Agenda Item #: 7
Staff Contact: Lukacs
Agenda Date: November 20, 2025
Approved By: LL

# ITEM: Discussion on the Development of a Model Ordinance to Ban or Place a Moratorium on Artificial Turf

## I. RECOMMENDED ACTION / ALTERNATIVES TO RECOMMENDATION

Staff recommends that the Board receive a presentation prepared by the AB 939 Local Task Force comparing artificial turf and natural grass, which outlines key environmental, health, cost, and lifecycle considerations to inform the development of the proposed model ordinance.

Additionally, staff and the AB 939 Local Task Force (LTF) recommend that the Zero Waste Sonoma Board of Directors direct staff to develop a regional model ordinance to prohibit or place a temporary moratorium on the installation of artificial turf within Sonoma County. The model ordinance would be designed for voluntary adoption by member jurisdictions and would incorporate best practices, definitions, and regulatory alignment with state guidance, including Senate Bill 676 (Allen, 2023), which authorizes cities and counties in California to restrict or prohibit the installation of artificial turf within their jurisdictions.

## II. BACKGROUND

In December 2024, the LTF established a Turf Ad Hoc Committee to conduct a thorough and unbiased analysis of the environmental impact, health risks, costs, and lifecycle considerations of artificial turf compared to natural grass, and to provide well-informed recommendations to the ZWS Board of Directors regarding the future use of these materials, with a focus on minimizing landfill waste and environmental harm.

Zero Waste Sonoma (ZWS) staff, in collaboration with the LTF, has evaluated the environmental and waste management impacts associated with the installation, maintenance, and disposal of artificial turf. Artificial turf systems present substantial disposal and circular economy challenges, with limited recycling options and potential risks to human and environmental health.

Staff and the LTF recommend that the ZWS Board direct staff to develop a regional model ordinance to prohibit or place a moratorium on the installation of artificial turf on public lands within Sonoma County. This regional approach would ensure consistency, reduce duplication of effort among jurisdictions, and align with state policy objectives under Senate Bill 676 (Allen, 2023), which authorizes local governments to restrict the use of synthetic turf.

On December 16, 2025, the County Board of Supervisors will hold an Athletic Field Turf Workshop and policy discussion regarding the use of artificial turf on County facilities. The workshop will include a joint presentation by the County Administrator's Office, Regional Parks, and the Agricultural Preservation and Open Space District. The ZWS Executive Director has met with these departments to share the LTF's recommendations and to ensure collaboration between County and regional efforts. As part of the workshop, the Executive Director will be allotted ten minutes to present the position and direction of the ZWS Board. Following today's ZWS Board meeting, the

Executive Director will reconvene with the three departments to communicate the Board's direction and next steps.

In addition to the County, other ZWS member jurisdictions have reviewed artificial turf or have taken project-level action. Santa Rosa is actively studying potential restrictions and the Climate Action Subcommittee presented an "Artificial Turf Ban Investigation" to the City on September 4, 2024; Petaluma's Recreation, Music and Park's Commission reviewed a presentation on Lucchesi Park's Turf in May 2023 and on February 3, 2025, the City Council voted to replace Lucchesi Park turf field with a synthetic option; Windsor's Parks Commission received an "Artificial Turf Update" presentation on October 8, 2025. Many member jurisdictions have "Cash for Grass" programs including Healdsburg's Lawn Conversion Rebate Program, which does not include artificial turf. Some member jurisdictions have turf-removal rebates that encourage living landscapes.

Across California and the United States, several jurisdictions are actively considering or have implemented restrictions on artificial turf, demonstrating a growing recognition of its environmental and public health impacts. In California, the cities of Millbrae and San Marino have banned artificial turf. The City of Los Angeles is reviewing potential limitations on synthetic turf in public spaces, while cities such as Sunnyvale and Pasadena are evaluating moratoria or bans on new installations, particularly where crumb rubber infill is used. Beyond California, other prominent U.S. cities, including New York City, Seattle, Portland (Oregon), and Washington, D.C., have implemented restrictions, phased bans, or moratoria on artificial turf at schools, parks, and municipal facilities, often citing concerns over microplastics, PFAS contamination, heat impacts, and end-of-life disposal challenges. These examples illustrate that local governments are taking proactive steps to regulate synthetic turf, establishing both a state and national precedent for jurisdictions considering similar measures.

