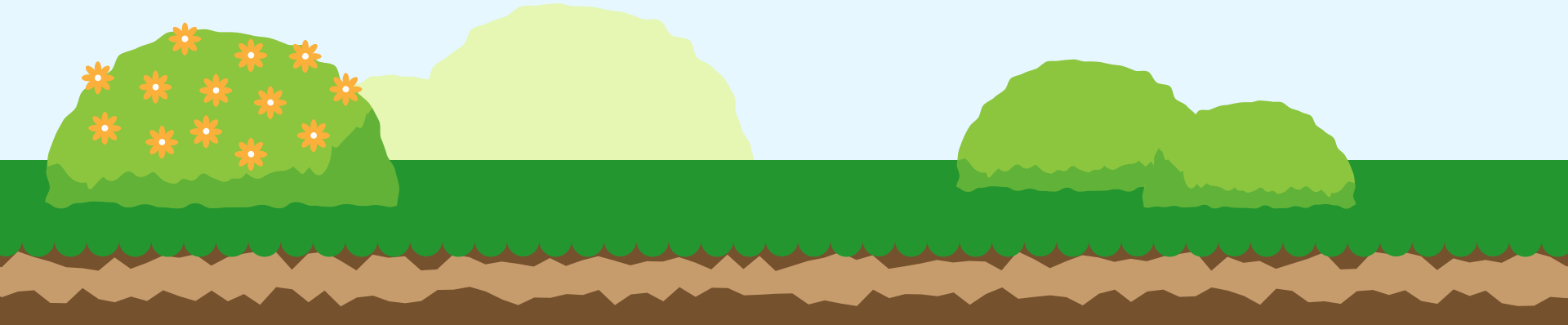
Grass for Gile

Why a Natural Grass playing field is the best option for our kids, for our neighborhood, and for the planet!



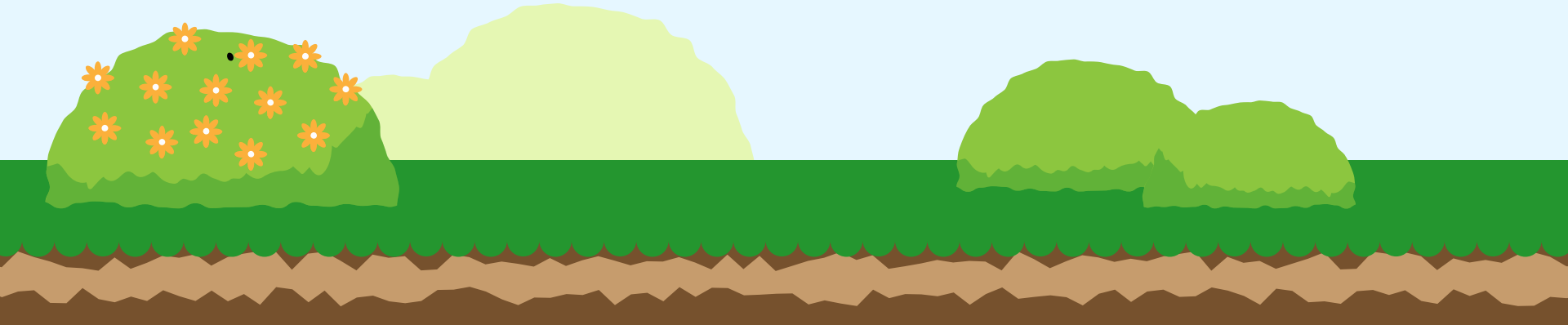
Does Milton need more
playing fields?

YES!



YES, our town's kids *need and deserve* more practice and playing time for youth sports.

