

Communication from Public

Name: Waldemar Kalinowski

Date Submitted: 06/27/2024 10:34 AM

Council File No: 24-0602

Comments for Public Posting: I strongly support the motion to forbid the use of Astroturf in the city and substitution of drought resistant, native plants for all city property.

Communication from Public

Name: Steve

Date Submitted: 06/27/2024 12:21 PM

Council File No: 24-0602

Comments for Public Posting: Artificial turf, made from petroleum, copper and PFAS, unleashes micro plastics and PFAS into the environment as it degrades from usage. U.S. water companies are projected to invest up to \$100 billion over the upcoming decade on devices to filter PFAS from drinking water. Installing more PFAS-laden artificial turf only worsens the problem. Microplastics have emerged as a top environmental threat globally.

Problems with Artificial Turf

Background

Artificial Turf has been used as a landscaping method to reduce water consumption.

Scientists discovered the plastic blades contain unsafe levels of carcinogenic forever chemicals.

There is now a movement to prohibit new installations of Artificial Turf:

- a) Governor Newsom signed Senate Bill SB676 in October 2023 giving local jurisdictions authority to ban Artificial Turf installations.
- b) Valley Water advocates against Artificial Turf and their rebate program does not provide any rebate if one chooses this material.

Problems with Artificial Turf

1. Contains a class of chemicals called PFAS.

The F stands for fluorine. Fluorine atoms combine with carbon atoms in the polyethylene grass blades to create chemicals known to be harmful to humans.

CDC found PFAS chemicals in the blood 97% of Americans and in mother's milk.

2. Negative health effects from PFAS chemicals (NIH).

Epidemiological studies have revealed associations between exposure to specific PFAS and a variety of health effects, including:

- Liver disease
- Kidney disease
- Cancer
- Lipid and insulin dysregulation
- Adverse reproductive and developmental outcomes
- Altered immune and thyroid function.

3. Artificial Turf is considered a hardscape.

- Rainwater runs off and the biome in the soil beneath it dies.
- Does not sequester carbon like natural grass – rather emits CO₂ and methane.
- Plastic 'blades' degrade into microplastics and nanoplastics that infiltrate sources of drinking water and leach toxic chemicals used to make the Artificial Turf. Also, they are washed into the Bay where they can be consumed by aquatic life thinking its food.

4. Emits climate warming gases methane and ethylene and is much hotter than the ambient air around it causing a "heat island" effect.

5. Cannot be recycled and ends up in landfill, burned or simply dumped.

Problems with Artificial Turf

The following will damage Artificial Turf fields or cause human harm and need to be prohibited:

Usage on hot days	Dirty or muddy shoes
Bare feet	Driving stakes
Food and drinks (water is OK)	Lawn furniture, beach chairs, folding chairs
Golfing	Bicycles, vehicles, skateboards, and scooters
Chewing gum	Smoking, barbecuing or open fires
Sunflower seeds	Spikes or metal cleats and spiked heels
Smoking	Dogs or other pets
	Fireworks

Maintenance activities for Artificial Turf (requires special equipment)

- Fields need to be kept free of debris, leaves, paper, and windblown material.
- Complete inspection: weekly
 - Spot if need minor repairs, infill touchups, and sweeping needs.
 - Remove weeds and moss.
- Infill top dressing: needed to maintain proper infill depth. As needed.
- Infill escape: use leaf blower to clear infill lying outside perimeter of field.
- Cleaning and sanitizing: annually.
- Anti-static conditioning: as needed.
- Brushing: rejuvenates matted plastic fibers and levels infill. Every 2 to 3 weeks.
- Aerating: (Equipment requires a tow vehicle) loosen infill to avoid compaction. Up to 3 times per year.
- Sweeping: (Equipment requires a tow vehicle) remove foreign material. Every 3 to 4 weeks.
- Raking. Every 4 to 6 weeks.
- Water treatment for infill. As needed.
- Spray with water on hot days or shut down the field.
- Perform GMAX tests to measure hardness and determine when unsafe and needs replacement.

