



DATE: March 24, 2026

TO: Municipal Services Committee

FROM: Koko Panossian, Director

SUBJECT: Artificial Turf Athletic Fields at City Parks

This memorandum provides information on artificial turf as the surface type for the multi-purpose athletic fields at Robinson Park and Villa Parke.

EXECUTIVE SUMMARY:

In light of SB 676, Municipal Services Committee directed staff to prepare a report evaluating the environmental and operational impacts of artificial turf fields. While SB 676 allows cities to ban artificial turf on residential properties, it does not address athletic fields. The Environmental Advisory Commission has recommended a citywide moratorium on new artificial turf installations and replacements, and the Recreation and Parks Commission supports retaining existing turf fields at Robinson Park and Villa Parke while halting further expansion.

The City operates 22 athletic fields serving more than 20,000 participants annually. Demand for fields far exceeds the number of fields available. Natural grass fields require intensive maintenance, are vulnerable to weather and overuse, and must close regularly, reducing playable hours and limiting access for youth and adult sports groups. Artificial turf fields provide year-round reliability, more playable hours, lower maintenance costs, and major water savings.

Artificial turf presents environmental and health concerns, including heat, microplastics, and contain substances such as polycyclic aromatic hydrocarbons (PAHs), phthalates, and polyfluoroalkyl substances (PFAS), which are known carcinogens, neurotoxins, mutagens, and endocrine disruptors. However, a review of best-available, peer-reviewed literature conducted by Pasadena Public Health Department (PPHD) found that "...the public health risk of artificial turf is low and likely does not pose a significant human health risk," while noting the need for more long-term studies. Newer turf products with natural infill and PFAS-free manufacturing offer potential mitigation. Replacing existing artificial turf with natural grass would require substantial capital investment, ongoing maintenance, and reduced field availability during and after conversion. Given the City's high demand for dependable athletic fields, the decision involves balancing environmental considerations, public health findings, fiscal impacts, and community needs.

BACKGROUND:

On May 14, 2024, Parks, Recreation and Community Services (PRCS) staff presented a report to the Municipal Services Committee (MSC) highlighting details of SB 676, signed into law by Governor Gavin Newsom on October 8, 2023.

SB 676, which applies only to residential properties, prohibits a city or county from enacting or enforcing any ordinance or regulation that prohibits the installation of drought tolerant landscaping using living plant material on residential property. The bill further specifies that drought-tolerant landscaping does not include the installation of synthetic grass or artificial turf. The bill thereby allows cities to ban or prohibit the installation of artificial turf on residential properties. While SB 676 does not address athletic fields, MSC directed staff to collaborate with the Environmental Advisory Commission (EAC) and the Recreation and Parks Commission (RPC) to evaluate the environmental and operational impacts of artificial turf fields.

In a memorandum dated September 13, 2024, the EAC recommended that City Council adopt an ordinance that would put a moratorium on new installations or replacement installations of artificial turf for City-owned property, including parks and city landscaping. Please see Attachment A.

On December 3, 2024, PRCS presented a report to the RPC seeking their recommendation to maintain artificial turf as the surface type for the multi-purpose fields at Robinson Park and Villa Parke. The RPC recommended the City Council approve maintaining artificial turf as the surface type for the multi-purpose fields at Robinson Park and Villa Parke and not install additional artificial turf fields.

Athletic Fields in Pasadena

Pasadena has 22 dedicated multi-purpose fields (20 natural grass fields and two artificial turf fields) that are utilized by 60 groups and organizations, collectively serving an estimated 20,000 youth and adult participants annually. A list of these organizations is attached to this report as Attachment B.

Demand for Athletic Fields

Requests for soccer, football, flag football, baseball, and softball fields have significantly increased over the past twenty years, showing tremendous growth in the popularity of recreational and club sports. Participation in recreation and sports have consistently proven to have positive impact on youth and adults alike. As youth sports continue to grow, the demand for well-maintained sports fields and facilities is increasing and the need to provide safe and reliable fields is crucial to the mental, physical, and social growth of the youth in our community.

Field demand continues to be a challenge as staff turn away approximately 20-25 groups per year; moreover, staff is unable to completely fulfill the requests of the existing groups, thus

reserving less time than requested or scheduling these groups at fields other than those that are desired.

Field Availability

Pasadena's dedicated athletic fields include: one soccer field, one football field, two T-ball fields, six softball fields, and 12 baseball fields. The list of fields with available hours and 2025 athletic-use reserved hours is attached as Attachment C. While multiple fields may be listed at a specific park, not all fields can be used at the same time. For example, at Robinson Park, there are two dedicated softball/baseball fields and a football field. Only one sport can be played at a time for safety reasons: two baseball games or one football game.