## III. DISCUSSION

Waste Management of Artificial Turf

Once removed, artificial turf systems typically end up in landfills, as they are composed of multiple bonded plastic layers and infill materials that are difficult to separate and recycle. Landfill disposal is a concern because of the large mass of waste involved. The roughly 40,000 pounds of turf and 400,000 pounds of infill used in a single average field have the potential to leach or off-gas significant quantities of hazardous compounds over time as reported by the Department of Toxic Substances Control (DTSC). Each full-size field generates approximately 200–250 tons of waste every 8–10 years, including synthetic grass carpet and infill material such as crumb rubber or sand. While some turf is temporarily stockpiled or repurposed for secondary uses (e.g., dog parks, landscaping), these practices merely delay eventual disposal and continue to release microplastics into the environment. At present, no large-scale recycling infrastructure exists in the U.S. to manage this waste stream, and claims of recycling are often unverified. As a result, artificial turf contributes to a significant and growing solid waste management challenge with environmental and human health impacts.

Oversight of artificial turf materials and disposal in California is currently fragmented across several state agencies. CalRecycle oversees the management of solid waste and has identified synthetic turf as a problematic waste stream due to its volume, composition, and limited recycling options. The DTSC has examined potential toxic constituents, such as heavy metals, PFAS, and

other persistent organic pollutants, that may leach from turf components or infill. The California Air Resources Board (CARB) regulates emissions from manufacturing and potential air quality impacts from disposal or recycling operations. However, no comprehensive state framework yet exists to address the full lifecycle impacts of artificial turf, including production, installation, and end-of-life management. The lack of coordinated oversight highlights the need for policy action to minimize environmental and public health risks associated with artificial turf use.

Reason for ZWS to Draft a Model Ordinance

The LTF has completed extensive research on artificial turf versus natural grass since December 2024. Their findings are compiled in the attached presentation and in a draft white paper which should be finalized in the next couple of months. Based on their findings and recommendations, ZWS proposes developing a regional model ordinance to restrict or ban artificial turf because of the cross-jurisdictional nature of the issue and its direct connection to regional waste management responsibilities. As a Joint Powers Authority representing the nine cities and the County of Sonoma, ZWS was established to ensure consistent and coordinated implementation of waste prevention and recycling policies. Artificial turf presents environmental and solid waste challenges that extend beyond city boundaries, including complex disposal needs, potential PFAS contamination, and landfill impacts. Developing a single, comprehensive model ordinance promotes uniformity in definitions, exemptions, and enforcement across jurisdictions, reducing confusion for the public, contractors, and haulers.

Many smaller jurisdictions lack the technical expertise or staffing capacity to research lifecycle impacts, consult with state agencies or draft appropriate environmental language. ZWS and the AB 939 Local Task Force can consolidate this work, producing a science-based and legally reviewed ordinance template that aligns with state goals. The passage of SB 676 provides clear authority for local governments to ban artificial turf, and a coordinated regional approach ensures that implementation aligns with California's circular economy and microplastics reduction objectives.

Because artificial turf ultimately becomes a solid waste management responsibility, with each field producing up to 50,000 pounds of nonrecyclable material at the end of life, this effort directly supports ZWS's statutory mission under AB 939 and SB 1383 to reduce landfill disposal and toxic contamination. By providing a model ordinance and supporting outreach materials, ZWS will equip jurisdictions with a ready-to-adopt framework that can be tailored to local needs. Each city and the County will retain full authority to adopt, modify, or defer adoption, ensuring flexibility while advancing a consistent regional policy that supports human and environmental health.

