Key Considerations on Synthetic Turf Fields

Presented to:

LAUSD

Greening Schools and Climate Resilience Committee

24 Aug 2025

The Climate Reality Project LOS ANGELES CHAPTER

NEIGHBORHOOD COUNCIL SUSTAINABILITY ALLIANCE

SoCal Stop Artificial Turf Task Force

SAFE HEALTHY PLAYING FIELDS

BEYOND PLASTICS AFFILIATE

The Climate Reality Project SAN FERNANDO VALLEY, CA CHAPTER

THE ASK: Pivot Away From Plastic

1. Immediate ban on all new installation of synthetic turf in LAUSD schools

2. No replacement of existing synthetic turf playing fields or landscaping

3. Repeal Policy 3BUL-6847.0, FOR SELECTION, USAGE, AND MAINTENANCE OF SYNTHETIC TURF FIELDS (replacing synthetic turf fields with “like with like”)

4. Nature based solutions; high use, desert and drought tolerant Bermuda hybrid grass playing fields and playgrounds; Regenerative / organic management, zero emission maintenance equipment

5. Creation of college credit-based education programs in natural turf management

6. Inclusion of plastics relationship to Climate Change, loss of biodiversity, environmental damage, plastic and microplastic pollution in required Climate Change as part of Core Curriculum, K-12

7. Warning signs at all synthetic fields and playgrounds

Major health care organizations and researchers are taking a stand on transitioning away from plastics and synthetic turf with development of policies and resolutions:

- **The California Medical Association**
- **Santa Clara County Medical Association**
- **Children's Environmental Health Center, Mt. Sinai Hospital, New York City**
- **Physicians for Social Responsibility**
- **Climate Code Blue (Physician activists)**
- **The Consortium for Children's Environmental Health**
- **The Silent Spring Institute**
- **Lowell Center for Sustainable Production, Univ. of Mass., Lowell**

Growing Discontent with Synthetic Turf

California cities with bans:
Millbrae
San Marino
Carmel
Beverly Hills

Cities with Bans:
CA – 4
NJ - 1
MA – 2

Moratoriums:
MA – 4

Ballot Referendum Wins:
MA - 5
NJ – 3
NY - 1
WA - 1

States with Laws:
CA
CO
MD
ME
MN
NY
RI
VT

Current Lawsuits:
CA – 4
GA – numerous
NJ - 1
NY – 3
PA - 1
RI – 1
TN -1

International Bans:
Netherlands

Investigations:
European Union, "Synthetic Turf Cartel"

Synthetic Turf is currently in the process of regulation by the

Department of Toxic Substances Control,

Safer Consumer Products Program

- **New projects and replacements may be at risk**
- **Regulations may impact landfilling**
- **Likely to impact pricing – what goes up never comes down!**

