

City of Los Angeles

Recreation and Parks Commission

Dear Commissioners:

I urge you not to approve the Arroyo Seco Water Reuse Project being proposed by Pasadena and South Pasadena. The project will not benefit City of Los Angeles residents who will not receive any water from the project. It will instead hurt residents by removing open space, flora and fauna.

It is not fair that the wealthier communities of South Pasadena and Pasadena which have many resources and more park land are going to use our San Pascual Park land east of the Los Angeles channel to water the South Pasadena Golf course.

It is also not fair that they never conducted any meaningful outreach within our community. Most residents are unaware of this project. As a result of the poor outreach only two residents commented on the MND – one resident from Los Angeles and one from Pasadena. That there was so little participation shows how poor the outreach was.

Residents from Highland Park use the east side of San Pascual park daily. They jog, hike and ride horses on the Highland Park part of the park. Additionally, during hot days, some residents who live in the nearby apartments take chairs and sit under the trees because it is significantly cooler. Other residents observe wildlife in the area.

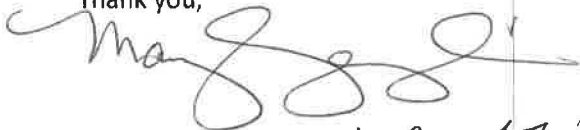
The project will use fencing to prevent residents from accessing a significant part of the east side of San Pascual park. They will no longer be able to sit under the trees to cool off, nor wander through the trees to observe birds, toads, desert cottontail rabbits, bats, and other wildlife.

The project will remove 15 mature trees including 4 protected Coast Live Oak and 5 protected Mexican Elderberry. These trees protect residents from the impacts of the nearby Arroyo Seco Parkway. Replacing mature trees with young trees will not provide any benefit for 10 to 20 years. We need these mature trees as we face a climate emergency.

The project will also remove a historic Arroyo Stone hitching post on site.

Finally, we are concerned that the Gabrieleno Kizh Tribe of Indians was not consulted about this project. Native American remains have been found in San Pascual Park and at San Pascual Elementary School.

Thank you,



Address:

Email:



For more information contact  
Terry Saucier  
Kathy Schaeffer

## **ARTIFICIAL TURF FACT SHEET**

### **Artificial Turf is NOT the Solution – Nature-based Solutions Are!**

The Climate Reality Project, Los Angeles and San Fernando Valley Chapters, the Los Angeles Neighborhood Council Sustainability Alliance, and other coalition partners support a ban on new installations of artificial turf due to human health hazards, environmental contamination, and negative impacts on wildlife. We support natural grass fields and planting of native California plants.

**All artificial turf contains hazardous (PFAS) chemicals.** PFAS “forever chemicals” have been identified as carcinogens, neurotoxins, and hormone disruptors that can cause thyroid disease, decreased fertility, early puberty, impaired vaccine response, and are associated with learning and behavioral problems in infants and children, as well as a long list of cancers. PFAS microplastic exposure can occur through inhalation, ingestion, and dermal (skin) absorption. Children and athletes playing on artificial turf are subject to all three routes of exposure. PFAS chemicals bioaccumulate, and are therefore especially harmful to children who are still developing.

**Artificial turf is too hot, too hard, and may come with liability issues.** It can reach temperatures up to 80° higher than the air temperature, readily reaching 160°F or 180°F and more. This can lead to serious thermal burns and heat stress. Turf burns from friction and non-contact lower extremity injuries are also more frequent on synthetic grass. It has also been found to cause a “heat island effect,” raising the surrounding temperature in the local environment. Artificial turf uses an inordinate amount of water for cooling before use on hot days. With time, it can become extremely hard, increasing the risk of concussions. There are also liability risks - EPA has begun issuing regulatory limits on some PFAS; California is proposing more stringent regulations, and there have been class action suits for contaminated water and exposure to artificial turf’s PFAS cancer-causing chemicals.

**Artificial Turf pollutes local waters, soil and air.** Unlike natural grasses and surfaces, artificial turf is an impervious surface (per State of Calif and US EPA) negatively affecting the recharging of groundwater and increasing the risk of flooding. Stormwater run-off from artificial turf can cause PFAS to leach into groundwater, contaminating our drinking water. The EPA has recently reported there is no “safe” amount of PFAS for drinking water. Artificial turf sheds microplastics that pollute the soil and waterways; where they can end up in our oceans, never breaking down. The California Coastal Commission recently vetoed UC Santa Barbara’s proposed 3-acre artificial turf baseball field because of its negative impacts on water and mandated that they use natural grass. Artificial turf can’t be recycled and will end up in our landfills where it will continue to pollute the environment. Artificial turf also off gasses ethylene and methane (contributing to the climate crisis) versus real grasses and plants that are a carbon sink.

**Nothing lives in plastic grass.** California is one of the world’s 36 biodiversity hotspots with more native plant species than any other state in the U.S. Not only does artificial turf not support life, it actually kills the soil and the living organisms in it for generations to come. Artificial turf takes away habitat from insects, birds, and local wildlife, contributing to the loss of biodiversity. Studies also show children benefit from interactions with natural surfaces and nature.

**Artificial turf playing fields cost more than natural grass fields.** Studies show over time artificial turf can cost 2 to 4 times more than properly installed and maintained natural grass fields; synthetic turf is a poor investment. When comparing natural grass playing fields to artificial turf it is important to compare the full product life cycle including capital cost of installation, annual maintenance, sod replacement as needed for natural fields, surface/in-fill replacement of the synthetic fields as well as disposal of artificial turf (removal, transport, and landfill fees).

**Summary** - Artificial turf is **NOT** a safer playing surface, does not significantly reduce water usage, and is not a sound investment. Installing artificial turf does not take into account the true cost to our children’s health and the health of our environment. The solution is nature-based solutions – California native plants and drought-tolerant grasses that use less water, thrive in our climate, recharge our groundwater and provide food and habitat for local wildlife.