Process/Next Steps

If directed by the Board, staff will initiate development of a regional model ordinance following the timeline outlined in Attachment A. The process will include stakeholder engagement with member jurisdictions, regional parks departments, and relevant state agencies, along with technical review and policy guidance from the AB 939 Local Task Force.

The Local Task Force has also prepared a draft technical white paper comparing artificial turf and natural grass systems, which evaluates environmental, health, and lifecycle impacts. The final version of this white paper is expected to be completed within the next few months and will be incorporated into the development of the model ordinance to ensure it is informed by the most current data and analysis.

## IV. FUNDING IMPACT

Development of the model ordinance will be completed by existing Zero Waste Sonoma staff and the AB 939 Local Task Force with no additional budget impact.

## V. ATTACHMENTS

Attachment A: LTF Presentation: Artificial Turf vs Natural Grass Fields
Attachment B: Model Ordinance Timeline



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# Artificial Turf vs Natural Grass Fields

November 20, 2025

## Artificial Turf Ad Hoc Committee

formed Dec 12, 2024 by:

Sonoma County Local Task Force (LTF) on Integrated Waste Management

# Introduction

- The LTF was formed as a requirement of the AB 939 Integrated Waste Management act of 1989
- The LTF was formed as an advisory group to the Board of Supervisors and Zero Waste Sonoma on Integrated Waste Management issues
- LTF formed an Ad Hoc committee to study and compare the benefits and impacts of using natural grass versus artificial turf for community sports fields
- LTF's initial primary focus was on the solid waste, recycling and environmental impacts of these alternatives
- The group's research also included a review of Public Health and Safety and Financial issues
- The group's findings and recommendations are included in this presentation

# Purpose of Ad Hoc Committee

To conduct a thorough analysis of the solid waste, recycling, environmental and other impacts, associated with the use of artificial turf compared to natural grass, and to provide the group's findings and recommendations to Zero Waste Sonoma, the Board of Supervisors (BOS) or other Sonoma County jurisdictions to help inform policy decisions regarding the future use of these materials, with a focus on minimizing landfill waste and environmental harm.

# Presentation Outline

**Purpose of LTF and Ad Hoc Committee on Artificial Turf**

**Definitions**

**Project Approach**

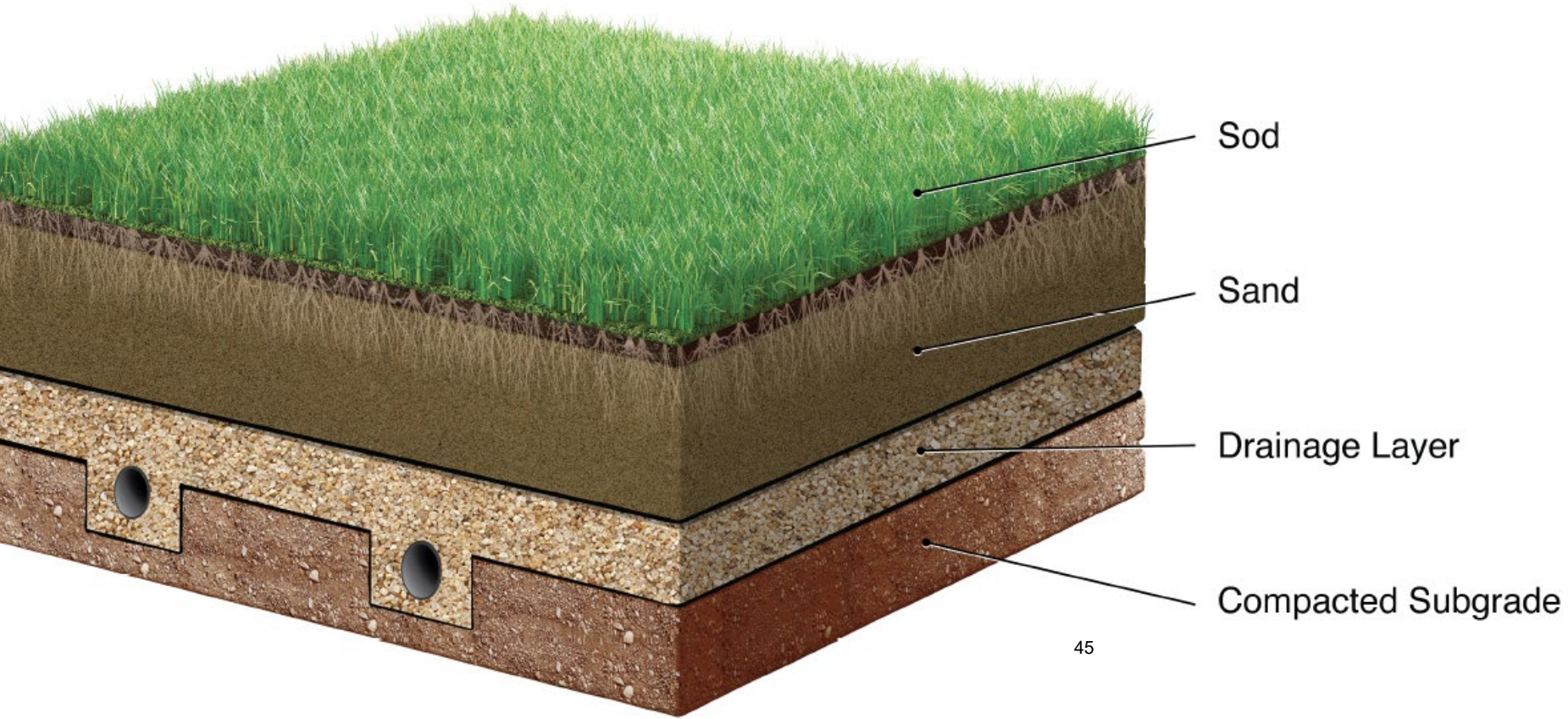
**Findings on Subject Matter Areas in Natural vs Artificial Grass Comparison**