Conclusion: Artificial Turf is not as maintenance free as claimed by the industry

Communication from Public

Name: Susan Hinton

Date Submitted: 06/27/2024 12:25 PM

Council File No: 24-0602

Comments for Public Posting: Artificial turf is made from mixed plastics and chemicals. Some of those chemicals, such as lead or PFAS ('forever' chemicals), are known to bioaccumulate and cause illness or disease. I support transitioning away from artificial turf/synthetic grass and toward California drought-friendly landscaping.

Below is a reference list that outlines the health harms associated with artificial turf, including PFAS. Note that the state of New York has banned PFAS products including artificial turf in the state. (Environmental and additional health harms not included below.)

PFAS

2024, John Hopkins Bloomberg School of Public Health. The Omnipresence of PFAS—and What We Can Do About Them

<https://publichealth.jhu.edu/2024/what-to-know-about-pfas>

Note: This is a 'what are PFAS and what are the consequences' article

2024, The Philadelphia Inquirer. City officials believed a new South Philly turf field was PFAS-free. Not true, experts say.

<https://www.inquirer.com/news/philadelphia/philadelphia-pfas-artificial-turf-field-murphy-recreation-20240223.html>

2024, Center for Environmental Health. New Testing Reveals High Levels of Toxic PFAS in Artificial Turf.

<https://ceh.org/latest/press-releases/new-testing-reveals-high-levels-of-toxic-pfas-in-artificial-turf/>

2019, PEER. Toxic Forever Chemicals Infest Artificial Turf.: Processing aids that contaminate synthetic turf with PFAS may be in other plastic goods.

<https://peer.org/toxic-forever-chemicals-infest-artificial-turf/>

2024 March, PEER. PFAS in Artificial Turf Coats Players' Skin Dermal Uptake Little Examined Exposure Pathway for Toxic PFAS.

<https://peer.org/pfas-in-artificial-turf-coats-players-skin/>

Note that the State of **New York has banned, starting in 2026, artificial turf -and other products- containing PFAS. At the moment this includes ALL artificial turf.**

<https://dec.ny.gov/environmental-protection/recycling-composting/carpet>

"Carpet covered by this law includes, but is not limited to:

Broadloom carpet

Modular carpet tiles

Artificial turf

Pads or underlayment used in conjunction with carpet ...

• July 1, 2026 - Implementation of carpet collection program(s) Producers cannot sell carpet into the state unless participating in a collection program

Retailers may not sell carpet unless the producer of the carpet is participating in a carpet collection program

• December 31, 2026 - No carpet offered for sale shall contain or be treated with PFAS substances"

Note **the comprehensive definition of PFAS** - there's no wiggle room or arguing over what is or isn't a PFAS molecule, or over "how much" constitutes a PFAS presence.

<https://www.nysenate.gov/legislation/laws/ENV/27-3301>

Definitions: 8. "Perfluoroalkyl and polyfluoroalkyl substances' or 'PFAS substances' means a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom."

MICROPLASTICS and HUMAN HEALTH

2024, Harvard Medicine. Microplastics Everywhere. The tiny particles are even in our bodies. What might this mean for our health?

<https://magazine.hms.harvard.edu/articles/microplastics-everywhere>

2024, New England Journal of Medicine. Microplastics and Nanoplastics in Atheromas and Cardiovascular Events

<https://www.nejm.org/doi/full/10.1056/NEJMoa2309822>

"In this study, patients with carotid artery plaque in which MNPs [Microplastics and nanoplastics] were detected had a higher risk of a composite of myocardial infarction, stroke, or death from any cause at 34 months of follow-up than those in whom MNPs were not detected."

INJURIES

Injuries in High School athletes

2021, Case Western University, Current Orthopaedic Practice 32(4): p 355-360. Injury incidence is higher on artificial turf compared with natural grass in high school athletes: a retrospective cohort study.

https://journals.lww.com/c-orthopaedicpractice/abstract/2021/07000/injury_incidence_is_higher_on_artificial_turf.6.aspx

"Conclusions: Athletes were 58% more likely to sustain an injury on artificial turf. Football, soccer, and rugby athletes were at a significantly greater injury risk on artificial turf. Upper and lower extremity and torso injuries also occurred with higher incidence on artificial turf."