## RESOURCES – Health & Environmental Impacts

**CalMatters, *Once it was hailed as a drought fix—but now California’s moving to restrict synthetic turf over health concerns***, 10/18/23, by Shreya Agrawal <https://calmatters.org/environment/2023/10/california-synthetic-turf-pfas/>

**Safe Healthy Playing Fields, Inc.**, <https://www.safehealthyplayingfields.org/> Fact Sheets and Articles, <https://www.safehealthyplayingfields.org/fact-sheets>

**Public Employees for Environmental Responsibility**, Artificial Turf fact sheet, [https://peer.org/wp-content/uploads/2022/10/PEER\\_fact\\_sheet\\_ArtificialTurf\\_v03-1.pdf](https://peer.org/wp-content/uploads/2022/10/PEER_fact_sheet_ArtificialTurf_v03-1.pdf), articles <https://peer.org/?s=artificial+turf>

**TURI Toxics Use Reduction Institute UMASS Lowell**, Athletic Playing Fields Selecting Safer Alternatives: resources on artificial turf impacts on human health and the environment, and cost of installation and maintenance of artificial turf vs natural grass, [https://www.turi.org/Our\\_Work/Community/Athletic\\_Playing\\_Fields](https://www.turi.org/Our_Work/Community/Athletic_Playing_Fields)

**Beyond Plastics**, Synthetic Turf is Hazardous fact sheet, <https://www.beyondplastics.org/fact-sheets/synthetic-turf>

**National Center for Health Research**, 4/18/22, NCHR Letter to Board of Los Gatos Union School District outlining artificial turf health concerns, Dr. Diana Zuckerman, President, NCHR <https://www.center4research.org/nchr-letter-to-members-of-the-board-of-the-los-gatos-union-school-district-on-artificial-turf-and-playgrounds/>

**Associated Press, *EPA to limit toxic “forever chemicals” in drinking water***, 3/14/23, by Michael Phillis <https://apnews.com/article/epa-pfas-forever-chemicals-water-contamination-regulations-560d0ce3321e7fa8ed052f792c24f16f>;

**Associated Press, *Toxic “forever chemicals” about to get their first US limits***, 3/2/23, by Michael Phillis, <https://apnews.com/article/pfas-epa-water-regulations-d2d5052c36a5a95f4e56866f028c9c4f>

**CHE Collaborative for Health and Environment Environmental Health Impacts Synthetic Turf & Safer Alternatives Webinar**, 1/27/22, Toxics Use Reduction Institute (TURI); Northeastern University; Ichan School of Medicine Mount Sinai,

[https://www.healthandenvironment.org/assets/images/webinarimages/Artificial%20Turf%20Q&A\\_FINAL.pdf](https://www.healthandenvironment.org/assets/images/webinarimages/Artificial%20Turf%20Q&A_FINAL.pdf)

***Is Artificial Turf & Grass Toxic?***, The Filtery, 8/23/23, by Jeanne Yacoubou, MS, <https://thefiltery.com/is-artificial-turf-grass-toxic/>

***Risky Play, A stew of toxic chemicals lurks in artificial turf. Some experts worry they could be linked to cancer in young athletes***, Philadelphia Inquirer, 2/20/24, Barbara Laker and David Gambacorta, <https://www.inquirer.com/news/pennsylvania/inq2/pfas-artificial-turf-cancer-athletes-pennsylvania-nj-20240220.html>

**National Football League Players Association**, 9/30/20, NFLPA President JC Tretter, calls for NFL clubs to change all field surfaces to natural grass due to increased rate of lower extremity injuries on artificial turf fields <https://nflpa.com/posts/only-natural-grass-can-level-the-nfls-playing-field>

**Opinion: *Pediatricians Warn That Synthetic Turf Is Especially Dangerous For Children And Teens***, AmherstIndy, 12/2/2022, by Maura and Art Keene, cites Environmental Health Center at the Icahn School of Medicine Mt. Sinai Hospital in N.Y., <https://www.amherstindy.org/2022/12/02/opinion-pediatricians-warn-that-synthetic-turf-is-especially-dangerous-for-children-and-teens/>

## COST OF ARTIFICIAL TURF PLAYING FIELDS VS NATURAL GRASS

**TURI Athletic Playing Fields *Selecting Safer Alternatives***, TURI Report #2018-002 December 2018 (updated April 2019), [https://www.turi.org/var/plain\\_site/storage/original/application/b9727dedf5860ae7e83e3226d058b7ee.pdf](https://www.turi.org/var/plain_site/storage/original/application/b9727dedf5860ae7e83e3226d058b7ee.pdf)

**Safe Healthy Playing Fields Factsheet**,

<https://mail.google.com/mail/u/0/#sent/KtbxLwGnQSdjQxnGLghCXMvsvtvkZRbdQq?projector=1&messagePartId=0.2>

## LEGISLATION / ORDINANCES

**Statewide 2023** (Passed [SB676](#), Proposed AB1423, SB499)

**City of Millbrae Artificial Turf Ordinance (2023)** prohibits installation of synthetic turf and artificial grass landscaping effective 1/1/24, <https://www.ci.millbrae.ca.us/276/Prohibition-of-Artificial-Turf>

**California Coastal Commission**, 11/30/2023, Notice of Impending Development UCS-NOID-0002-23 (Baseball Stadium Turf) for Public Hearing and Commission Action 12/13/2022, Commission vetoes UCSB’s proposed 3-acre artificial turf baseball field due to negative impacts on water, and mandates natural grass <https://documents.coastal.ca.gov/reports/2023/12/W13.1a/W13.1a-12-2023-report.pdf>

**RESOURCES FOR ALTERNATIVES** Osborne Organics, <https://osborneorganics.com/>

**Toxics Use Reduction Institute, UMass Lowell - Organic Grass Care**

[https://www.turi.org/Our\\_Work/Community/Topic\\_Areas\\_and\\_Past\\_Grants/Healthy\\_Schools/Organic\\_Grass\\_Care](https://www.turi.org/Our_Work/Community/Topic_Areas_and_Past_Grants/Healthy_Schools/Organic_Grass_Care)



Public Comment  
Recreation and Parks Commission Meeting  
July 18, 2024

Good morning Commissioners and Recreation and Parks staff.