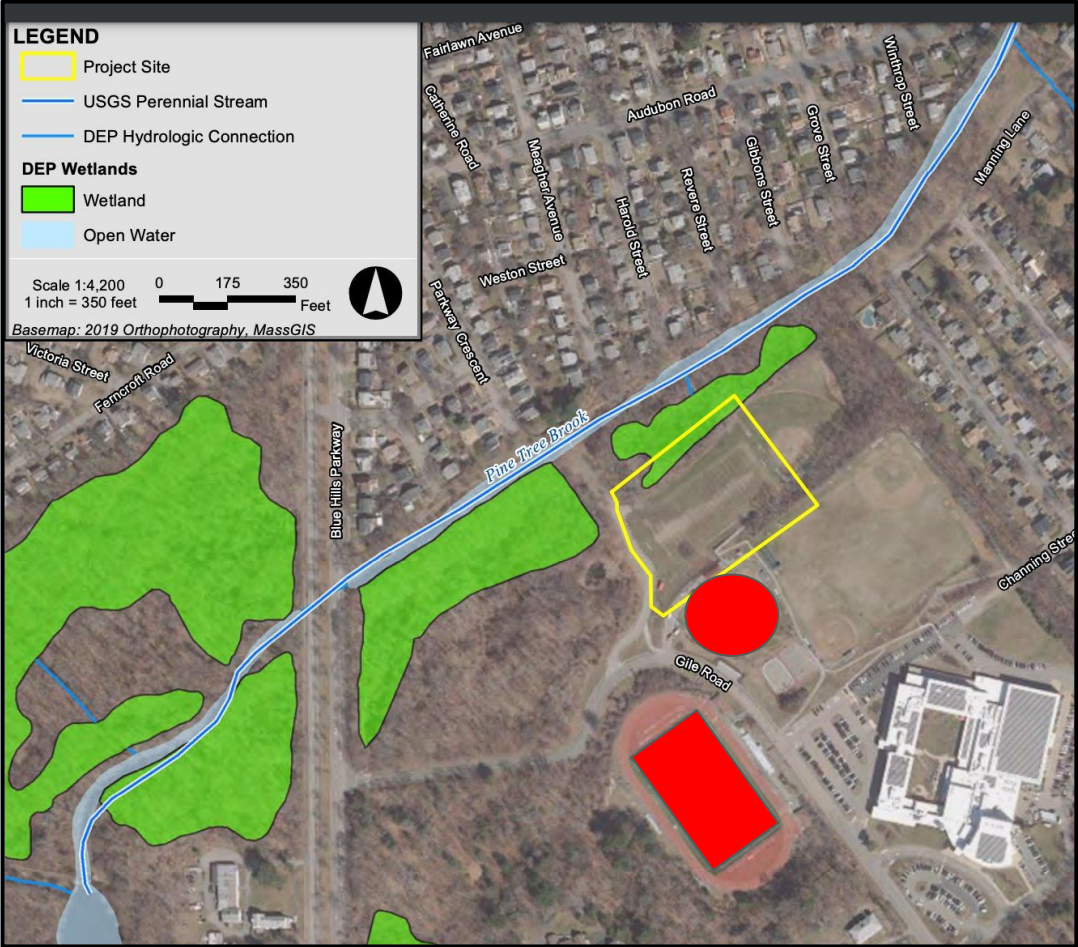
YES, we need to use our town's resources as effectively as possible.



Welcome to the Pine Tree Brook neighborhood!

The proposed field, roughly outlined in yellow, directly abuts wetlands. It is in a densely populated part of town that is the most diverse in Milton, identified as an Environmental Justice Population community by the state, with homes as close as 300 feet away.

In red, at right: pre-existing artificial turf fields near the Pine Tree Brook neighborhood (Milton HS stadium, Piatelli Field)



[Click on links in underlined text to learn more](#)

The Pine Tree Brook is an important part of our neighborhood. The area is home to families, and also deer, racoons, foxes, herons, songbirds, coyotes, rabbits, pollinators and many more important woodland creatures who ensure this ecosystem stays healthy and balanced.



The Pine Tree Brook runs next to Turner's Pond, so any pollutants that are introduced into the brook could also contaminate the pond.

**In 13 state parks, Mass. officials
issue advisories for fish
consumption due to PFAS**

**Elevated PFAS levels in fish at Massachusetts parks prompt
new consumption advisories**



State health officials are warning residents against consuming native fish caught at 13 state parks, including Houghton's Pond, because of elevated levels of PFAS in the water. [Click on the images to learn more about PFAS contamination.](#)

Natural Grass is better for the Earth!



Grass captures greenhouse gasses.



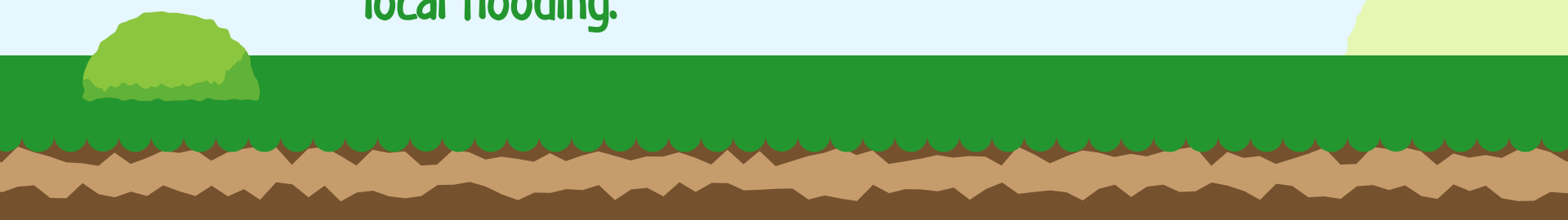
Grass provides a cooling effect for the local area.



Grass produces oxygen.

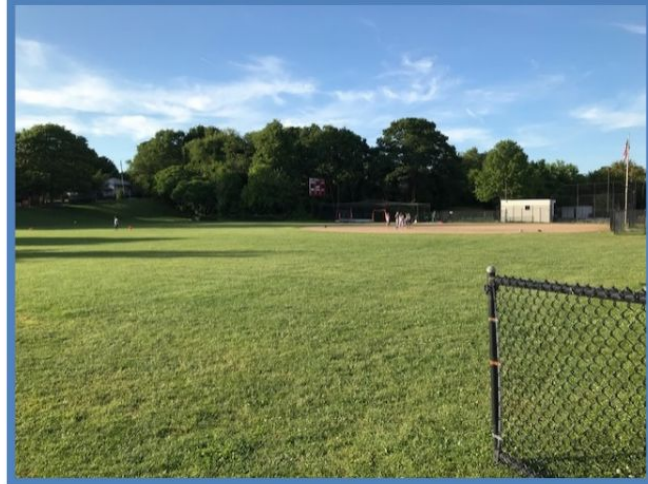


Grass reduces storm water run off, preventing local flooding.