A typical athletic field in Pasadena can be available for play 5,475 hours per year for an average of 15 hours per day (park hours 7am-10pm). However, most of the permitted use on the fields are during prime time hours: 4pm-10pm on weekdays (six hours) and 7am-10pm on weekends (15 hours). As such, annual prime time available hours per field with lights equals 3,120 (14 fields) and 1,850 hours for fields that don't have lights (8 fields). Factors such as shutdowns for maintenance, vandalism, rain, and renovation further reduce field availability by up to 1,350 hours per year.

Natural Grass Fields

A well-maintained natural grass field is an ideal surface for play. Grass benefits the environment by reducing the urban heat island effect, filtering rainwater and pollution, and providing habitats for birds and insects. Natural grass reduces temperatures even on hot days, with the temperature rarely rising above 95°F.

All natural grass fields require routine maintenance including mowing, edging, watering, fertilizing, time off from play, and the application of plant herbicides and pesticides to control weeds and pests. The average annual maintenance cost for natural grass is \$13,626 per acre. Fields also require annual renovation to help ease compaction from heavy play, irrigation adjustments/enhancements, topdressing to smooth surfaces, grading to improve drainage, overseeding, fertilizing, and watering. On average, the annual cost to renovate a natural grass field is \$5,969 per acre.

Artificial Turf Athletic Fields

Artificial turf systems consist of 2" to 2-1/2" long synthetic fibers tufted to a polypropylene backing, with secondary coating of polyurethane. The fibers are filled to a depth of 1- 2" with sand, rubber pellets, a mixture of sand and rubber or environmentally friendly options such as cork, coconut husks, and walnut shells. They are installed over a gravel base, with some designs incorporating a shock pad for added safety. Water drains vertically through the artificial turf backing and the gravel base. The sub-base is sloped to direct the water to a perimeter drainpipe that leads into the storm drain system. New field constructions can incorporate stormwater capture into their designs.

Artificial turf is more durable than natural grass. These systems are constructed to withstand year-round daily activity – football, flag football, soccer, field hockey, lacrosse, etc. – in all types of weather. Free of puddles, muddy conditions, or worn areas, the fields are usable and ready. Because there is no winter dormancy, summer dry or brown patches, the turf provides a consistent level of playability.

Artificial Turf Fields in Pasadena

The City of Pasadena has two artificial turf athletic fields located at Robinson Park and Villa Parke. These two fields were installed between 2009-11 to increase permittable hours allowing for more youth sport activities. Both fields were replaced in 2018 and have now reached the end of their intended service life.

Combined, Robinson Park and Villa Parke artificial turf fields serve PRCS programs, non-profit youth sports leagues, and a broad range of community and school-based athletic programs. The tables below list the user groups and participant numbers for Villa Parke and Robinson Park for calendar year 2025.

Villa Parke Soccer Field			
Annual User Groups	Adult/Youth	Total # Participants 2025	Total # Teams
Villa Parke Youth Soccer league	Youth	3,388	344
Citywide Sports	Youth	178	14
Providence College	Adult	50	4
FC Goldenstate	Youth	30	2
William Alverado Soccer Training	Youth	55	4
Adult Sports Management Soccer League	Adult	1,000	104
Totals		4,701	472

Robinson Park Multi-Purpose Field			
Annual User Groups	Adult/Youth	Total # Participants 2025	Total # Teams
Adult Sports Management Soccer League	Adult	1,000	104
Ultimate Frisbee	Adult	80	4
Pasadena Ponies	Youth	40	2
LA Sports Net	Adult	120	11
Citywide Sports	Youth	178	14
Sequoia School	Youth	50	5
Mayfield Jr. School	Youth	30	2
West Pasadena / Central Altadena Little League	Youth	293	26
Rosebowl Pony League	Youth	210	14
Totals		2,001	182

Benefits and Disadvantages of Artificial Turf

Artificial turf offers advantages for both the user and the City, particularly for such heavily used fields. These advantages are:

- Looks and plays like natural grass.
- Can withstand higher levels of use than natural grass, without the need for periodic closure for regeneration, thus increases field availability by 20-25%.
- Requires minimal maintenance.
- Provides a uniform and consistent playing surface.
- Provides a 'cushioned' stable surface that reduces likelihood of head injuries.
- Can be used in wet weather, increasing field availability.
- Reduces carbon footprint and utility uses: limited to no water, no fertilizer, no pesticides, no mowing or other landscaping.
- Eliminates contaminated storm water runoff from pesticide and fertilizer use.