- Environmental Impacts: Solid Waste, Recycling, and Water/Soil Quality
- Public Health & Safety: Disproportionate impacts on vulnerable communities
- Financial Impacts : Liability, Installation, Replacement, Disposal, Playing time, Maintenance

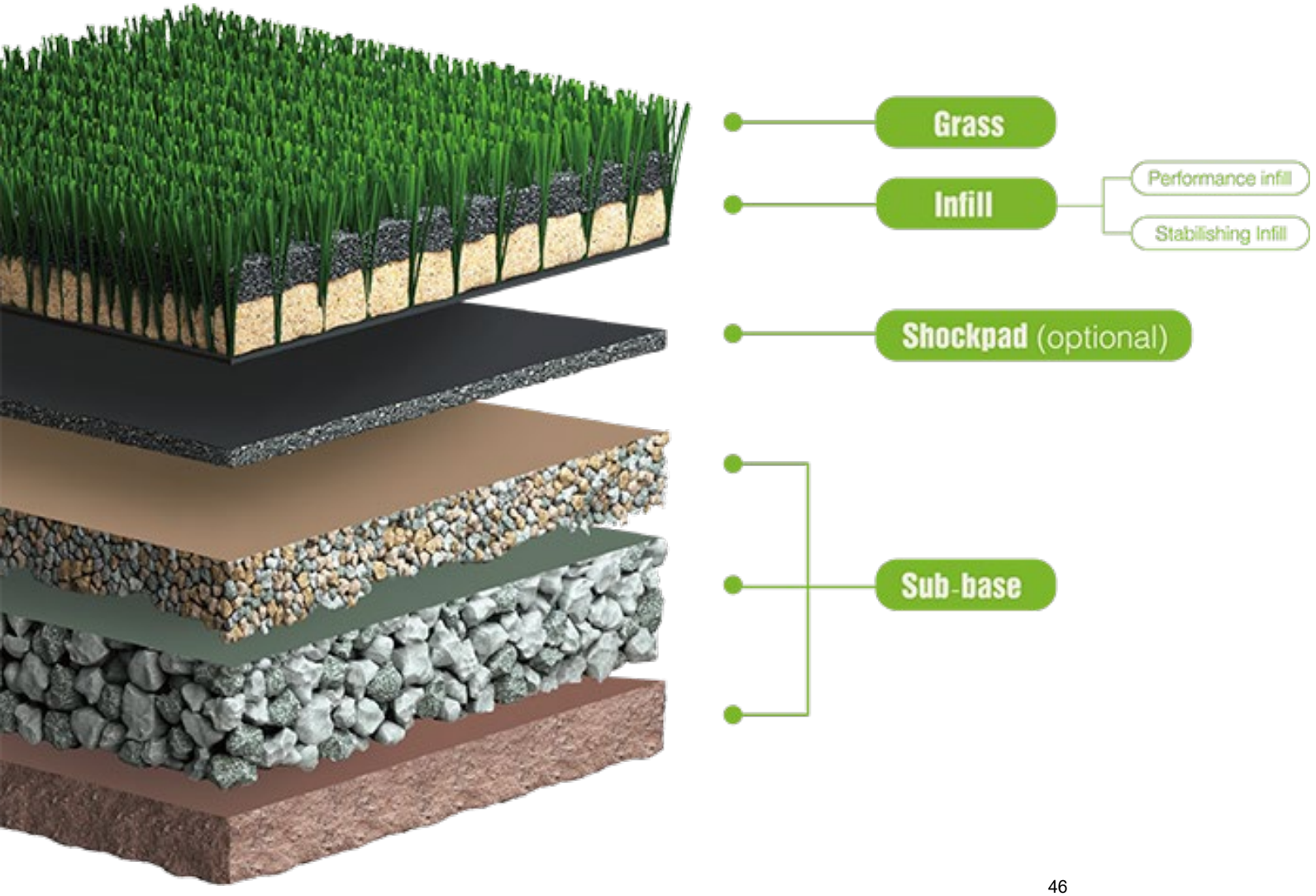
**Recommendations to Zero Waste Sonoma Board of Directors**

# Definitions: Natural Turf / Grass

**A living, photosynthesizing organism that is used for lawns, sports fields, and other surfaces**

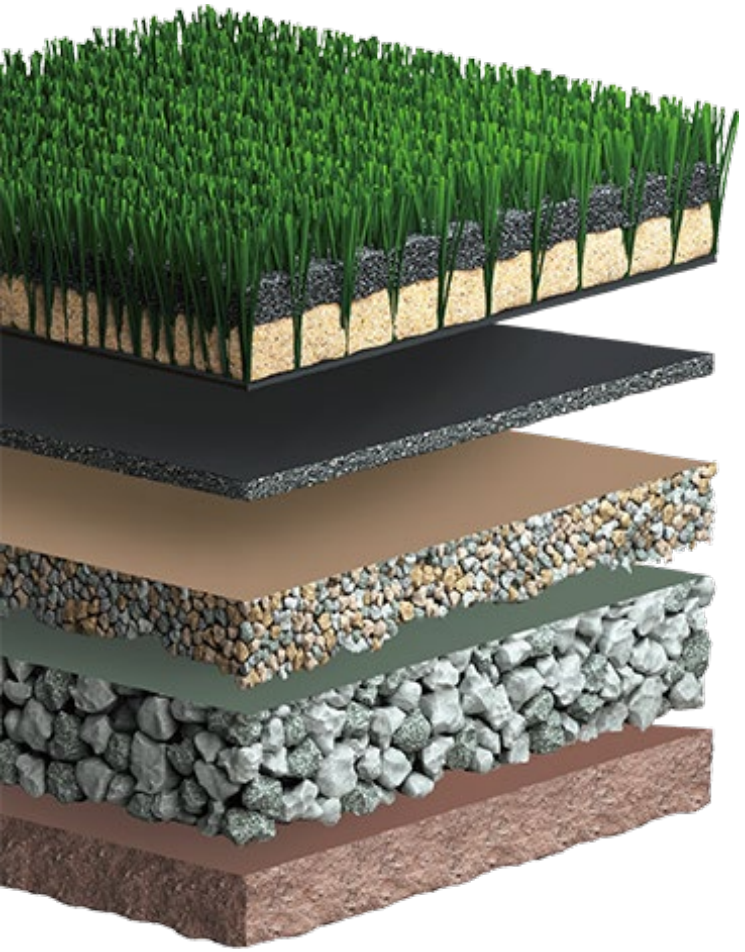


# Definitions: Artificial Turf




A surface made of synthetic fibers designed to look like natural grass, used for applications like sports fields, playgrounds, and residential lawns