Natural grass can be maintained Organically with NO loss of playing time!

Springfield, Marblehead, and Martha's Vineyard do not rest their fields and do not restrict play during particular seasons or rotate fields. When drainage is designed appropriately and soil is properly aerated and maintained, the soil is able to hold more rainwater, reducing puddling after rain. You can play through rain on a natural grass field!



Organically managed fields at Veterans' Middle School located in Marblehead, MA

Springfield maintains natural grass fields.



Image links to a short video.

"By going organic you are going to find it doesn't really affect your playability, if anything it's going to make it better" -Patrick Sullivan, Director of Parks, Buildings, and Recreation, City of Springfield

and Springfield, Marblehead, Somerville, Sharon, Concord, Wayland, Martha's Vineyard all maintain grass fields. There is no loss of playing time due to heat with grass fields!



Click on the soccer ball to see a video.

Athletes prefer natural grass.

The NFL Players Association advocates for natural grass fields, and FIFA will only allow natural grass fields at the World Cup. Athletes are less likely to be injured and are safer from concussions playing on well-maintained natural grass!



Click on the images to to learn more.

Natural Grass is Cheaper

It is a **myth** that synthetic fields require less maintenance than natural turfgrass fields or that synthetic turf fields are maintenance free.

Over its lifecycle a grass field is cheaper to install and maintain.



Click on the image for cost comparisons.

Natural Grass is Cheaper

Table 1: Comparison of annualized costs

Field type	16-year annualized costs
Natural soil-based field	\$33,522
Sand-cap grass field	\$49,318
Basic synthetic field	\$65,849
Premium synthetic field	\$109,013

Source: Brad Fresenburg, "More Answers to Questions about Synthetic Fields – Safety and Cost Comparison." University of Missouri.

Natural grass is significantly cheaper to install and maintain. According to UMass Lowell's Toxics Use Reduction Institute (TURI), 25-year and 50-year life cycle costs for synthetic turf are at least 2.5 times as large as those for natural grass.

Over a 20 year lifespan, natural grass is cheaper than turf. An artificial turf field needs maintenance, and the carpet needs to be replaced every 8-10 years. The shock pad wears out after 20 years. The infill needs to be replenished. In addition to the costs (\$500,000 for a new carpet, \$50,000 for landfill), maintenance is \$7500 per year, according to artificial turf experts..

What's so bad about
artificial plastic turf
anyway?



Artificial plastic turf is a disposal nightmare!

The plastic carpet, shock pad, and infill all need to be replaced every 8 - 10 years..

There are NO recycling plants that take plastic turf in the US.

So it **ALL** goes to a landfill.

The cost for disposal can be as much as \$191,000..



	62,625 sf field	85,000 sf field
Removal & disposal (TRC)	\$115,000 - \$148,000	\$149,000 - \$191,000
Disposal & resurfacing (STMA)	\$427,000 - \$512,000	\$553,000 - \$663,000
Transportation & landfill (STMA)		\$130,000
Total (STMA) [disposal & resurfacing + transportation & landfill]	\$557,000 - \$642,000	\$683,000 - \$793,000
Landfill (Fresenburg) [no field size given]		\$45,000 - \$65,000

* Rounded to three significant digits.
Sources: Turfgrass Resource Center. (no date.) "Natural Grass and Artificial Turf: Separating Myths and Facts." Available at http://www.nsgao.com/images/Natural-Grass-and-Artificial-Turf_booklet.pdf.
STMA. (no date.) "A guide to Synthetic and Natural Turfgrass for Sports Fields, 3rd edition. Available at http://www.stma.org/sites/stma/files/STMA_Bulletins/STMA%20Syn%20and%20Nat%20Guide%203rd%20edition%20FINAL.pdf.
Brad Fresenburg, "More Answers to Questions about Synthetic Fields – Safety and Cost Comparison", Turfgrass Specialist & Extension Associate, University of Missouri. PowerPoint slides obtained via email December 2015.

Click on underlined text and the table to learn more.

Artificial plastic turf creates microplastics.

Continuous activity on the artificial grass (like running) also breaks down the grass blades into microplastics.

These tiny pellets of plastics can be easily inhaled, ingested and dermally absorbed.

But these microplastics don't just stop there – the tiny pellets also migrate widely outside the fields and yards into our homes and stormwater runoff, into the wetlands and Pine Tree Brook!



[Click on the image to to learn more.](#)

Artificial turf is not “maintenance-free”

MAINTENANCE OF SYNTHETIC TURF INCLUDES:

- Regular cleaning to get rid of debris
- Sanitation and disinfection to protect the health of the players
- Upkeep to keep the field from wearing out more quickly
- Watering to reduce temperature on hot days
- Maintenance and testing of the surface hardness to protect against concussions
- Infill replacement
- Irrigation
- Repairs to the carpet
- Maintenance costs are at least \$7500 per year with an additional cost of \$500,000 to replace the carpet in 8-10 years.