Disadvantages to artificial turf are:

- High initial cost of installation and replacement.
- Higher surface temperatures: rubber infill fields reach 150–170 °F, and natural infill fields typically range 110–135 °F.
- Requires newly produced plastic to manufacture the turf.
- Contain substances such as PAHs, phthalates and PFAS which raise health concerns.
- Consumption of food, sunflower seeds, and gum on the field cause great difficulties for maintaining the aesthetics of the field.
- Fibers break down over time and create a messy mix of loose plastic strands, infill displacement, and surface instability.
- Within five years of installation, requires repairs to heavy use areas.

Maintenance Requirements and Water Use

Artificial turf requires less maintenance than natural grass. On average, maintaining artificial turf costs \$3,477 per acre annually, with an additional \$6,611 per acre each year for decompaction and rejuvenation treatments. Artificial turf fields can save 800,000 gallons to one million gallons of water per acre annually, depending on the size of the field.

The table below compares various attributes of each type of field.

Category	Artificial Turf	Natural Turf
Water use	Limited to zero	High
Field Temperature	Rubber infill: 150°-170° Natural infill: 110°-135°	85°-95°
Playability	Consistent surface; unaffected by wet weather	Variable with weather; mud and unevenness possible
Field availability	Permitted at all available hours	Reduced permissible hours due to renovations
Compaction	Cushioned stable surface	Soil compaction increases with use
Annual maintenance cost per acre	\$3,477	\$13,626
Annual rejuvenation / renovation cost per acre	\$6,611	\$5,969

Environmental and Health Concerns

As stated in the EAC memorandum to City Council, there are environmental and health concerns with the use of artificial turf fields. Studies have shown that artificial turf fields are composed of materials that contain substances potentially hazardous to human health, are hotter than playing on natural grass, are generally not recycled, and result in biodiversity loss.

The Pasadena Public Health Department (PPHD) conducted a review of scientific literature on artificial turf and determined that "...the public health risk of artificial turf is low and likely does not pose a significant human health risk for individuals who use facilities where artificial turf is installed". The PPHD memorandum is attached to this report as Attachment D.

In their review of the best available peer-reviewed literature, PPHD staff indicated materials used in artificial turf typically contain PAHs, phthalates, and PFAS, which are known carcinogens, neurotoxins, mutagens, and endocrine disruptors. Studies found potentially hazardous concentrations of these substances in turf samples. However, the amount of these substances that can be absorbed into human bodies from turf during activities was found to be low-risk consistently across studies. The "...evidence indicates that intermittent exposure related to recreational activity poses a low risk to public health due to the limited degree that these substances can enter the body during such activities".

The California Environmental Protection Agency issued a report in March 2026 titled *Synthetic Turf Study: Assessment of Health Risks from Exposure to Chemicals in Crumb Rubber Infill*¹, which analyzed the level of absorption by the human body and found toxicity, cancer risk, and developmental and reproductive toxicity in all groups to be within acceptable benchmarks with very few exceptions. The report found "...the small exceedances in the few instances and scenarios associated with turf field-related chemicals are of low probability and of low concern and would not require further evaluation." Overall, current available evidence

¹ *Synthetic Turf Study: Assessment of Health Risks from Exposure to Chemicals in Crumb Rubber Infill Final Report*. (2026). <https://oehha.ca.gov/sites/default/files/media/2026-03/oehhaturffinal.pdf>

indicates that the substances used in artificial turf likely do not pose a significant human health risk.

In their summary, PPHD staff noted that robust long-term research assessing health effects of artificial turf exposure over time is limited and more studies on long-term exposure would be helpful, especially as innovations in artificial turf development and implementation emerge, such as the introduction of natural infill material in lieu of the rubber pellets.

Mitigation Measures

PRCS has identified mitigation measures that can help address concerns raised by the EAC, and can be incorporated into the replacement of City artificial turf fields including:

- Selecting a product that:
 - Has Cradle-2-Cradle certification²
 - Monitors for and removes PFAS from manufacturing
 - Is recyclable
 - Uses natural infill (e.g. sand, coconut husk, walnut shells) to reduce heat
- Developing a robust turf maintenance program to reduce litter / extend turf life
- Developing a comprehensive extreme heat guidance policy

Both Villa Parke and Robinson Park artificial turf fields have reached the end of their intended service life. Replacing them is necessary to maintain safe playing conditions and avoid disruptions to programming. PRCS will incorporate the identified mitigation measures into the technical specifications for the new turf systems and embed them into the fields' ongoing operational requirements to ensure long term performance and safety.