Mechanically simulated **injury** comparison

2024 Villanueva N et al. **Impact Deceleration Differences on Natural Grass Versus Synthetic Turf High School Football Fields**. Hawaii J Health Soc Well. 2024 Jan;83(1):4-9.

<https://pubmed.ncbi.nlm.nih.gov/38223462/>

Injuries and NFL players

2023, NBC and NFLPL. Turf wars: Aaron Rodgers' injury reignites debate over artificial grass use. Injury rates on turf continue to lead those on grass, but the NFL says the situation is more complicated.

<https://www.nbcnews.com/data-graphics/new-data-shows-nfl-injuries-artificial-turf-stadiums-mostly-exceed-inj-rcna105123>

HEAT STRESS

2019, Abraham. University of Saint Thomas **Heat risks associated with synthetic athletic fields**. Abraham J. International Journal of Hyperthermia.

<https://www.tandfonline.com/doi/full/10.1080/02656736.2019.1605096>

2024 May, WHDH News, Manning Field in Lynn MA.

<https://whdh.com/news/11-children-taken-to-hospital-with-dehydration-overheating-symptoms-during-athletic-event-in-lynn/>

"Eleven children were taken to area hospitals with symptoms of dehydration and overheating during an athletic event in Lynn Friday, officials said. Fire officials said crews responded to Manning Field off Locus Street Friday morning after several fifth graders complained of issues including dizziness.

The students were from local schools and gathered at Manning Field as part of an annual fifth grade track and field event. Officials said several students were taken to Salem Hospital while others were taken to Beverly Hospital. Overhead, SKY7-HD spotted at least one person being brought into an ambulance on a stretcher.

'It's a hot day out,' said Lynn District Fire Chief Joe Zukas. ***'The heat is beating on the ground here. It's a synthetic field here.'***

2016, **CBC news** in Canada, Researcher found one artificial field had a **surface temperature of 95 C**. CBC News. <https://www.cbc.ca/news/canada/toronto/summer-heat-turf-1.3714351>

2020 April, San Francisco Estuary Institute (SFEI). Moffett Park Specific Plan Urban Ecology. Technical Report. **Urban heat Effects**.

https://www.sfei.org/sites/default/files/biblio_files/MPSP_Ecology_20_04.pdf

Page 16/17 - Note that the hottest (red) spot shows the Twin Creeks Sports Complex, which has 10 artificial turf athletic fields.

Communication from Public

Name: Abigail Hindson

Date Submitted: 06/27/2024 12:31 PM

Council File No: 24-0602

Comments for Public Posting: Artificial turf is a plastic product made from fossil fuels and contains microplastics and toxic chemicals linked to cancer and other diseases. These include PFAS (forever chemicals) which the EPA has moved to stringently regulate in drinking water. Multiple recent studies have shown that plastic grass: -poses increased health and injury risks to athletes, -damages the environment and climate, -costs more over its total life cycle than natural alternatives, and -limits play time because its temperature can get so hot it's not safe to play on. In the past, artificial turf was promoted as a water-saving solution. However, artificial turf not only needs watering, but it requires watering with potable (drinking) water in order to cool and clean it. Its runoff contaminates our local watershed with microplastics and PFAS. A California law passed last year (SB 676) states that: "drought-tolerant landscaping' shall not include the installation of synthetic grass or artificial turf." In addition, plastic turf is not recyclable and is disposed of in landfills or incinerators where it leaches chemicals into the soil or air. The athletic fields where children and adults play should NOT be covered in hard toxic plastic that reaches very high temperatures, nor should we contaminate our water and air with the run-off of toxic chemicals from artificial turf. Counties across California have a special duty to follow the precautionary principle and protect our most vulnerable residents: children. Their growing bodies are particularly sensitive to toxic chemicals such as PFAS.