DTSC intends to bring

MICROPLASTICS

under regulation as a chemical of concern

▼ 9 month old no infill turf, San Jose, John Mise Park

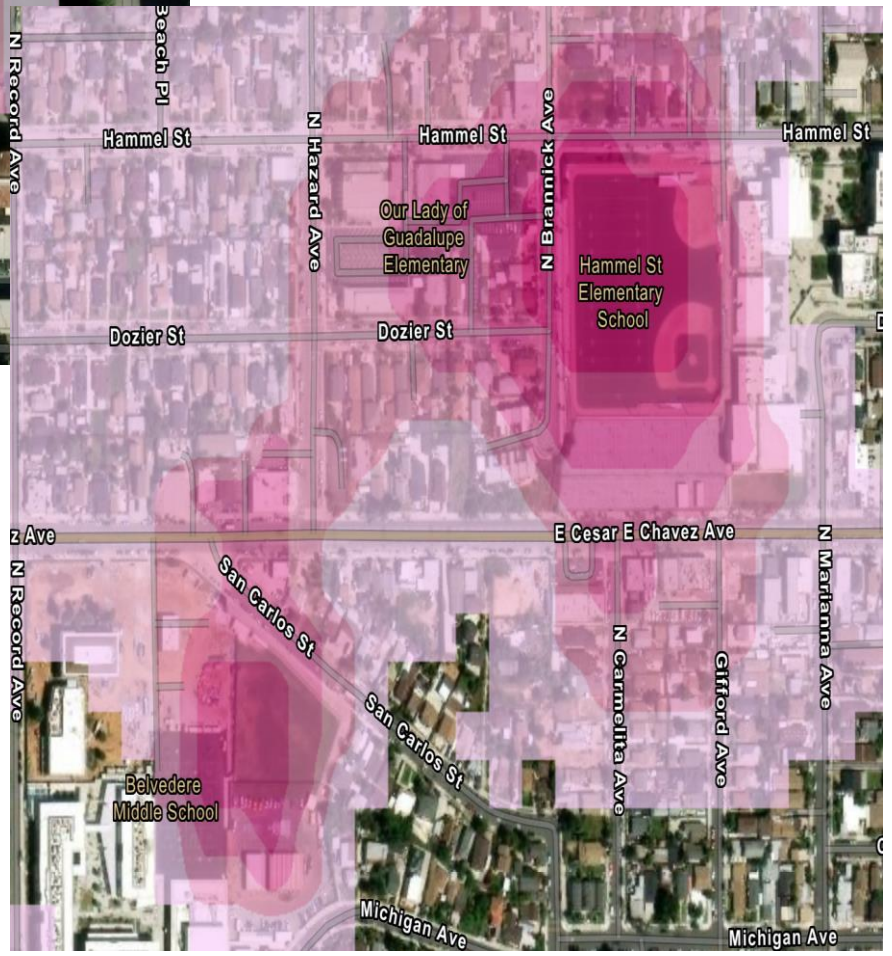
1.5 year old plastic turf, Villa Parke, Pasadena ▲

TOO HOT!

Contributes to climate change:

- Plastic contributes 4x GHG emissions than aviation industry
- Creates Heat Islands
- Impedes groundwater recharging; high volumes of toxic runoff
- Sheds 2-3K pounds of microplastics per field/year
- Contributes to wildfire risk

Huntington Park High School



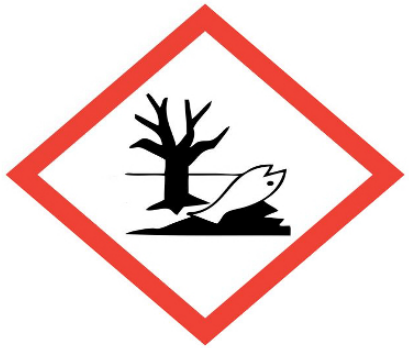
Hammel St. Elementary School

Belvedere Middle School

High heat increases chemical release, skin absorption, and inhalation of greenhouse gasses; puts all at risk

- Workers
- Athletes
- Coaches
- Bystanders
- Staff
- Marching band
- All students
- Visitors

Outdoor graduation ceremony becomes 'mass casualty incident' as over 150 people fall ill to extreme heat: 'I couldn't breathe'



Too ***TOXIC!!***

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

RESEARCH CONFIRMS HUMAN HEALTH RISKS FROM SYNTHETIC TURF

Heliyon 9 (2023) e14928

Contents lists available at ScienceDirect

Heliyon

journal homepage: www.cell.com/heliyon

Research article

Hazard assessment study on organic compounds and heavy metals from using artificial turf

Atef M.F. Mohammed *, Inas A. Saleh, Nasser M. Abdel-Latif

Air Pollution Research Department, Environment and Climate Change Research Institute, National Research Centre, Giza, Egypt

Study eyes safety of turf fields for kids

Scientists team up with San Diego Surf soccer club to discover if 'forever chemicals' pose risk

Assistant soccer coach Salar Parvini is concerned about PFAS and tries to limit his daughter Emma's time playing on artificial turf. Sandy Huffaker / for The Washington Post

Environmental Toxicology and Pharmacology

Volume 111, October 2024, 104562

In vitro endocrine and cardiometabolic toxicity associated with artificial turf materials

Kyle R. Siegel [a], Brooklynn R. Murray [a], Jeff Gearhart [b], Christopher D. Kassotis [a]

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Highlights

- Artificial turf material leachate alters *in vitro* endpoints.
- Endocrine bioactivities might differ by weathering status.
- Effects on specialized cell processes are complex.