The City Manager's Recommended FY 2027 Capital Improvement Program (CIP) includes a project to replace artificial turf fields at Villa Parke and Robinson Park. The budget recommends \$975,000 be appropriated for Villa Parke. Replacing this field is in the best interest of the City to avoid disruptions to existing programming. Staff will continue to track industry developments and emerging health research and will coordinate with PPHD to maintain a safe environment for all participants.

Attachment A – EAC Memo to Council dated September 13, 2024
Attachment B – Pasadena Sports Field User Groups
Attachment C – Field Availability
Attachment D – PPHD Memo dated January 14, 2026

² Cradle to Cradle® certification demonstrates that the product meets independently verified standards for health, sustainability, and long-term environmental responsibility. This certification evaluates five key categories: Material Health (using safer, vetted components), Product Circularity (designing products that can be reused or recycled at end-of-life), Clean Air & Climate Protection (reducing emissions and energy impacts during manufacturing), Water & Soil Stewardship (responsible water use and minimized environmental impact), and Social Fairness (ensuring ethical, community-minded business practices).

Memorandum

To: Pasadena City Council
From: Environmental Advisory Commission
Date: September 13, 2024
Re: Recommendations and Background on Artificial Turf in the City of Pasadena

1. Executive Summary

Plastic artificial turf (also known as “synthetic turf” or just “artificial turf”), much like lead paint, DDT, and asbestos, represents a once-promising innovation that has since raised significant concerns regarding environmental and public health and safety. Initially introduced as a low-maintenance alternative to natural grass, artificial turf was celebrated for its durability and ability to provide consistent, year-round playing surfaces, and the look of green grass without the commitment of water and fertilizers. However, as was the case with other seemingly-promising innovations, the long-term health risks and environmental impacts associated with artificial turf are now becoming unavoidably apparent.

In the case of artificial turf, the toxicity of materials used in its production, including in the infill, which is often made from shredded rubber tires, have raised alarm. Studies show that exposure to chemicals in artificial turf, including lead and other heavy metals and forever chemicals, poses risks to athletes, children, the public, and contamination of our water supply. Dangerous heat conditions arise since artificial turf gets significantly hotter than natural grass, increasing the urban heat island effect and leading to thermal burns and heat stress. Biodiversity loss and tree root suffocating derives from no organisms living under artificial turf. These concerns echo the historical pattern of substances initially embraced for their practicality, only to later reveal serious public health and environmental consequences.

For the reasons set forth below, after several months of study, research, testimony, and discussion at Commission meetings, the Environmental Advisory Commission recommends that the Pasadena City Council take the following steps relating to artificial turf in the City of Pasadena:

A. Recommendations for Residential, Commercial, and Institutional Settings:

- Adopt an ordinance that would put a moratorium on new installations or replacement installations of artificial turf for landscaping in residential properties, commercial and institutional settings.
- Direct Pasadena Department of Water and Power to explore incentives and rebate programs to remove and replace artificial turf in residential, commercial and institutional settings with drought-tolerant native plants.

B. Recommendations for City-Owned Property, Including Parks and All City Landscaping:

- Adopt an ordinance that would put a moratorium on new installations or replacement installations of artificial turf for City-owned property, including parks and City landscaping.

- While artificial turf still exists in City-owned parks, direct the Parks and Recreation and Public Works Departments in coordination with the Public Health Department to (1) establish policies for the safe utilization of artificial turf to prevent burn injuries, heat stress, and dehydration; and (2) educate the public by conducting a series of information sessions about the environmental and public health safety concerns of artificial turf playing fields, including exposure to PFAS and extreme heat conditions.
- Direct the Public Health Department to conduct a Health Impact Assessment (HIA) on artificial turf to study potential adverse health impacts of artificial turf both directly and due to contamination to natural resources caused by artificial turf. (An HIA is a tool designed to investigate how a proposed program, project, policy, or plan may impact health and well-being and inform decision-makers of these potential outcomes. An HIA in this context will aid the City in determining what, if any, future planning and actions should occur to mitigate health effects from existing artificial turf installations.)

2. Background - What is Artificial Turf?

Artificial turf is made of plastic, a petrochemical product designed as a substitute for natural grass. Plastics are derived from chemicals produced through the combustion of fossil fuels like oil and gas. Energy-intensive processes, including extraction, refining, and manufacturing, transform these fossil fuels into plastics, which are then used to produce both the grass-like blades and the backing materials in artificial turf installations.

There are three main components of artificial turf:

- **Blades:** The plastic blades are made by melting nylon, polypropylene or polyethylene pellets and mixing them with other chemicals and additives to achieve desired color. The melted mixture is shaped into strands and spun into a yarn that is then sewn into a mesh material.
- **Backing layers:** These layers are derived from various types of plastics such as polyester, polyurethane, polypropylene and latex to support the blades and provide stability and drainage.
- **Infill:** This granular material is spread between the blades to keep the blades upright and provide shock absorption. The most common types of infill are rubber crumb (made from shredded end-of-life automobile tires) and sand.