This shows artificial turf being ‘rebloomed’ with a power broom.’Click on the image or underlined text to learn more about artificial turf maintenance.

Artificial turf has failed in bad weather.

This is BrockFill, the proposed material for the Gile Artificial Turf Project.



[A BrockFill artificial turf field fails after rainstorm at Walt Whitman HS in Bethesda, MD \(July 2022\)](#)

In this image you can see the infill has floated and migrated from the field. This will all need to be disposed of and replaced.

Artificial turf has failed in bad weather.



A [flood ruins synthetic field at a Brisbane soccer club](#), natural grass would not have the disposal concerns that artificial turf has.

Artificial Turf Is Toxic

A 2023 [Chemical analysis of artificial turf conducted at Yale University](#) found 96 chemicals, 20 percent of them probable carcinogens.



Investigation Links Astroturf to Deaths of Six Former Phillies

A stunning investigation by the Philadelphia Inquirer connects the astroturf at Veterans Stadium, the Philadelphia Phillies' former home, and the deaths of six retired MLB players.

The Inquirer found dangerous “**forever chemicals**” **in the turf**, which was produced by Monsanto.

“We know that the **liver** is affected. We know that the **kidneys** are affected. We know the **testicles** are affected,” Graham Peaslee, a physicist at the University of Notre Dame.

The **brain cancer rate** among the 532 Phillies who played at Veterans Stadium from 1971 to 2003 is around **triple** the average rate of adult men.



Click on the image to read a synopsis of the article, or the link on the left to the original Philadelphia Inquirer investigation.

Artificial Turf Is Toxic

- A new plastic field poses risks for the community, the wetlands, the Pine Tree Brook, and our town's young athletes.
- All plastic grass carpets, shock pads and infills have PFAS, according to testing of products, including the proposed wood BrockFill infill.
- As the carpet degrades it releases lead and other toxins.
- None are certified "organic."

All artificial plastic turf contain PFAS.

PFAS are toxic “forever chemicals”



Health Impacts

- Immunity
- Hormones
- Fertility
- Cholesterol
- Learning
- Cancer
- Celiac Disease

- Accumulate in our bodies and environment.
- Toxic at low levels of exposure.
- Scientists think PFAS may have contributed to chronic health problems over 70 years of non-regulated use.

There is NO safe level of PFAS exposure.

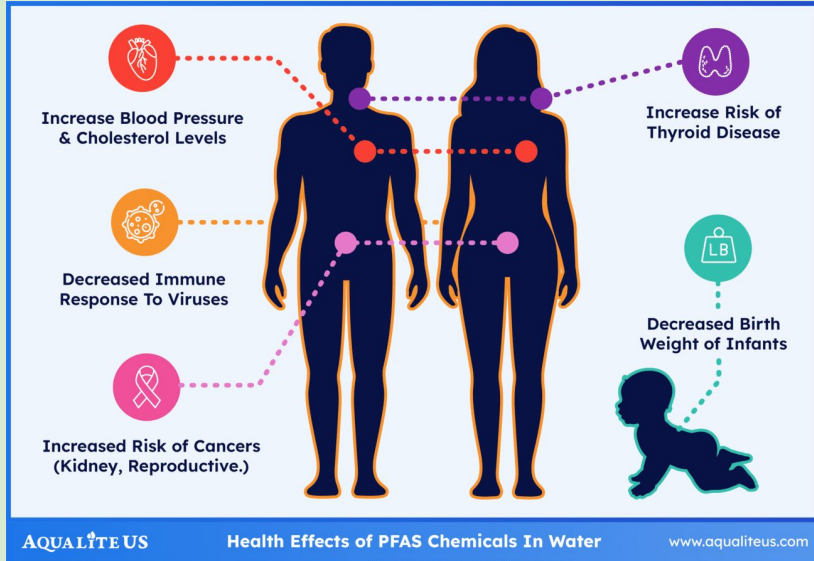
New EPA reporting (July, 2022) says PFAS are toxic at any level.
The plastic grass blades and backing contain PFAS.



BrockFill, the **infill** proposed for our field, was found to have PFAS when tested by Martha's Vineyard.

Sources: <https://www.ewg.org/news-insights/news/new-studies-show-pfas-artificial-grass-blades-and-backing>

<https://www.brooklinema.gov/DocumentCenter/View/30530/BrooklineTurfltrFinal?bidId=>



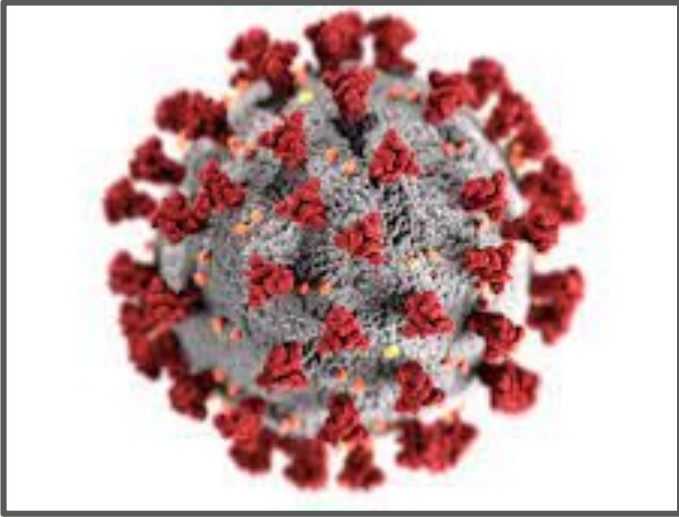
Exposure to PFAS has been linked to:

- Increased Blood Pressure & Cholesterol Levels
- Decreased Immune response to Viruses
- Increased Risk of Cancers
- Increased Risk of Thyroid Disease
- Decreased Birth Weight in Infants

Sources: [Estimated Exposures to Perfluorinated Compounds in Infancy Predict Attenuated Vaccine Antibody Concentrations at Age 5-Year](#)

[Perfluoroalkyl substances exposure and immunity, allergic response, infection, and asthma in children: review of epidemiologic studies](#)

[The PFAS Drinking Water Contamination Crisis](#)



The Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry have acknowledged in a statement that PFAS exposure harms the immune system and may put certain populations at greater risk of contracting Covid-19 and greater risk of increased severity of infection.

Sources: <https://www.atsdr.cdc.gov/pfas/health-effects/index.html>



The link between higher blood levels of PFAS and reduced antibody production following vaccination has been observed in studies of both children and adults. This means that after exposure to PFAS and with PFAS in their blood children have a weakened response to vaccines. Since PFAS accumulate over time, this is particularly concerning for the developing immune system of children.

Sources: [Estimated Exposures to Perfluorinated Compounds in Infancy Predict Attenuated Vaccine Antibody Concentrations at Age 5-Year](#)

[Perfluoroalkyl substances exposure and immunity, allergic response, infection, and asthma in children: review of epidemiologic studies](#)

[The PFAS Drinking Water Contamination Crisis](#)

Lead



High lead levels have been detected in aging synthetic turf fields made from nylon and polyethylene. Sun and wear break down the turf fibers into a dust contaminated with lead that can be rubbed off onto hands or other parts of the body. Lead is a proven and potent neurotoxin, and children are particularly vulnerable to its effects.

Source: NIH: [Evaluating and Regulating Lead in Synthetic Turf](#)

Synergistic Effect of Many Low Level Toxins



Artificial turf fields contain many toxins, some in low levels. We do not know the effect of these chemicals when exposure is combined. **The proposed field contains lead and produces microplastics when the blades break down. The Toxic Use Reduction Institute found the presence of known carcinogens and neurotoxins including polycyclic aromatic hydrocarbons (PAHs), lead, zinc, and black carbon in almost all alternative infill materials examined.**

ZINC TOXICITY

- Doses up to 10 times tolerated
- Acute** poisoning 1 to 2 g zinc sulphate
- CF -nausea and vomiting associated with irritation and corrosion GI tract, acute renal tubular necrosis or interstitial nephritis
- Symptomatic treatment
- chronic** intake > 100 mg
- copper deficiency
- Treatment: EDTA

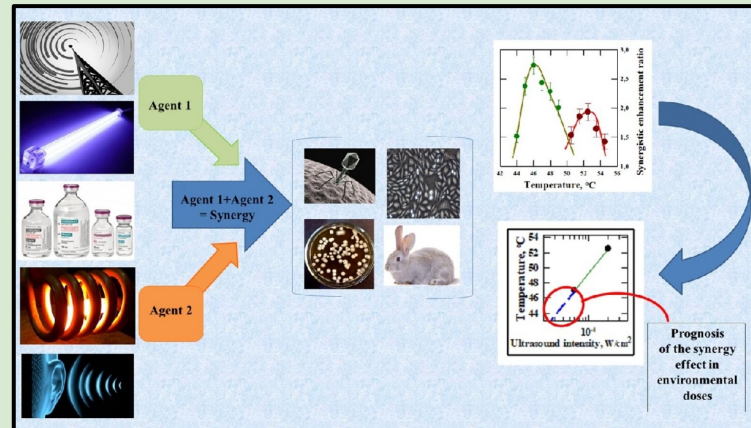


Sources: https://ironturf.com/wp-content/uploads/2022/02/IRONTURF_Ultra_Green-SS.pdf
<https://journals.sagepub.com/doi/10.1177/1048291120906206>

Synergistic Effect of Many Low Level Toxins

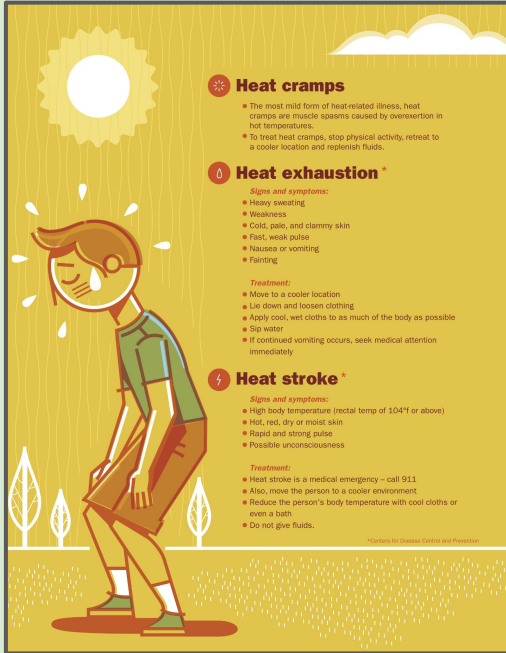
We should be especially concerned with the combined impact of these toxins on a field where children play because of the unique physiology of children.