My name is Mary Benson and I am the president and a founding member of the Los Angeles Equine Advisory Committee

I want to thank the Department for the attention it has focused on our City owned equestrian facilities. This year over \$3million dollars was earmarked for long overdue renovations and improvements.

We believe our Committee is an underutilized resource.

Our depth of experience ranges from hands on Recreational trail planning  
To equine therapy and youth programs  
To licensed Veterinary practitioners  
To providing filmmakers with horses for their movies.

The Committee looks forward to the opportunity of partnering with the City family in bringing more equestrian opportunities to Los Angeles.

Thank you  
Mary Benson, President  
Los Angeles Equine Advisory Committee  
[laparks.org/equine](http://laparks.org/equine)





SAFE Healthy Playing Fields, Inc  
Public Comments in Support of 24-0602  
**Communication from Public**

**Name:** Safe Healthy Playing Fields, Inc.  
**Date Submitted:** 06/26/2024 02:51 PM  
**Council File No:** 24-0602  
**Comments for Public Posting:** Attached please find our comments for the public record for CF24-0602: A Resolutions to Ensure Safe Drinking Water and Reduce Risks from Artificial Turf. Safe Healthy Playing Fields, Inc. has a long history of supporting decisions regarding safer choices related to human and environmental health for parks, schools and communities and states. We are happy to support this effort and stand ready to assist in any way we can as you move forward with your laudable goals. Please do not hesitate to contact us to aid in future support and efforts. Respectfully, Dianne Woelke MSN, Board Member Safe Healthy Playing Fields, Inc. <https://www.safehealthyplayingfields.org> SHPFI is an all-volunteer nonprofit 501-c-3

# Safe Healthy Playing Fields Inc.



[www.safehealthyplayingfields.org](http://www.safehealthyplayingfields.org)

17 June 2024

## CF24-0602: A RESOLUTION TO ENSURE SAFE DRINKING WATER AND REDUCE RISKS FROM ARTIFICIAL TURF SUPPORT

***“PFAS is probably the worst environmental pollutant that the United States has ever faced. It makes all the rest” — including PCBs and asbestos — “pale in comparison to what the cost of this cleanup will be...and it will affect more people than all known pollutants combined.” Dr. Graham Peaslee, University of Notre Dame, leading expert on PFAS in consumer products.***

Dear Members of the Los Angeles City Council:

Thank you for the opportunity to submit these comments on behalf of Safe Healthy Playing Fields, Inc. (SHPMI).

SHPMI is an all-volunteer 501-c-3 non-profit organization. We are committed to educating communities, policymakers and elected officials about the health, safety and financial realities of plastic fields versus grass fields and other synthetic surfaces for their parks and schools. Our constituency ranges from concerned individuals to community and civic organizations, legal, healthcare and science professionals, municipal leaders and state legislators.

We ask that the City Council take immediate action to meet demands to protect drinking water, human and environmental health from the toxic and carcinogenic chemicals found in synthetic turf, joining other communities and states:

- Millbrae
- San Marino
- Santa Clara County
- States of CA, CO, ME, MN, NY, VT have enacted laws related to synthetic turf. Additional states have active bills in their legislatures while an ever growing number of local jurisdictions across the country have moratoriums or have won battles against installations by referendum.

The proposed resolution is consistent with Los Angeles City programs and ordinances::

- 1989 Waste Management Diversion Act
- 2015 Sustainable City pLAN
- 2019 Green New Deal/Climate Action Plan
- 2022 Single Use Plastic/Plastic bag ordinance



### **Synthetic Turf is a Petrochemical Plastic Product:**

Made of the same material as plastic straws and bags, synthetic turf is a fossil fuel based petrochemical product, as are 99% of plastics. The plastic blades are most often made of polyethylene, the most globally produced and discarded plastic. The backing may be made from latex, polyurethane or polyvinyl chloride.

There are over 16,000 known chemicals found in plastics. Of the known chemicals, 4,200 are considered "highly hazardous" to human and environmental health. Of these 4,200 chemicals, only 980 have been regulated by any global agency. Per- and polyfluoroalkyl substances (PFAS) are amongst the 15 categories of chemicals of concern in plastics.

### **PFAS:**

*"It's not an acute toxin. It's chronic, so it affects you by long-term exposure... There are no safe kinds. I've yet to see one that doesn't cause some sort of cancer or immunosuppression."* Dr. Graham Peaslee

Chemicals in plastics, including polybrominated diphenylethers (PBDE), neurotoxic phthalates, bisphenols and PFAS, add disease burden and health care costs in the United States. For 2018, the attributable cost of plastics to disease and health care related costs was \$249 billion; for PFAS alone, it was \$22.4 billion. The societal cost globally is estimated at \$16 trillion USD annually for PFAS clean ups and health care for impacted individuals.

The need to stop further PFAS exposure cannot be overstated. PFAS can cause multiple reproductive disorders (including a 40% decrease in female fertility; a decrease of 62.3% total sperm count in males); Crohn's disease; breast, testicular, kidney, prostate and liver cancers. They cross the blood-brain barrier and are related to Autism Spectrum Disorder, Attention Deficit Hyperactivity Disorder, increased deaths from Parkinson's and Alzheimer's diseases; immunological effects; increased serum cholesterol; effects on infant birth weights; impaired glucose metabolism, insulin resistance, dyslipidemia and adiposity in children and adolescents; thyroid hormone disruption (including neonatal) and thyroid cancer. Because they are bioaccumulative, PFAS exposure can impact multiple generations. Babies are being born pre-polluted with PFAS.