3. Environmental and Public Health Concerns of Artificial Turf Installations

A. Dangerous Heat Conditions and Urban Heat Islands

Turf Heats Up More than Grass: Numerous studies confirm that plastic turf gets significantly hotter than natural grass, regardless of the type of fibers or infill used. Penn State research shows surface temperatures of synthetic turf can reach 140-170°F.¹ A study by Brigham Young University found synthetic turf to be 37°F hotter than asphalt and 87°F hotter than natural grass.² Unlike artificial turf, grass cools itself and the surrounding air through water evaporation. (See Figure 2 of temperatures of artificial turf and grass at Villa Park).

¹ (Abraham, 2019; Claudio, 2008; NPRA, 2019)

² (Williams & Pulley, 2002)

Plastic Turf Increases Urban Heat Island Effect: Urban areas are already warmer than surrounding regions due to heat retention by buildings and pavement. Artificial turf contributes to this by trapping and radiating heat, creating dangerous conditions for users, and raising temperatures in surrounding neighborhoods. According to Kelly Turner of UCLA's Heat Equity Initiative, plastic turf is one of the hottest materials, retaining heat longer than asphalt.³ (See Figure 1 of Urban Heat Island Effect at Jackie Robinson Park)

Climate Change Will Make Plastic Turf Even Hotter: As global temperatures rise, Pasadena will experience more frequent days above 90°F. It is critical to address how artificial turf contributes to worsening conditions.⁴

B. PFAS and Microplastic Pollution

Toxic "Forever Chemicals": Plastic turf contains PFAS (per- and polyfluoroalkyl substances), chemicals that persist in the environment and have been linked to cancer, hormonal issues, neurotoxicity, and developmental delays in children. All artificial turf tested has contained PFAS.⁵ In addition, the infill, typically made of shredded tires made from end-of-life automobile tires, is extremely toxic, containing, among other substances, heavy metals and volatile organic compounds.⁶

Risks of Cumulative Exposure: Athletes frequently in contact with plastic turf, such as soccer players and goalies, face higher risks of exposure to PFAS through skin contact, inhalation, and ingestion.

Contamination of Water Systems: Runoff from plastic turf fields carries PFAS into storm drains, polluting Pasadena's water supply, which could be both difficult and costly to clean up. Estimates suggest cleanup would reach tens of billions of dollars, depending on the scale of the problem.⁷

Microplastic Pollution: Plastic turf blades break off over time, releasing microplastics into drainage systems and waterways. Fields using crumb rubber infill are even worse, with studies showing 85% of water samples near such fields contain microplastics.⁸

C. Greenhouse Gas Emissions

Plastic Turf's Carbon Footprint: Greenhouse gasses are emitted from artificial turf continuously throughout its lifespan, in the extraction, storage, transportation and energy-intensive manufacturing processes, as well as off-gassing methane and ethylene while

³ <https://innovation.uskin.ucla.edu/climate/heat-equity/>.

⁴ California Healthy Places Index: Extreme Heat Edition, available at: <https://heat.healthyplacesindex.org/>.

⁵ What are the health effects of PFAS? Agency for Toxic Substances and Disease Registry, available at: <https://www.atsdr.cdc.gov/pfas/health-effects/index.html>; Our Current Understanding of the Human Health and Environmental Risks of PFAS, EPA, available at:

<https://www.epa.gov/pfas/our-current-understanding-human-health-and-environmental-risks-pfas>.

⁶ Health Impacts of Artificial Turf: Toxicity Studies, Challenges, and Future Directions, available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10262297/>.

⁷ "Groundbreaking study shows unaffordable costs of PFAS cleanup from wastewater," Minnesota Pollution Control Agency, available at:

<https://www.mn.gov/news-and-stories/groundbreaking-study-shows-unaffordable-costs-of-pfas-cleanup-from-wastewater>.

⁸ (Korbol, 2018).

in use and as it degrades. Solar radiation triggers the off-gassing from artificial turf and it continues long after dark.⁹ Methane is 80% more powerful at trapping heat than CO₂ and a significant contributor to global warming.

Life Cycle Emissions: A recent study¹⁰ found one artificial turf field emits 527 tons of CO₂ equivalents over its life cycle.

D. Carbon Absorption and Biodiversity Loss

Loss of Carbon Sink: Plastic turf installations eliminate natural spaces that would otherwise absorb carbon, hindering Pasadena's climate goals.