Children breathe faster than adults increasing the risk from inhalation, have immature detoxification systems, and their reproductive systems are still developing. Children have more future years of exposure increasing the bioaccumulative effect of these toxins.



Risks from Heat

Synthetic fields are made of petroleum-based fibers that absorb heat, reaching extreme temperatures, regardless of infill or frequent watering. As fields heat, noxious materials can be absorbed in gases that can become 10-20 times more toxic than the materials themselves. Though they are marketed as usable 24/7, synthetic turf fields are often prohibitively hot before sundown during the summer months. Grass, in contrast, provides a cooling effect. Vigorous play in these conditions conveys a very real risk of burns, dehydration, heat stress, or heat stroke. Children are less able to regulate their body temperature than adults, making them particularly susceptible to conditions of extreme heat.



Sources: www.SustainableShrewsbury.org

[Safe Healthy Playing Fields](#)

<https://miaa.net/wp-content/uploads/2022/01/MIAA-Heat-Modification-Policy-Revisions-FINAL-1-16-19.pdf>

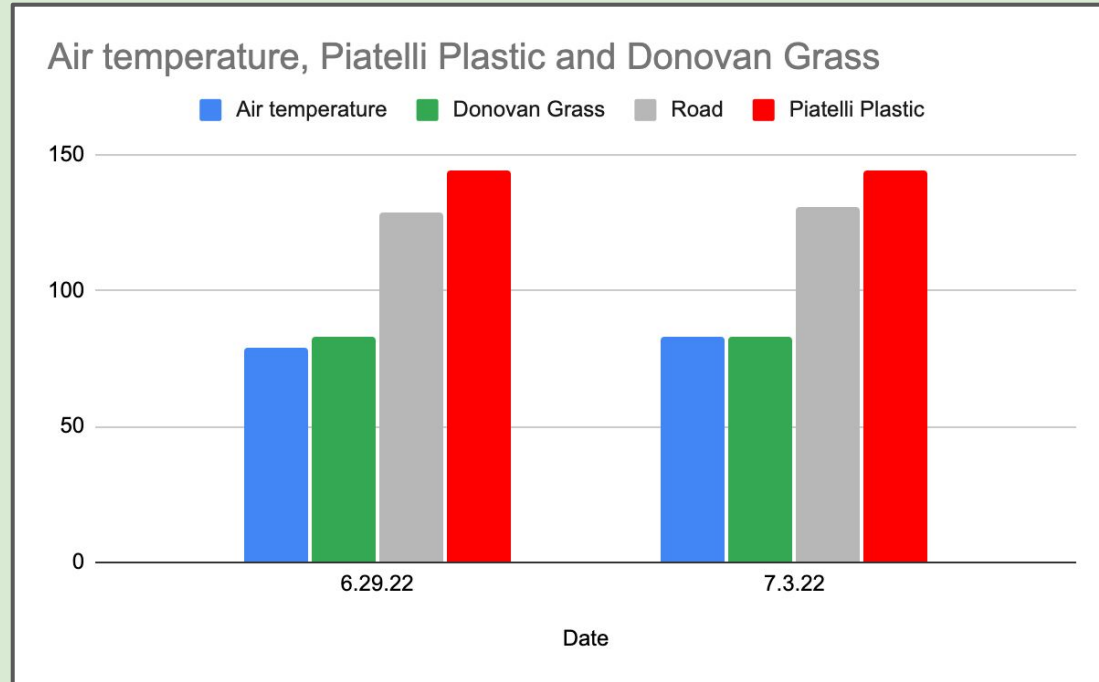
Surface temperatures recorded in the Pine Tree Brook Neighborhood:

June 29, 2022:

- Air Temp: 79°
- Piatelli Turf Field
Temp: **144°**
- Donovan Grass
Field Temp: **83°**
- Road Temp: 129°

July 3, 2022:

- Air Temp: 83°
- Piatelli Turf Field
Temp: **141°**
- Donovan Grass
Field Temp: **83.3°**
- Road Temp: 131°



**Temperatures recorded with an infrared thermometer at 2 pm each day.*

Health Concerns for the larger Community: Synthetic Grass Creates the “Heat Island Effect”

[Synthetic playing fields are a big matter of environmental concern](#). The turf releases a lot of heat into the environment compared to the natural grass, increasing the Urban Heat Island effect. The NAACP opposes an artificial turf field in Malden stating, a “[synthetic turf field would massively elevate the temperatures within the heat island already existing in this neighborhood](#)” Pintreebrook, the most diverse neighborhood in Milton, already has 2 artificial turf fields in the same area.