PFAS is required to prevent plastic yarns from sticking to manufacturing equipment. One it has been found in 100% of independently tested synthetic turf to date. Industry claims of PFAS free turf have been disproven. The industry trade association President and CEO, Melanie Taylor, sent an email to CA State Senator Ben Allen on 21 June 2023 admitting to use of PFAS in synthetic turf. Industry claims of a polymer processing aid, Polyvinylidene fluoride (PVDF) is a "safe" PFAS chemical, are also untrue. PVDF is a polymeric PFAS that poses risk to human and environmental health.

Multiple studies have confirmed that PFAS, heavy metals, PAHs, phthalates and Volatile Organic Compounds leach and/or aerosolize from plastics, including synthetic turf and used tire crumb rubber playground surfacing. The microplastic crumbs of approximately 40,000 used tires are used as infill to support the plastic blades in a single regulation sized synthetic turf field. It is also used for playground surfacing known as PIP (poured-in-place).

On 5 April 2024, the California Office of Environmental Health Hazard Assessment issued a press release regarding Public Health Goals (PHGs) for two PFAS chemicals (of over 16,000) in drinking water:

*“The PHG for PFOA is 0.007 parts per trillion (ppt), and 1 ppt for PFOS”*

PHGs are used by the State Water Resources Control Board (SWRCB) in establishing drinking water standards- CA Maximum Contaminant Levels (MCLs). The PHGs are based only on scientific data and public health considerations and not on economic cost considerations. The MCLs that will be adopted by SWRCB will consider economic factors and technological feasibility. State law requires that SWRCB set MCLs at levels as close as feasible to corresponding PHGs, with an emphasis on protection of public health. California MCLs for PFOA and PFOS must be at least as stringent as federal MCLs, and may result in being stricter than those set by the US EPA.

On 10 April 2024, the US EPA issued Maximum Contaminant Level Goals (MCLG) and Maximum Contaminant Levels (MCLs) for both PFOA and PFOS in drinking water:

- The US EPA set MCLGs for both PFOA and PFOS at zero.
- MCLs were set at 4.0 ppt (parts per trillion) for PFOA and PFOS, individually.
- The EPA established MCLGs for four additional PFAS chemicals: PFNA, PFHxS, PFBS and “GenX” chemicals.
- The EPA established MCLs at 10 ppt. for PFHxS, PFNA and GenX chemicals individually, with a limit of 10 ppt for any mixture of two or more of: PFHxS, PFNA, “GenX” chemical and PFBS.
- All of the named PFAS chemicals have been found in synthetic turf.

Compound	Final MCLG	Final MCL (enforceable levels)
PFOA	Zero	4.0 parts per trillion (ppt) (also expressed as ng/L)
PFOS	Zero	4.0 ppt
PFHxS	10 ppt	10 ppt
PFNA	10 ppt	10 ppt
HFPO-DA (commonly known as GenX Chemicals)	10 ppt	10 ppt
Mixtures containing two or more of PFHxS, PFNA, HFPO-DA, and PFBS	1 (unitless) Hazard Index	1 (unitless) Hazard Index

<https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas>

Chemical leachate into soil, surface and groundwater can impact drinking water.

Thirty two PFAS chemicals, culled from public records, have been found to date in synthetic turf.

Claims by industry to be able to manufacture synthetic turf without PFAS remains completely unsubstantiated and undemonstrated at any level. In the absence of any independent third-party verification, there is no basis for relying on industry claims, particularly given the universal presence of PFAS in all tests to date.

All manufacturers should be able to provide independent third party testing results using the most up to date methods for solids or testing showing less than one PPM (Part Per Million) of TOF (Total Organic Fluorine). Commercial laboratories can test for approximately 100 of the



over 16,000 PFAS chemicals at the two ppt level. It should be noted that **absence of proof is not proof of absence** when only a small percentage of PFAS can be tested for.

The industry and their scientists for hire have been known to manipulate PFAS testing to support misleading and unsupported conclusions. Such deceptive techniques include using methods specific for testing water rather than solids, setting detection limits too high, testing for a narrow range of PFAS amongst the over 16,000 PFAS chemicals, not conducting synthetic leaching precipitation procedure (SPLP) and not testing for Total Organic Fluorine (TOF).

Signed affidavits from manufacturers and associated industries have also been proven false, are reportable (CA OAG; FTC), and are not acceptable in lieu of independent third-party testing.

California Department of Toxic Substances Control (CA DTSC) will be holding a workshop on PFAS and other chemicals of concern in synthetic turf (pg. 14) in 2024 and opening public comments shortly thereafter. PFAS in commercial and residential carpet are already under regulation in CA.

Major research on PFAS in synthetic turf by renowned researchers Dr. Graham Peaslee and Dr. Heather Whitehead is slated to be published in fall of 2024.

Yorba Linda, CA, a city of 68k residents, recently opened its new \$28 million PFAS water treatment plant. What would a treatment plant(s) cost the city of Los Angeles to remove PFAS, other chemicals of concern and microplastics? Construction of a treatment plant is not the end...but the beginning. Disposal of concentrated PFAS and other chemicals of concern in the wastewater effluent, replacement and disposal of costly filters in hazardous waste landfills, advancing science that will detect more chemicals at increasingly lower concentrations resulting in more stringent regulations is the reality that willfully adding more PFAS and other chemicals to LA's environment and water will bring.