# Artificial Turf in Sonoma County



- SRJC
- Tom Schopflin Fields Regional Park
- Maxwell Farms Regional Park
- Lucchesi Park
- Petaluma City Sports Complex
- East Washington Park Petaluma
- Various school districts
- Residential and commercial landscaping

# Project Approach

- Conduct literature review
- Consult subject matter experts
- Discuss and establish consensus within Committee
- Develop recommendations

# Findings on Subject Matter Areas in Natural Grass vs Artificial Turf Comparison

- Environmental Impacts: Recyclability, Water/Soil/Air Quality, Climate Impact
- Public Health & Safety: Documented health and safety hazards such as Extreme heat illness, Injuries, and Exposures to toxic chemicals create disproportionate impacts on Vulnerable Communities
- Financial Impacts: Installation, Disposal, Playing time, Maintenance

# Findings: Environmental Impacts

| | Natural Grass | Artificial Turf |
|---|---|---|
| Pros | • **Can be irrigated with recycled water**<br>• **Pesticides & fertilizers often used**<br>• Cools naturally<br>• Sequesters carbon and releases oxygen<br>• Protects watershed and preserves soil ecosystem | • **Generally less water use**<br>• **Pesticides and fertilizers often not required** |
| Cons | • **Generally more water use**<br>• **Greenhouse gas emissions - mowers** | • **Lack of recycling infrastructure and data**<br>• **Greenhouse gas emissions – materials derive from fossil fuels**<br>• **Off-gassing of toxic chemicals and microplastics exposes humans, wildlife, and water to hazards**<br>• **Heavier load on water treatment processes**<br>• **Requires only potable water use**<br>• Heat island effect |

# Findings: Environmental Impacts

**University of Missouri Turfgrass Research Center (2010)**

Synthetic grass temperature increases of 50 to 70 ° F over natural grass.
On blue-sky days in mid-summer where air temperatures were at 98 degrees Fahrenheit with calm winds, temperatures would exceed 160 ° F on synthetic surfaces.
Natural grass under these same conditions would range between 99 and 102 ° F

**Santa Clara County Medical Association (2024)**

Synthetic turf in Sunnyvale (111-138 °F) versus the immediately surrounding area (102-111°F)

**UC Ag & Natural Resources, California (2024)**

Artificial grass found at 173 ° F in Palm Springs

**Montclair State University, New Jersey (2025)**

Artificial grass was 182% hotter than the natural grass field when measured with infrared thermometer during a mid-day reading in June.

# Disposal

## Natural Grass disposal options

- Proper maintenance reduces need for renovation (every 5-10 years)
- Disposal typically not necessary. If needed, materials composted or mulched

## Artificial Turf disposal options

- Landfill
- Stockpile
- Limited or no recycling options

## Data limitations on artificial turf disposal

- Unclear disposal practices and locations
- Lack of language in contracts requiring recycling or proper disposal
- Lack of contract language verifying final material disposition

# Findings: Public Health & Safety Impacts

Vulnerable Communities are disproportionately impacted by the health impacts of contaminants like heavy metals, PFAS, and plastics