Click on the image and underlined text to learn more.

Heat Island Impact on the Health of the Neighborhood



How will a THIRD plastic field impact the health of the neighborhood? The EPA states that, “Heat islands contribute to higher daytime temperatures, reduced nighttime cooling, and higher air-pollution levels. These, in turn, contribute to [heat-related deaths](#) and [heat-related illnesses](#) such as general discomfort, respiratory difficulties, heat cramps, heat exhaustion, and non-fatal heat stroke.”

The picture to the left, shows what would be the third plastic-covered field in the same area (circled). The other files are outlined in black.

Sources: <https://www.epa.gov/heatislands/heat-island-impacts>

<https://www.urbanheatislands.com/home>

Injuries on Artificial Turf

Concussion Information

Artificial turf is NOT safer than natural grass.

Gmax measures the force reduction of a field. A lower Gmax reduces the likelihood of an athlete receiving a concussion from impact with the field. A Gmax reading above 200 means life threatening head injuries may occur. By comparison, a well-maintained natural grass field may have a Gmax of around 85.

By adding a Brock pad underneath, **Gmax readings stay much closer to natural grass fields.**



Turf attempts to imitate natural grass.

This statement from the Brock website highlights the fact the grass is in fact the gold standard they are attempting to approximate. They are trying to imitate the shock absorbency of natural grass.

Only infilled turf over a quality shock pad can reach player safety ranges found in natural grass. We know this from the data collected from the GMAX test, the HIC test, and a foot impact test on fields of all types. This gives a more comprehensive picture of how the field is performing from an impact safety standpoint.

Source: <https://www.brockusa.com/safety-impact/>

Boston Fields Failed Concussion Tests

Athletes are at risk for concussions on aging turf fields, as reported by the Boston Globe.

Fields should be tested for shock absorption annually. The town has not regularly tested Brooks field, the last test was 4 years ago. The shock pad at Brooks is 20 years old and will cost \$1,000,000 to replace.

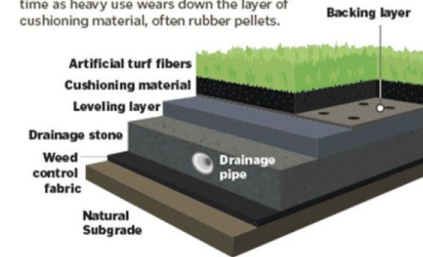
This is dangerous for our athletes and raises questions about liability.

Sources:

Boston Globe: [Aging artificial turf fields may carry risk of head injuries](#)
[Sports Work Design](#)

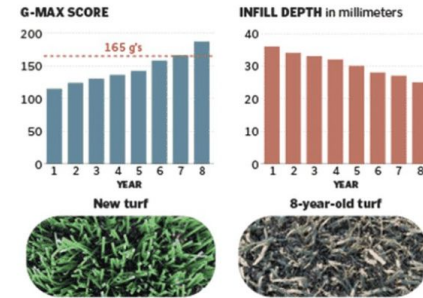
Field test

Artificial turf fields become harder over time as heavy use wears down the layer of cushioning material, often rubber pellets.



The level of shock absorbency of a synthetic field is measured by a so-called g-max score, using units of gravity, with higher numbers indicating a harder surface. The Synthetic Turf Council recommends a g-max score not exceed 165 for safety.

Below is an example of a typical increase in hardness and loss of the cushioning layer for a synthetic field over eight years of use, as measured by Firefly Sports Testing of Hookset, N.H.



Images courtesy Firefly Sports Testing
Source: Firefly Sports Testing, Synthetic Turf Council

ALLY RZESA/GLOBE STAFF

Taking a look at the layers of an artificial turf surface. ALLY RZESA

What about injuries to lower extremities? Are the rates of these injuries higher on turf? Yes.

The clear link between turf and knee, ankle, foot injuries



Source: <https://sportsfieldmanagementonline.com/2020/01/03/natural-grass-and-synthetic-turf-injury-research/11008/>

Pro Athletes Demand Grass Due to Injury Rates



- **Football:** The NFL Players Association recently requested that all teams convert fields to grass due to increased lower extremity injuries on plastic turf.
- **Soccer:** FIFA is requiring all 2026 World Cup host stadiums to have grass fields.
- **Baseball:** Only five of 30 MLB stadiums have turf, owing to concerns over safety and appearance.

Health Experts Oppose Artificial Turf Fields

The Children's Environmental Health Center at Mount Sinai opposes the installation of artificial turf on lower Gile field and has written a letter outlining their concerns. The letter has been sent to the Select Board, the Board of Health, and Parks and Recreation and can be [found here](#).



September 6, 2022

To Chairpersons Doyle, McDermott, and Richards:

The Children's Environmental Health Center of the Icahn School of Medicine at Mount Sinai strongly discourages the installation of artificial turf playing surfaces and fields due to the uncertainties surrounding the safety of these products and the potential for dangerous heat and chemical exposures.