**Additional Chemicals of Concern:** (not comprehensive)

In synthetic turf:

- Phthalates
- Latex
- Polyvinyl chloride
- Naptha
- Siloxanes
- Talc
- Di/Isocyanates
- Formaldehyde
- Fungicides
- Flame retardants
- Coal fly ash
- 1,2-cyclohexane dicarbonic acid
- Dibutyltin
- Ethylene glycol
- Triclosan
- Colorants
- UV stabilizers
- Anti-static treatments

In used tire crumb infill:

- Lead
- Phthalates
- Polycyclic Aromatic Hydrocarbons
- 6PPD/6PPD-quinone
- Benzothiazole (BT)
- 2-Mercapto-benzothiazole (MBT)
- 1,3 Diphenylguanidine (DPG)
- Cadmium
- Benzene
- Formaldehyde
- Copper
- Mercury
- Hexamethyloxymethyl-melamine (HMMM)
- Short and Long Chain chlorinated parafins (SCCP; LCCP)
- Zinc
- 1,3 Butadiene
- Chromium (hexavalent chromium; lead chromium)

- Styrenes

Plant and mineral based infills also break down with wear and tear of athletic field use. They have not been proven safe, may contain pesticides, are flammable, require frequent watering, float and wash off in rain, and only temporarily reduce the temperature of the playing field by 10-20°F. Mineral based zeolite infill can form a paste that cakes in the carpet. Two plant based infills have been shown to contain PFAS.

Plant based infills add excess nutrients to soil and water, increasing the risk of toxic algal blooms and red tides. They also increase GHG off gassing by an additional 70%.

### **Microplastics:**

Research by the Department of Civil and Environmental Engineering, University of California, Los Angeles, and the Moore Institute for Plastic Pollution Research, Long Beach, found *“Children’s playgrounds contain more microplastics than other areas in urban parks.”*

In addition to the CA Statewide Microplastics Strategy - Senate Bill No.1263 (Chapter 609, 2018), CA DTSC recently announced its intent to add Microplastics to the Candidate Chemicals List.

Microplastics not only leach chemicals, including PFAS, they adsorb other chemicals and bacteria, posing particular risk to the food chain. Even the best BMPs (Best Management Practices) will capture only a small percentage of the microplastics and virtually none of the PFAS and other toxic chemicals from synthetic turf. Drainage systems are not expensive granulated activated carbon (GAC) filters.

In humans, micro- and nano-plastics have been found in:

- |  |                                  |
|--|----------------------------------|
| ● <u>Heart</u>                               | ● <u>Breastmilk</u>              |
| ● <u>Liver and spleen</u>                    | ● <u>Brain</u>                   |
| ● <u>Lungs</u>                               | ● <u>Penis, Testes and semen</u> |
| ● <u>Blood</u>                               | ● <u>Kidney</u>                  |
| ● <u>Placenta</u> (maternal and fetal sides) | ● <u>Brain</u>                   |
| ● <u>Newborn and adult feces</u>             |                                  |

Microplastic blade loss from synthetic turf is estimated at 551-661 pounds per playing field per year.

Microplastic synthetic turf blades have been found in Lake Tahoe (personal email communications with researchers at Tahoe Environmental Research Center (TERC)) and the ocean. In 2021, researchers found that synthetic turf fields in Toronto contribute the 2nd highest amount of microplastics to the environment with only litter contributing a higher amount. This makes synthetic turf a major point source of PFAS and microplastic pollution that cannot go unaddressed. Lake Tahoe researchers found high levels of polyethylene and polypropylene in the lake and ***“...recorded plastics concentrations more than three times higher than those sampled using a similar method in the North Atlantic subtropical gyre.”***

Published on 29 June 2023, research by the University of Barcelona found:

***“AT [artificial turf] fibers - composed mainly of polyethylene and polypropylene - can constitute over 15% of the mesoplastics and macroplastics content, suggesting that AT fibers may contribute significantly to plastic pollution. Up to 20,000 fibers a day flowed***

*down through the river, and up to 213,200 fibers per km<sup>2</sup> were found floating on the sea surface of nearshore areas. AT, apart from impacting on urban biodiversity, urban runoff, heat island formation, and hazardous chemical leaching, is a major source of plastic pollution to natural aquatic environments.”*

A congressional hearing, entitled: “Are Toxic Chemicals From Tires And Playground Surfaces Killing Endangered Salmon?” was held in the Natural Resources Committee, Oversight and Investigations Subcommittee hearing on 15 July 2021, with the Honorable Katie Porter as Chair.

A 2021 Report to Ocean Protection Council identified playgrounds, synthetic turf fields and rubberized asphalt as contributing tire particles to urban runoff. That same year, the San Francisco Estuary Institute also found 85% of stormwater runoff particles were due to tire wear in 12 of San Francisco’s urban areas.

On 13 December 2023, the California Coastal Commission conditioned a permit for the Cesar Uyesaka Baseball stadium at UC Santa Barbara, requiring natural grass, citing microplastic pollution and stating synthetic turf is not superior to natural grass and is not sustainable. They also disallowed the proposed removal of trees.

The evidence of the negative impact of microplastic pollution on environmental health is equally daunting. From zooplankton, krill and whales to bees, and terrestrial animals of the Americas, macro-, micro- and nanoplastics are impacting aquatic and wildlife, and even our pets. Synthetic turf and microplastics have caused a decrease in bird populations, accumulation of microplastics on bees and negatively impacts ocean habitats and biodiversity both above and below ground. Research from 2021 estimated that >1500 species have ingested microplastics.

### **Plastic turf does not save water:**

Synthetic turf requires approximately 989 gallons of water to produce 1 square meter of turf-estimated to be the equivalent of watering a square meter of natural grass for 18 years. Additional water is required for cooling to a safe temperature for playing as well as for cleaning pollution, bodily fluids (like blood and vomit), animal waste, mold, bacteria and more from plastic turf and is often a condition of warranty.

Research has shown that synthetic turf requires more water than drought tolerant Bermuda varieties in an arid environment in order to bring the surface temperature down to a level comparable to natural grass for safe play.