Too *DANGEROUS:*

- ~9,000 student athletes treated for exertional heat illness each year.
- Synthetic turf readily reaches temperatures of 160-180°F, regardless of infill type; at a temperature of 140°F, 1st degree burns occur in 3 seconds, and 3rd degree (full thickness) burns in 5 seconds.
- Increasing number of athletes are dying from heat stroke. Athletes of color most affected.
- Turf burns due to friction on plastic increases risk for bacterial infections, including MRSA. Multiple bacteria found on plastic fields.
- Higher incidence of high school sports injuries on synthetic turf than natural grass across all sports: 61% vs. 39%.
- 315,000 to 850,000 concussions every year occur among high school athletes. Higher risk on synthetic turf.
- Concussions occur in high school football players when head impacts approach 95 g; lower g force for younger children.
- Repeated concussions increase risk of Chronic Traumatic Encephalopathy (CTE). Repetitive brain trauma is associated with CTE ; has been found in 17 year olds.
- 41.4% of athletes under age 30 show signs of CTE.

Not ***SUSTAINABLE***

- 1 ton of plastic requires 685 gallons of petroleum based oil for manufacturing
- A regulation 80k sq ft field requires 13,700 gallons of fossil fuel-based oil

Not Recyclable

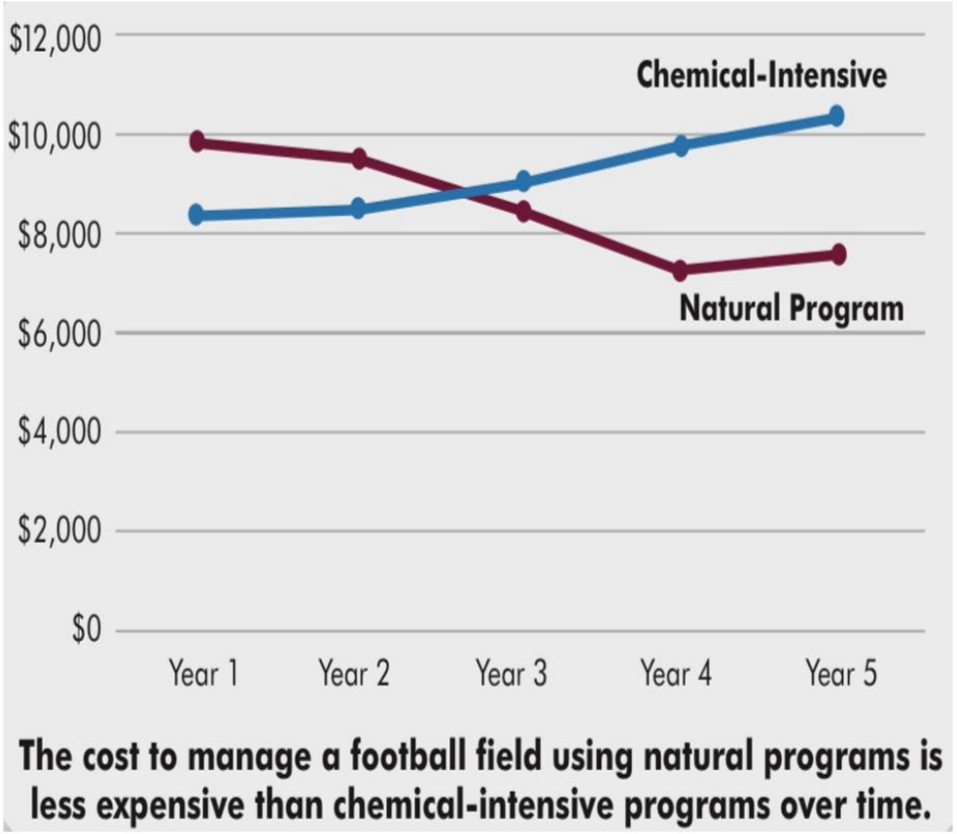
Failure of natural grass playing fields occurs when:

- **Attention is not paid to soil, root zone and understanding (natural) drainage capabilities**
- **No inclusion analysis of soil**
  Texture, nutrients, organic matter, living biome
- **Inappropriate selection of sod/seed for soil needs and climatic zone**
- **Proper maintenance doesn't take place**
- **Inadequate aeration (3 to 5x/yr.)**
- **No/inappropriate fertilization**

Organic/Regenerative management more cost effective over time

Natural grass maintenance costs:

- Soil testing: $50/sample
- Soil amendments: variable depending on soil testing
- Organic/regenerative maintenance less costly over time
- Not a product swap
- Drought tolerant hybrid grass can save 40 – 60% water
- 84,000 sq ft playing field: $50,450 (sod + delivery)
- Installation: $0.82 for 100k ft^2 (non-taxable)
- Aeration 3-5 times/yr
- Organic fertilization removes synthetic fertilizers, pesticides
- Battery powered landscape equipment
  Reduces number of staff required
  Eliminates GHG emissions



Beyond Pesticides: Cost Comparison: Organic vs. Chemical Land Management

TRUE Costs from Natural Grass Experts:

Expectations drive decisions. Commitment drives success!!

Low End:

$3 - $5/sq. ft.
Native soil
irrigation
Crown with min.
1% gradient

Mid Range:

$5/sq.ft.
Native soil, amendments to 8"
irrigation
$8 - $10/sq.ft.
Native soil amendments to 8"
irrigation
drainage system
sand cap

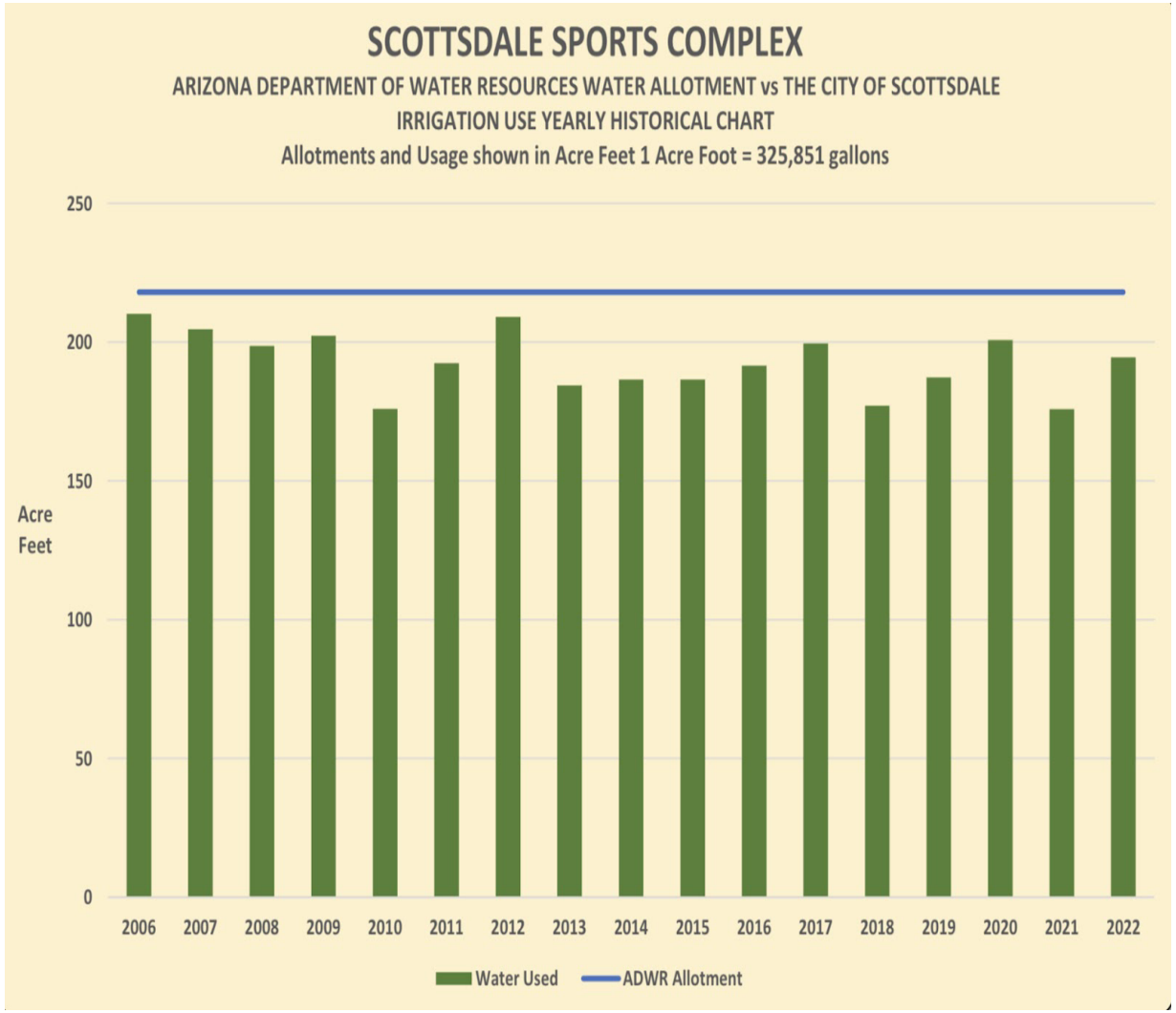
High End:

$12 - $13/sq.ft.
"All the bells and whistles"

Amortized over 24 years, a high end field with all of the "bells and whistles":

$43,333 per year

Over 1,000,000 ft² high use Bermuda grass playing fields in Scottsdale, AZ



Proven water savings year after year

Decision Making Criteria	Regenerative/Organic Maintenance	Conventional Grass	Synthetic Turf
20 Year Total Cost	$180k - $390k	$210k - $410k	$1.35M - $2.0M +
Maintenance costs / Year	$1500 - $4500 / acre	$4,000 - $6,000 / acre	$10k - 15k / field
Hours of maintenance / Year	75 - 100	250	350
Playable Hours	1500 - 3630[1]	650 - 800*	2,000 - 2,500**
Water Use	40 to 60% less Bermuda hybrids	Moderate - High	High Potable water required Cleaning; cooling; hydration of plant based infills
Water Contamination	None; no synthetic inputs; is not a “product swap”	Mod to High Synthetic fertilizer, Pesticide use	High toxic leachate with rainfall, cleaning, hydration

*** Unverified claims made by synthetic turf industry.**

*** * AI monitoring and maintenance systems show playable hours ~30% of claims made; closures for heat and particulate matter are not playable hours.**

CASE STUDIES: Systems approach to natural grass athletic fields without synthetics

BEYOND PESTICIDES

For details on these case studies and full reports, scan or email sustainableparks@beyondpesticides.org

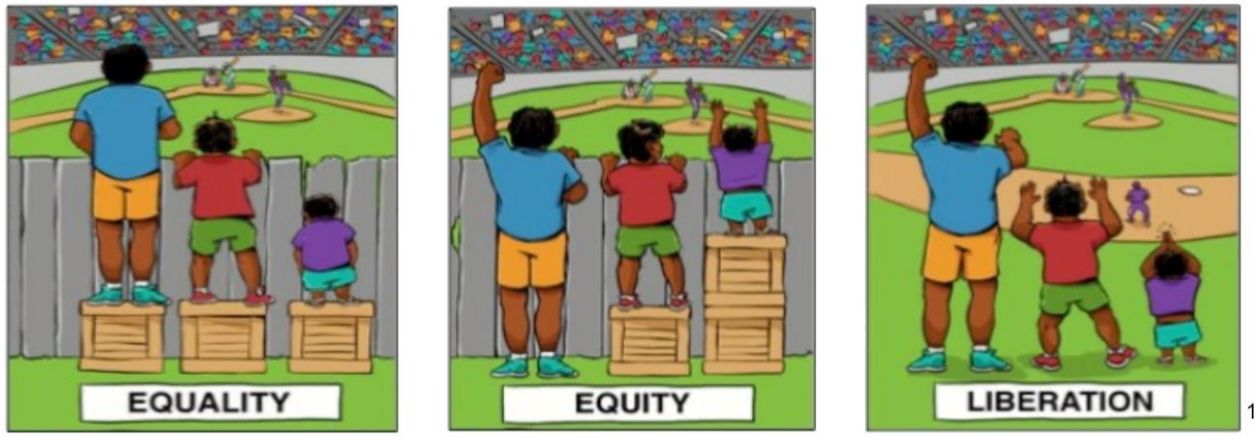
Plastic playing fields + playgrounds do not increase equity!