Biodiversity Loss: Plastic turf kills soil microorganisms and displaces habitats for pollinators and wildlife, worsening the biodiversity crisis. Nothing can thrive in plastic grass.

Harm to Trees: Plastic turf covering the ground near tree roots suffocates the soil, depriving trees of essential nutrients. Preserving Pasadena's tree canopy is critical for climate mitigation.

E. Public Safety and Injuries

Thermal Burns: Playing on plastic turf in high heat can cause first-degree burns at 118°F and second-degree burns at 131°F. Hot artificial turf can melt shoes, blister skin, and cause dehydration or heatstroke.

Plastic "Turf Burns": Friction injuries from sliding on plastic turf are common and can lead to bacterial infections like MRSA. Artificial turf causes a two-to-threefold increase in skin abrasions compared to natural grass.¹¹

Increased Injury Rates: NCAA football players are nearly three times more likely to suffer ligament tears on artificial turf than grass. NFL players also experience a 16% increase in lower extremity injuries on artificial turf.¹²

F. Lack of Recyclability

Plastic Waste: At the end of its life, plastic turf becomes non-recyclable plastic waste, emitting methane in landfills. A typical 80,000 sq. ft. plastic turf field contains 40,000 pounds of plastic.¹³

G. Water Use and Maintenance Costs

High Water Usage: Artificial turf is often touted as a water-saving alternative to grass. However, in hot climates like ours, water is regularly required to cool the surface of artificial turf, which can

⁹ "Synthetic turf will contribute to greenhouse gas problems" MV Times, available at: <https://www.mytimes.com/2019/02/20/synthetic-turf-will-contribute-greenhouse-gas-problems/>.

¹⁰ "Analysis of energy use and emissions of greenhouse gasses, metals and organic substances from construction materials used for artificial turf" available at: <https://www.sciencedirect.com/science/article/abs/pii/S0921344917300861>

¹¹ (California Office of Environmental Health Hazard Assessment, 2010).

¹² American Journal of Sports Medicine, 2019, available at: <https://pubmed.ncbi.nlm.nih.gov/30995074/>.

¹³ (Beyond Plastics, 2024).

reach 140-170°F. Water is also regularly required to remove pollution, bodily fluids, animal waste and bacteria from the surface of artificial turf. Given these factors, the water usage for artificial turf can easily match or exceed that needed to maintain natural grass.¹⁴

Replacement Costs: Plastic turf must be replaced every 8-12 years, with replacement costs ranging from \$300,000 to \$650,000 for football or soccer fields.¹⁵

H. Environmental Justice

Pasadena's Environmental Justice Element requires fair treatment for all residents in implementing environmental policies. Artificial turf fields in Robinson Park and Villa Parke create urban heat islands in neighborhoods where some of Pasadena's most disadvantaged residents live, raising utility bills and worsening health conditions for low-income communities.

4. Other Municipalities Adopting Similar Ordinances

The cities of Millbrae and San Marino have already begun establishing moratoriums for new artificial turf installations. Other California cities and counties such as Los Angeles, Sunnyvale and Santa Clara County are considering artificial turf bans.

5. Conclusion

Based on the significant environmental and public health concerns we have outlined related to artificial turf installations, the EAC firmly believes that keeping this substance in our city is not a responsible choice for Pasadena. The Commission believes that allowing new installations or re-installations of artificial turf is not in alignment with the City of Pasadena's Climate Action Plan and makes it more difficult for the City to achieve its goals for climate change mitigation, adaptation and readiness.

We urge the City Council to act, adopting the recommendations we have put forward: Placing a moratorium on new and replacement installations of artificial turf for residential, commercial, institutional, and City-owned properties, conducting a Health Impact Assessment of artificial turf and establishing safe utilization policies for park field usage while the product still exists within the City of Pasadena.

¹⁴ <https://www.turi.org/publications/artificial-turf/>.

¹⁵ <https://sportsvenuecalculator.com/knowledge/artificial-turf-field/turf-field-replacement-and-recycling/>.

Figure 1. Villa Parke Temperatures on Artificial Turf vs Grass on September 2nd, 2024



Figure 2 ([Safe Healthy Playing Fields Memo to EAC, August 2024](#))

Heat Island over Robinson and Villa Parks synthetic turf fields extending over surrounding areas:



Attachment B

Pasadena Sports Field User Groups
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Adult Sports Management Soccer
Alta Pasa Fast Pitch
American Youth Soccer Organization
Armenian Christian School
Assumption School
Babe Ruth League
Better Today Better Tomorrow Soccer
Brian Smart Soccer
Chandler School
ClubWaka Kickball
East Altadena Little League
FC Golden State
First To Third Baseball
Frostig School
Grandview Foundation
i9Sports
Jet Propulsion Laboratory
La Liga Adult Soccer
LA Out Adult Frisbee
LA Sports Net Flag Football
LA Surf Soccer
Major League Softball
Maranatha High School
Marshall High School
Mayfield Junior School
Mayfield School Senior School
Mind Tap Athletics
Pasadena Adult Rugby
Pasadena American Little League
Pasadena High School