While proper irrigation or water-cannon systems can lower the temperatures for 20+ minutes, plastic fields rapidly return to the high temperatures. According to recent research:

*“... 480,000 L of water at 25°C are required to decrease the surface temperature from 60°C [140°F] to 30°C [86°F]...the amount of water required to maintain [artificial turf] temperatures at levels comparable to irrigated [natural turf] over a 24-h period exceed the water requirements of Bermuda grass in the same environment.”*

A report on water use on synthetic turf found that 2 water cannons spraying water from the center of the field moving towards each end simultaneously was the most effective, as one cannon only resulted in the first end drying before the second was sprayed. **In September and October, 12,000 gallons of water were required each time the field needed to be cooled.**

### **Impervious surfacing:**

Synthetic turf is classified as impervious by the US EPA and state of California (pg 116):

*"...areas such as gravel roads...that will be compacted through design or use to reduce their impermeability." It further has defined impervious surfaces as...[a]ny surface that prevents or significantly impedes the infiltration of water into the underlying soil. This can include but is not limited to: roads, driveways, parking areas and other areas created using non porous material; buildings, rooftops, structures, **artificial turf** and compacted gravel or soil."*

### **Potential for erosion:**

Synthetic turf does not save water and will generate 27,000 gallons of toxic runoff per 1 acre of plastic for every one inch of rainfall.

*"Pollutants from aerial and terrestrial sources accumulate on impervious surfaces until runoff from a precipitation event carries sediment, nutrients, metals, and pesticides into stormwater drains and directly to local water bodies. As impervious surfaces increase, stormwater runoff increases in quantity, speed, temperature, and pollutant load. When impervious surfaces reach 10–20% of local watershed area, surface runoff doubles and continues to increase until, at 100% impervious surface coverage, runoff is five times that of a forested watershed. Excessive stormwater runoff also increases the potential for flooding." US EPA Impervious Surface Fact Sheet*

Scripps Institute of Oceanography, University of California San Diego reported 46 total atmospheric rivers along the U.S. West Coast, causing disastrous flooding and loss of property and life during the 2022 to 2023 rainy season. With what has now been categorized as a Super El Niño year currently, increasing frequency and severity of atmospheric events overall, consideration of synthetic turf is antithetical to environmental responsibility and an even poorer choice for a product that must be replaced every 8 to 10 years on average.

### **Heat/Heat Islands:**

***'This is a climate damn emergency'***

Gov. Gavin Newsom

The overheating of densely crowded and overbuilt urban centers, particularly a mega city the size of Los Angeles, points to the desperate and unmet need of open **natural** green spaces if the effects of climate change are to be mitigated.

Synthetic turf can readily become much hotter than asphalt, reaching temperatures of 160°F to 180°F (regardless of infill type) and have even reached well in excess of 222.8°F (106°C) Thermal burns on plastic turf have even required hospitalization. At a surface temperature of 118°F a first-degree thermal burn occurs in 15 minutes, becoming a 3rd degree burn (full skin-thickness) in 20 minutes; at a temperature of 140°F, 1st degree burns occur in 3 seconds, and 3rd degree burns in 5 seconds.

As the planet heats up, athletes are increasingly impacted by heat related illness by playing on synthetic surfaces. Deaths among high school football players from heat stroke doubled from 2015 to 2017 when compared to the 5 preceding years. Football players are eleven times more likely to suffer a heat related illness. Playing on synthetic turf is a contributing factor.



After traumatic injuries and cardiac related events, heat illness is the 3rd leading cause of death among teenage athletes. One of the predisposing factors are prescription drugs for treatment of attention deficit hyperactivity disorder, ADHD, which can be caused by PFAS chemicals found in plastics. ADHD, which affects approximately 7% of 6 to 11 year olds, has been declared a serious public health problem.

Children are not small adults. They are more readily impacted by heat illness due to:

- Heat production – Children have higher metabolic rates than adults which leads to higher production of more heat.
- Body surface area – Younger children absorb more heat because they have a greater body area to body mass ratio. For older children and teens, increased body fat and low fitness levels are contributing factors.
- Blood circulation – Children are less able to cool their body temperature by shunting their blood from their body core to their body surface due to lower cardiac output and smaller blood volume.
- Sweat production – Children produce less sweat per gland and sweat at higher body temperatures than adults.
- Fluid replenishment – Children are less likely to self-regulate hydration if unsupervised.
- Children experiencing heat illness are most likely to present with significant neurological symptoms- from delirium, hallucinations, poor muscle control and unsteady gait, difficulty with speaking or unclear speech to seizures or coma. These symptoms may be readily confused with head trauma, epilepsy or drug overdose. Mortality is high and if a child survives heat stroke, their risk for recurrence of heat illness is increased.

Synthetic turf off-gasses both methane and ethylene and continues throughout the night, in ever increasing amounts for the 1,000 years it takes for it to decompose. Methane traps 90% more heat than carbon dioxide and is 21 times more potent. Land based plastics produce 2 times more methane and 76 times more ethylene than plastics found in waterways and oceans.

**The heat islands created by plastic turf playing fields are large enough to be visible from satellites circling our planet.** Even if all synthetic turf were removed from Los Angeles today, methane would linger in the atmosphere for approximately 12 years, contributing to climate change and sea level rise for hundreds of years after pollutants have been cleared from the air.

A 2017 Swedish study of total life cycle emissions on a modeled 7881m<sup>2</sup> synthetic field concluded GHG emissions would be 527 tons of CO<sub>2</sub>e for a ten year use period, exclusive of manufacturing, transport, construction, removal and disposal.

**The Lawrence Berkeley National Laboratory released a report in April 2024 finding that the greenhouse emissions from plastics is four times those emitted by the aviation industry.**

### **Not recyclable:**

Less than 6% of plastics are recycled. Made of mixed plastics, synthetic turf is not recyclable, not sustainable and is a linear, not a circular, product.

A lobbyist for The Synthetic Turf Council gave testimony in the California Senate Finance and Governance Committee on 12 July 2023 stating:

*“One thing we don't want to do is to set a [PFAS] limit that's so low that we can't recycle the products because you're going to have environment—I mean, PFAS is everywhere—so you're going to have environmental PFAS that's out there. We want to still be able to recycle products. We don't want to have a situation where we're no longer be able and it has to go to the waste stream instead of be recycled in some way.”*

The same lobbyist testified in the California Senate Environmental Quality Committee on 19 June 2024, stating that the largest carpet recycler in Los Angeles cannot recycle synthetic turf. The Trex Company, in a 2022 email, stated they will not accept synthetic turf for use in manufacturing of their composite wood/plastic fencing and decking due to the environmental contamination of the fields.