Communication from Public

Name: Aleigh Lewis

Date Submitted: 06/27/2024 12:40 PM

Council File No: 24-0602

Comments for Public Posting: Artificial Turf: •Significantly contributes to the urban heat island effect •Wastes water in trying to cool it down •Takes away playing time because often too hot to play on •Pollutes water as runoff contains plastic and chemicals from the turf and goes into the ocean •Creates pollution when turf is thrown away - THERE IS NO ARTIFICIAL TURF RECYCLING IN THE UNITED STATES - IT JUST GOES INTO THE LANDFILL
•Significantly increases injuries - NFL players have been advocating for years to only play on natural turf •It is more expensive than natural turf



Information on injuries, heat, pollution, and higher costs related to synthetic turf

INJURIES

Many studies suggest that synthetic turf causes a higher rate of injuries than natural grass:

- o [Lower Extremity Injury Rates on Artificial Turf Versus Natural Grass Playing Surfaces: A Systematic Review](#)
- o [Higher Rates of Lower Extremity Injury on Synthetic Turf Compared with Natural Turf Among National Football League Athletes](#)
- o [Injuries Related to Artificial Turf – National Center for Health Research](#)
- o [What You Need to Know About Synthetic Turf and Natural Grass for Athletic Fields \(p.5\)](#)

National Football Players Association asks that all fields be converted to natural grass:

- o [The NFL Players Association wants the league to switch all fields to natural grass](#)
- o [Only Natural Grass Can Level the NFL's Playing Field](#)
- o [Why the NFL's Approach to Field Surfaces is Uneven](#)
- o [NFL Players Union Renews Call for Grass Fields after Aaron Rodgers' Injury](#)

HEAT

Artificial turf is consistently hotter than natural grass. On hot days, temperatures can range from 120° to 180° whereas natural grass will measure 50–70° cooler,

rarely exceeding 100°. (Natural grass releases water vapor which keeps it cool.) This puts athletes at higher risk of heat-related illness or injury such as dehydration, heatstroke, and thermal burns. The main factors contributing to the Urban Heat Island Effect (city warming) are tight urban geometry, human-created heat (vehicles, air conditioning units, buildings, etc.), and **heat-retaining urban materials** such as synthetic turf which absorbs and stores heat, creating hot spots.

- o [Synthetic Turf in Public Spaces: Systematic Assessment of Surface Temperatures and Associated Environmental Impacts](#)
- o [Heat Risks Associated with Synthetic Athletic Fields](#)
- o [Synthetic Sports Fields and the Heat Island Effect – National Recreation and Park Association](#)
- o [HeatReady Schools: A Novel Approach to Enhance Adaptive Capacity to Heat Through School Community Experiences, Risks, and Perceptions](#)

POLLUTION

In 2017, the Synthetic Turf Council projected that by the end of the decade, at least 750 fields will be replaced annually. Artificial turf fields have limited lifespans and require regular replacement at least every 8-10 years. The average field contains approximately 40,000 pounds of plastic carpet and 400,000 pounds of infill, according to the report. This means that as much as 330 million pounds of waste could be disposed of every year. Despite claims that turf fields can be recycled, there is no recycling facility in the United States.

- o [Testimony Regarding Recycling of Artificial Turf](#)
- o [The Dangerous Pileup of Artificial Turf](#)

COST

In analyzing the costs of artificial vs. natural grass systems, it is important to consider full life-cycle costs, including installation, maintenance, and disposal/replacement. In general, however, artificial turf fields have a higher life-cycle cost than natural grass fields.

- o [Cost Analysis – UMass Lowell Toxics Use Reduction Institute](#)
- o [What You Need to Know About Synthetic Turf and Natural Grass for Athletic Fields \(p.7,9,11\)](#)

TOXINS

·Synthetic grass usually contains PFAS chemicals. According to the [Environmental Protection Agency](#), PFAS chemicals are a known carcinogen that can interfere with hormones, reproduction, and immunity, and cause developmental delays in children.

- o [Once it was hailed as a drought fix-but now California’s moving to restrict synthetic turf over health concerns](#)

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