Pasadena Panthers Football
Pasadena Police League
Pasadena Ponies Football
Pasadena Southwest Little League
Pasadena United Soccer Training
Pasadena Waldorf School
Pasadena Women's & Non Binary Soccer
Pasadena Youth Rugby
PCC Baseball
PCC Women's Softball
PRCS Citywide Sports
Providence College
Rose Bowl Pony League
Sequoia School
Sierra Madre Girls Softball
SoCal Beepball
Soccer Shots
Special Olympics Southern California
St. Philip School
St. Rita School
Steve Hanneman Flag Football
Super Soccer Stars
Tom Sawyer Camp
Total Futbol Academy
Tribe La Crosse
United States Youth Volleyball
Villa Parke Youth Soccer League
West Pasadena Little League
William Alvarado Soccer Training

Attachment C

Field Availability					
Park	Dedicated Athletic Fields	Lighted	Sports Played	Prime Time Available Hours*	2025 Permitted Hours **
Allendale Park	Softball	Yes	Baseball / Soccer	3,120	3,225
Brenner Park	Softball	No	Softball	1,850	1,663
Brookside Park	Baseball / Jackie Robinson Stadium	Yes	Baseball / Soccer	3,120	1,823
	Baseball / Diamond 2	Yes	Baseball / Softball / Soccer	3,120	1,334
	Baseball / Diamond 3	Yes	Baseball / Softball / Soccer	3,120	1,437
Eaton Blanche Park	T-Ball Field	No	T-ball baseball	1,850	197
Grant Park	Softball	No	Softball	1,850	1,443
Hahamongna Watershed Park	Softball	No	Baseball / Softball / Soccer / Rugby / Flag Football	1,850	1,545
Hamilton Park	Baseball Field #1	No	Baseball	1,850	2,034
	Baseball Field #2	No	Baseball	1,850	2,014
	Baseball Field #3	No	Baseball	1,850	2,022
Jefferson Park	Softball	Yes	Softball / Soccer	3,120	1,977
Robinson Park	Football / Multi-Purpose	Yes	Baseball / Softball / Youth Football / Soccer / Frisbee Football	3,120	1,485
	Baseball / NW Diamond	Yes	Baseball / Softball / Youth Football / Soccer	3,120	1,364
	Baseball / SE Diamond	Yes	Baseball / Softball / Youth Football / Soccer	3,120	643
Victory Park	Baseball / Diamond #1	Yes	Baseball / Football / Soccer	3,120	1,719
	Baseball / Diamond #2	Yes	Baseball / Football / Soccer	3,120	1,814
	Baseball / Diamond #3	Yes	Baseball / Football / Soccer	3,120	1,575
	Baseball / Diamond #4	Yes	Baseball / Football / Soccer	3,120	1,606
Villa Parke	Turf Soccer Field	Yes	Soccer / Flag Football	3,120	3,164
	Softball	Yes	Softball / Soccer	3,120	2,456
Washington Park	T-Ball Field	No	T-ball baseball	1,850	291

*Prime-Time is defined as 4pm-10pm Monday through Friday, and 7am-10pm on weekends.

** Permitted hours don't account for closures / cancellations due to weather conditions

Attachment C

Field Availability					
Park	Open Turf Areas Used for Sports	Lighted	Sports Played	Prime Time Available Hours*	2025 Permitted Hours**
Brookside Park	Area H - H1	No	Soccer / Lacrosse / youth Football	1,850	612
	Area H - H2	No	Soccer / Lacrosse / youth Football	1,850	568
	Area H - H3	No	Soccer / Lacrosse / youth Football	1,850	580
	Area H - H4	No	Soccer / Lacrosse / youth Football	1,850	844
	Area H - H5	No	Soccer / Lacrosse / youth Football	1,850	832
	Area H - H6	No	Soccer / Lacrosse / youth Football	1,850	896
	Area H - H7	No	Soccer / Lacrosse / youth Football	1,850	955
	Area H - H8	No	Soccer / Lacrosse / youth Football	1,850	643
	Area H - H9	No	Soccer / Lacrosse / youth Football	1,850	1,235
Gwinn Park	Open Turf	No	Soccer / Rugby / Football	1,850	121
Jefferson Park	Open Turf	No	Soccer	1,850	1,252
McDonald Park	Open Turf	No	Baseball / Softball / Soccer	1,850	1,154
Victory Park	Open Turf / Lower Field	Yes	Football / Soccer	3,120	479
	Open Turf / Upper Field	Yes	Football / Soccer / Rugby	3,120	3,564
Villa Parke	Open Turf	No	Soccer	1,850	1,731

*Prime-Time is defined as 4pm-10pm Monday through Friday, and 7am-10pm on weekends.