One “recycler” with grandiose claims that it would be able to “recycle” 60k tons of synthetic turf per year (3,000 regulation sized 80k square feet fields; 40,000 pounds for carpet and backing; 400,000 pounds of infill), obtained tax incentives in both PA and CA. They have failed to open a plant in either state, and have never recycled a single old field into a new field in their home country of Denmark. With an estimated 30,000 synthetic turf fields in existence in the U.S., it would take 10 years to recycle the current fields with no new fields brought into the market. Two other companies, TenCate and FieldTurf, are shipping chopped up old carpets to ExxonMobil in Baytown, TX for “advanced chemical recycling,” where the plant is fraught with millions of dollars in fines for violations.

When “mechanically” recycled (chopped up, essentially) for use in other products, the toxic and carcinogenic effects are added to the new product, along with additional toxic and carcinogenic chemicals. Downcycling plastics into new products creates new, lesser quality products that are not recyclable.

Research (2023) from a single northern Scotland recycling facility that accepts 22,680 tonnes of mixed plastic waste annually showed mechanically recycling plastics resulted in the release of up to **3,000,000 pounds** of microplastics into the environment in a single year. The implications of this research indicate “...as much as 400,000 tons [800,000,000 pounds] per year in the United States alone, or the equivalent of about 29,000 dump trucks of microplastics.”

When shipped out of state for “advanced chemical recycling” (banned in CA under SB54-Allen, 2022), they contribute to the negative human and environmental health effects of Environmental and Social Justice (EJ/SJ) communities. Landfilling and dumping used rolls also often occurs in EJ/SJ communities.

The United Nations defines sustainable development as “*development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*”

The UCLA Sustainability Committee notes: “*In simplest terms, sustainability is about our children and our grandchildren, and the world we will leave them.*”

The Rutgers Center for Sustainable Materials definition:

*“Sustainable materials are materials used throughout our consumer and industrial economy that can be produced in required volumes without depleting non-renewable resources and without disrupting the established steady-state equilibrium of the environment and key natural resource systems. Such materials vary enormously and may range from bio-based polymers derived from polysaccharides, or highly recyclable*

*materials such as glass that can be reprocessed an indefinite number of times without requiring additional mineral resources.”*

The California Commission on Recycling Markets and Curbside Recycling designated synthetic turf a single-use plastic (@1:31:02).

Landfilling, donating, selling, improperly or illegally disposing of synthetic turf continues to contribute to greenhouse gas emissions, as well as PFAS and other toxic and carcinogenic chemical leachate and microplastic pollution. Because landfilling of synthetic turf is costly, improper and illegal dumping or warehouse storage is common.

### **Open green space has mental health benefits:**

Natural green spaces have been shown to mitigate aggressive behavior in adolescents and significantly reduce the growing risk of psychiatric disorders and suicide mortality. Natural green spaces also reduce health risks such as asthma.

The American Psychological Association finds:

*“...exposure to nature has been linked to a host of benefits, including improved attention, lower stress, better mood, reduced risk of psychiatric disorders and even upticks in empathy and cooperation.”*

Initially published in Center for Climate, Health, and the Global Environment, Harvard:

*“Studies have found that students who attend schools with green spaces tend to have better grades, higher test scores, and better attendance rates than those who do not.”*

### **Injuries:**

Independent peer-reviewed research consistently shows significantly increased non-contact lower extremity injuries and concussions, particularly for children- playing on synthetic turf is a contributing factor.

*“The available body of literature suggests a higher rate of foot and ankle injuries on artificial turf, both old-generation and new-generation turf, compared with natural grass. High-quality studies also suggest that the rates of knee injuries and hip injuries are similar between playing surfaces, although elite-level football athletes may be more predisposed to knee injuries on artificial turf compared with natural grass. **Only a few articles in the literature reported a higher overall injury rate on natural grass compared with artificial turf, and all of these studies received financial support from the artificial turf industry.**”*

Professional players across multiple sports are calling for a return to natural grass. Elite soccer players will not play on plastic turf and the National Women’s Soccer League sued in order to play on natural grass.

Exposure to Methicillin-resistant Staphylococcus aureus (MRSA) and other bacteria are a potentially life threatening consequence of dermal abrasions, known as turf burns, due to friction on synthetic turf. Inhalation and ingestion are additional exposure pathways. Non contact lower body injuries are significantly higher on synthetic turf, as are concussions and heat stroke.

- 315,000 to 850,000 concussions every year occur among high school athletes.
- Repeated concussions increase risk of Chronic Traumatic Encephalopathy (CTE)/
- The Concussion Legacy Foundation reported that repetitive brain trauma is associated with CTE and has been found in 17 year olds. 41.4% of athletes under age 30 show signs of CTE.
- In high school American football players, concussions occur when head impacts approach 95 g.
- For youth American football players aged 9-14;  $62.4 \pm 29.7$  g was the threshold for concussions.
- Research published Jan 2024 showed significantly greater impact deceleration on synthetic turf compared to natural grass surfaces, showing greater potential for concussions on synthetic fields.
- Newer synthetic turf fields require a greater fall distance to attenuate head to surface impact, which again, puts children at higher risk.

### **Viabile alternative to plastic fields:**

Grass fields actively sequester carbon dioxide and provide a cooling function that is especially dramatic when compared to the heat generated by synthetic turf. Grass naturally filters toxins, performs important eco-services for the soil beneath, and provides widely dispersed rainwater infiltration allowing absorption and recharging of the water table. Additionally:

- Research suggests that grasses can accumulate and deposit carbon into the soil by approximately one-half ton of carbon per acre per year for 30 to 40 years.
- Organic management and zero emission maintenance equipment mitigate emissions, reduce costs over time, and increase carbon sequestration.
- Electric mowers for playing fields and chalk markers are available.
- Drought and desert tolerant varieties of natural grass appropriate for lawns, parks and high use playing fields are available.
- Grass fields support biodiversity, both above and below the ground.