As pediatricians, epidemiologists, and laboratory scientists, recipients of numerous research grants from the National Institutes of Health, and host to one of 10 nationally funded Pediatric Environmental Health Specialty Units, we receive frequent inquiries from communities regarding the wide-scale use of artificial turf surfaces on school grounds and in park properties. This led us to conduct a review of the risks and benefits of artificial playing surfaces, during which we found significant gaps in the evidence supporting the safety of artificial turf products. Our findings are summarized below and in our online resources accessible at <https://aihasapublics.org/artificial-turf/> and <https://www.healthplayingurfaces.org/> and via webinar on the Environmental Health Impacts of Synthetic Turf and Safer Alternatives.¹

Studies to assess the safety of artificial turf are ongoing and inconclusive. The preponderance of existing data on artificial turf pertains to recycled tire infill, or "crumb rubber," which contains known carcinogens and neurotoxins. Concerns about the safety of recycled rubber playing surfaces have been raised by the federal government, based on a lack of comprehensive studies. In 2016, the United States Environmental Protection Agency (USEPA) announced the launch of an investigation into the safety of crumb rubber in partnership with the Centers for Disease Control and Prevention and the Consumer Product Safety Commission, stating "existing studies do not comprehensively evaluate the concerns about health risks from exposure to tire crumb"² In July 2020, USEPA published a portion of their findings from these studies, which confirmed the presence of chemicals linked to cancer, nervous system toxicity, and impaired reproductive development such as polycyclic aromatic hydrocarbons, benzene, lead, and phthalates.³ The authors emphasize that the reported findings do not constitute a risk assessment and cannot be interpreted as evidence of safety.

Questions remain about the safety of alternatives to crumb rubber. Extremely few studies have examined the composition and safety of alternative infills including those purported to be "natural". A 2016 USEPA report found research supporting the safety of alternative infills such as EPDM, TPE, and plant-based infills "lacking or limited".⁴ Recent studies including one conducted by Mount Sinai and the Toxic Use Reduction

“The Children’s Environmental Health Center of the Icahn School of Medicine at Mount Sinai strongly discourages the installation of artificial turf playing surfaces and fields due to the uncertainties surrounding the safety of these products and the potential for dangerous heat and chemical exposures.”

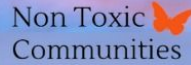
“The Children’s Environmental Health Center recommends natural grass fields and playing about surfaces as the safest option for areas where children play.”

¹ <https://www.healthenvironment.org/webinars/96555>

² http://www.epa.gov/sites/production/files/2020-02/documents/ua_federal_research_action_plan_directumb_final_0.pdf

³ https://www.epa.gov/sites/production/files/2020-08/documents/synthetic_turf_field_recycled_tire_crumb_rubber_research_under_the_federal_research_action_plan_final_report_part_1_volume_1.pdf

⁴ <https://www.epa.gov/chemical-research/december-2016-status-report-federal-research-action-plan-recycled-tire-crumb>



Non Toxic
Communities

BREAKING NEWS

**Mayor Wu has
directed that no new
artificial turf fields
will be installed in the
City of Boston.**

In an update on August 26, 2022, the City of Boston Parks and Recreation Department stated that, "Mayor Wu has directed that no new artificial turf fields will be installed in the City of Boston."

It was confirmed by phone with Parks and Recreation that this directive was given in the last month during a non-public staff meeting.

Read the Update Here:

https://www.boston.gov/sites/default/files/file/2022/08/Malcolm%20X%20Park%208-26-22.pdf?fbclid=IwAR3VE1xkUX7n_a-MPG_HZ8_KGXyz3W5QaVpu3vVUMznx-SIX_EE_ofVNrCw

In addition to Boston, moratoriums on new turf, and pending legislation for moratoriums are being put in place in cities and towns, across MA, the country, and even around the world!

- Examples of municipalities who have bills pending or already passed moratoriums are: in MA: The City of Boston, Amherst, Sharon, Springfield, Marblehead, Concord, Martha's Vineyard, Nantucket, Littleton. In CT: Hartford, Westport, Hamden, Greenwich. In NY: NYCity, Rye, Rochester. In Maryland, Montgomery County, Washington DC and in VA, Edmonton.
- Arlington, MA's chair of the Conservation Commission proposed a ban on artificial turf in areas within their jurisdiction.
- The NY State Senate is calling for a moratorium until more comprehensive environmental and public health impact studies can be completed.
- The states of Connecticut, New Jersey, California, Minnesota have introduced bills.
- Even the European Union is currently considering regulations, including the The European Chemicals Agency (ECHA) to be phased in over a period of 6 years.

This is only a partial list and it continues to grow!

Let's reconstruct Lower Gile
Field with natural grass!



Here's how you can help...

- Donate to the [GoFundMe](#) so we can get an engineer to review the documents and challenge the petition on environmental grounds.
- Visit our website, [GrassforGile.org](#) to learn more.
- Join the [FB page](#) where we post all the recent news about artificial turf
- Email the [Board of Health](#) and the [Conservation Commission](#) to express your concerns.
- Attend a meeting with [Parks and Rec](#) for the community and [email them](#) with your concerns.
- Attend the site walk, we will post dates and locations as they become available.
- Parks and Rec is going to hold a meeting on March 28th at 7pm, in person and on zoom.. Please attend.

Thank you so much for your
time and support!