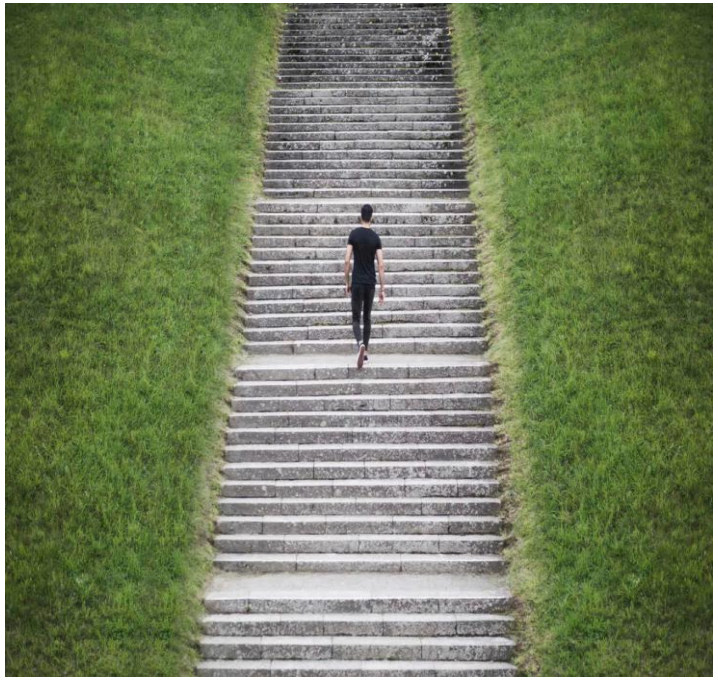
- Equity is not the same as equality. Equity in sports does not mean equality, either. Equality is providing the same resources to everyone; equity is providing resources based on need.

- Inequities in outdoor green space experienced in environmental and social justice (EJ/SJ) communities cannot be corrected with synthetic turf playing fields or synthetic playgrounds.

- Impervious synthetic surfacing decreases the amount of green space, adds to the heat island effect, exposes vulnerable populations to toxic chemicals, adds to pollution of water via increased runoff; to the air via off gassing of greenhouse gasses; to the soil via removal of topsoil, compaction, and overheating; high volumes of microplastic pollution.

- EJ/SJ communities bear a higher burden of health issues, access to health care and information due to language, and other social and cultural barriers.





GREEN education leads to *GREEN* jobs

- The Los Angeles Olympics Committee announced plans for *"supporting local businesses, expanding youth sports and implementing sustainable solutions."*
- *"Here in Los Angeles, we are leading the way toward a greener, more sustainable future for all Angelenos and the Impact and Sustainability Plan is another way that LA will benefit from the Games."* Los Angeles Mayor Bass

- As part of the sustainability plans, the Resilient by Nature initiative was launched.
- Los Angeles is a signatory to the Sports for Nature Framework and announced its commitment to *"..restore nature in the Los Angeles region"* through sports.
- LAUSD stands to benefit from both the 2026 World Cup Soccer and LA28 Olympics through development of college credit natural turf grass management programs that would allow students to learn by management of school fields, educational opportunities from experts in the field, and transition to high paid green jobs.

Current Bond Funded Efforts $1.4 B

Greening Provided as Feasible

Projects include upgrades to outdoor areas impacted by construction - positively improving green/natural schoolyards:

- $840M Major Modernization Projects
- $350M Classroom Replacement Projects
- $186M Upgrades to High School Athletic Facilities
- $70M Paving Replacement Projects