Recent announcements of local playing fields that will be on natural grass include:

- USC's Rawlinson Stadium- *"In a day and age where the dangers of turf are known far and wide, Rawlinson Stadium will have a natural grass field, key for the safeties of its athletes."*
- Westchester High School, Los Angeles
- Lincoln High School, East Los Angeles
- UCSB Caesar Uyesaka Stadium (@5:32:32)

### **Costs:**

If places like Phoenix and Las Vegas can have drought tolerant playing fields and large sports complexes and save on water, certainly Los Angeles can.

Maintenance of plastic turf, which only picks up metal debris and fluffs plastic blades, but does not clean the bacteria and pollutants that collect on impervious plastic fields, does not do hardness testing or replenish the 1.5 to 5 tons of infill lost annually, further increases risk to all who use them.

Avoidable failure of natural grass playing surfaces occur due to:

- Improper installation and maintenance
- Lack of attention to soil, root zone, understanding of soil type drainage capabilities



- No inclusion of soil analysis of texture, nutrients, organic matter and living biome
- Inappropriate selection of sod or seed for soil needs and climate zone
- Proper maintenance doesn't take place
- Inadequate, improper or no aeration (3-5 times/year)
- No or inappropriate fertilization, overseeding

Organic/regenerative management:

- More cost effective than "traditional" management over time
- Reduces risk of liability for costly violations of the US Clean Water Act under the NPDES (National Pollution Discharge Elimination System) Permit
- More significant with new US EPA regulations on PFAS

According to experts with multiple years and decades of experience managing natural grass playing fields, three to four playing fields can be professionally installed for the cost of a single plastic field.

**TRUE Costs from Natural Grass Experts:**

**Expectations drive decisions. Commitment drives success!!**

<p><b><u>Low End:</u></b>  <b>\$3 - \$5/sq. ft.</b>          Native soil          irrigation          Crown with min. 1% <b>gradient</b></p>	<p><b><u>Mid Range:</u></b>  <b>\$5/sq.ft.</b>          Native soil, amendments          to 8" irrigation</p> <p><b>\$8 - \$10/sq.ft.</b>          Native soil          amendments to 8"          irrigation          drainage system          sand cap</p>	<p><b><u>High End:</u></b>  <b>\$12 - \$13/sq.ft.</b>  <b>"All the bells and whistles"</b></p>
--	---	--

**Amortized over 24 years, a high end field with all of the "bells and whistles" would cost**  
**\$43,333 per year**

With proper soil testing, seed or sod selection, installation and maintenance, natural grass playing fields can last 25-30 years.

**Los Angeles city parks:**

- 1,688,435 sq feet of synthetic turf in 47 parks (38.761 acres)
- 155,133,986 gallons of water to manufacture every 8 to 10 years on average
- 289,145 gallons of petroleum based oil to manufacture every 8 to 10 years on average
- 67,537,400 plastic bags equivalent
- 970,850,125 plastic straws equivalent
- 10,490 tons of CO<sub>2</sub>e off gassed every 10 years
- 73,644 trees required to off set GHGs from the fields in 47 parks

- 1,046,547 gallons of toxic runoff for every 1 inch of rain
- 56,084,454 gallons during 2022-2024 rainy seasons (53,59 inches)
- 11,630 to 13,951 pounds of microplastic blade loss per year
- 12,610 pounds of microplastics loss from carpet backing per year
- 844,217.5 pounds of plastic carpet waste every 8 to 10 years on average
- 8,442,175 pounds of infill waste every 8 to 10 years on average

Choosing to install petrochemical plastic synthetic turf is willfully accepting human and environmental health ***irresponsibility*** for:

- Contribution to human health effects due to exposure of PFAS, other endocrine disrupting, toxic and carcinogenic chemicals, bacteria and pollutants that collect on plastic fields.
- Ignoring responsibility to ensure physical and mental health needs of residents and students by increasing risk of health related disease through toxic exposure, overheating the environment, reducing natural open green space, shifting burden of all of these to future generations.
- Contribution to climate change.
- Continued contamination of air, water and soil with “forever” chemicals and other toxic chemical classes.
- Increased risk of injury, heat stroke, death.
- Loss of biodiversity.
- Adding massive amounts of unrecyclable plastic and its toxic and carcinogenic leachate to the environment every 8 years on average (plastics take an estimated 1,000 years to decompose).
- Increased taxpayer burden.
- **Ignoring science.**
- Increased legal liability (injuries; Clean Water Act, Prop. 65, CEQA violations)

*“Plaintiffs alleging injuries from artificial surfaces can look to several potential target defendants including: (1) turf manufacturers; (2) companies that manufacture the various component parts of turf; and (3) **turf purchasers, particularly high schools, universities and major sports franchises.** Expected allegations would follow a traditional products liability model, involving counts for both design defect and failure to warn.  
Reuters 5 July 2023”*

***Lawyers to Plastics Makers: Prepare for ‘Astronomical’ PFAS Lawsuits***

*“At an industry presentation about dangerous “forever chemicals,” lawyers predicted a wave of lawsuits that could dwarf asbestos litigation, audio from the event revealed.”  
New York Times 28 May 2024.”*

The evidence is clear. What will Los Angeles do to protect its water supply, human and environmental health and stop contributing to the climate crisis? No one “needs” plastic grass carpet, not in parks, school, homes or businesses. No one needs more PFAS and other toxic and carcinogenic chemical exposure.

We urge you to **not succumb to pressure from those with a vested interest in promoting and selling synthetic turf**; who try to tell you their product is PFAS free; that PFAS, other chemicals and microplastics can be contained; that their product is cooler than