** Permitted hours don't account for closures / cancellations due to weather conditions

**CITY OF PASADENA PUBLIC HEALTH DEPARTMENT
MEMORANDUM**

To: Koko Panossian, Director of Parks, Recreation and Community Services
From: Manuel Carmona, Director of Public Health *MC*
Date: January 14, 2026
Re: Artificial Turf Poses Low Risk to Public Health

In response to your request for an assessment of potential health risks of artificial (also known as synthetic) turf fields, the Pasadena Public Health Department (PPHD) prepared this memorandum to share findings from our review of peer-reviewed research. In short, the public health risk of artificial turf is low and likely does not pose a significant human health risk for individuals who use facilities where artificial turf is installed. Based on our review of the best available research, artificial turf materials are known to contain substances that pose health hazards on their own but the evidence indicates that intermittent exposure related to recreational activity poses a low risk to public health due to the limited degree that these substances can enter the body during such activities. Activities that increase absorption by the human body, such as chewing on or ingesting artificial turf fibers, may increase risk to health.

Summary of Literature

Overall, current available evidence indicates that the substances used in artificial turf likely do not pose a significant human health risk.

- Artificial turf is composed of materials that may contain substances potentially hazardous to human health.
 - In the research, there are notable differences in the groups of chemicals examined as well as toxicity assumptions made across studies.
 - Despite this variability, published studies on toxicity related to artificial turf indicate that dangerous levels of exposure through contact with artificial turf is uncommon and risk of adverse health outcomes is generally considered low.
- Health organizations, including the California Environmental Protection Agency, that have completed their own risk assessment, have found that artificial turf does not pose a significant human health risk.
- Notably, robust long-term research assessing health effects of artificial turf exposure over time is limited at this time.
 - More studies on long-term exposure would be helpful, especially as innovations in artificial turf development and implementation emerge.

Materials in Artificial Turf

Artificial turf was originally developed several decades ago as a durable alternative to natural grass playing surfaces. Its primary purpose was to withstand heavy use and variable weather conditions while maintaining a consistent playing surface. Over time, the composition of artificial turf has evolved, with advancements in the materials used for its construction ([Jastifer et al. 2018](#)). Modern artificial turf systems typically consist of multiple

engineered layers installed over natural soil. These layers include a stone foundation for support, intermediate layers made of rubber, plastics, and often-recycled synthetic fabrics, and a top layer of plastic grass-like fibers ([Hashamfirooz et al. 2025](#)). The specific materials used in each layer vary based on factors such as the installation date and infill cost, but commonly include nylon, polypropylene, polyethylene, polyurethane, synthetic rubber, and other polymers, including proprietary compositions ([Murphy et al. 2022](#)).

Substances in Artificial Turf

Many of the materials used in artificial turf contain substances such as polycyclic aromatic hydrocarbons (PAHs), phthalates, and per- and polyfluoroalkyl substances (PFAS), which on their own are known carcinogens, neurotoxicants, mutagens, and endocrine disruptors ([Murphy et al. 2022](#)). A recent published review of toxicity studies found potentially hazardous concentrations of these substances in artificial turf samples. However, the amount of these substances that can be absorbed into human bodies, known as bioavailability, during activities on turf varied but was found to be low-risk consistently and across all studies. Due to the limited availability of long-term studies, researchers are unable to draw definitive conclusions regarding human health risks associated with real-world exposure over long periods of time ([Ryan-Ndegwa et al. 2024](#), [Murphy et al. 2022](#)).

Conclusion

Due to limited long-term human health studies, the research calls for future study on long-term exposure to artificial turf ([Karatela et al. 2025](#)). Nonetheless, the current available evidence suggests a low risk of adverse health outcomes from artificial turf exposure. Additionally, health organizations have conducted their own risk assessments. The California Environmental Protection Agency (CalEPA) and Office of Environmental Health Hazard Assessment (CalOEHHA) investigated health risks and found that while chemicals are present in artificial turf, exposures are typically limited and not expected to pose major health risks ([OEHHHA Synthetic Turf Study, March 2025](#)).

PPHD appreciates the opportunity to provide city staff with an assessment of scientific information that may be valuable to decision-making for your programs and services. Please don't hesitate to contact me if you or your team have any questions.