- Examples: Children, low-income, elderly, persons with disabilities

| | Natural Grass | Artificial Turf |
|---|---|---|
| **Pros** | • **Natural sanitation**<br>• Higher shock absorption<br>• Natural cooling on hot days | • Provides more playing time – rainy seasons |
| **Cons** | • Injury risk in the case of improper maintenance<br>• Less playing time in rainy seasons | • **Toxic chemicals in artificial turf:**<br>  ○ **Plastic and rubber materials can melt and off-gas toxic chemicals**<br>  ○ **Exposure to PFAS, nano and microplastics, and other toxic chemicals in turf products linked to cancer, hormone disruption, and immune harm (PAHs, VOCs, heavy metals)**<br>• Limited playing time on extreme heat days<br>• Risk of legal claims from injuries and latent disease<br>  ○ Heat related illness: dehydration, heat stroke, skin burns<br>  ○ Increased infections (poor sanitation practices)<br>  ○ Higher injury rates (cushioning fails with wear) |

# Findings: Public Health & Safety Impacts

Professional sports

- NFL Players Association, FIFA, and others showing preference to natural grass, citing higher injury rates, health concerns related to chemical exposure, and comfort of gameplay

Banned

- City of Millbrae
- West Sacramento: non-functional
- San Marino
- Boston, Sharon, Concord, Wayland, Westport (Massachusetts)
- State of Colorado (in effect 1/1/2026)

Moratorium

- State of New York

Considering ban/moratorium

- City of Santa Rosa
- City of Sebastopol
- City of Los Angeles
- City of Santa Monica
- City of Sunnyvale

# Findings: Financial Impacts

| | Natural Grass | Artificial Turf |
|---|---|---|
| Pros | • **Less expensive upfront installation**<br>• **Stable long-term costs**<br>• **Resilient grasses use less water** | • **Generally less water use**<br>• Provides more playing time – rainy seasons |
| Cons | • **More frequent maintenance needs**<br>• Liability / Injury risk in the case of improper maintenance<br>• Currently provides less playing time year-round (rainy seasons) | • **Increasing installation, replacement, and disposal costs disposal costs across industry**<br>• **Specialized maintenance needs – disinfectant & repair**<br>• **Conversion back to natural grass requires mitigation of long-term soil damage**<br>• Liability<br>  • **Many unknown chemicals**<br>  • Injury risk in the case of improper maintenance<br>• Extreme heat day limitations on playing time<br>• More playing time year-round |

# Recommendations to Zero Waste Sonoma Board of Directors

- Direct staff to develop a model ordinance to assist municipal staff in implementing a moratorium or ban on artificial turf until further research is conducted to ensure product safety
- Require life-cycle cost analysis of both options before deciding on field material
- Require responsible replacement/disposal in turf installation contracts
- Collect, analyze, and maintain data regarding turf (artificial and natural grass) installation, replacement, and disposal in Sonoma County

# Discussion / Questions

## Artificial Turf vs Natural Grass Fields

November 20, 2025

### Artificial Turf Ad Hoc Committee

formed Dec 12, 2024 Sonoma County Local Task Force (LTF) on Integrated Waste Management

Attachment A: Proposed Timeline – Development of a Model Ordinance to Ban or Place a Moratorium on Artificial Turf on Public Lands

| **Phase** | **Milestone / Deliverable** | **Lead / Participants** | **Estimated Date** |
|---|---|---|---|
| Board Direction & Initiation | ZWS Board reviews and provides direction to staff to develop a regional model ordinance. | ZWS Board of Directors | Nov. 20, 2025 |
| Project Launch & Scope Definition | Define ordinance goals, scope (ban vs. moratorium), legal review parameters, and coordination plan with member jurisdictions. | ZWS Staff, AB 939 Local Task Force (LTF), Legal Counsel | Dec. 2025 – Jan. 2026 |
| Research & Consultation Phase | Review scientific and regulatory data on PFAS, microplastics, and turf waste; consult with CalRecycle, DTSC, CARB, and environmental NGOs. LTF has completed much of this research already. LTF to complete draft whitepaper. | ZWS Staff, LTF Turf Ad Hoc Committee | Jan – March 2026 |
| Stakeholder Outreach | Conduct stakeholder engagement sessions (public agencies, parks staff, athletic associations, environmental groups). Gather feedback and local data. | ZWS Staff with Member Jurisdictions | March – May 2026 |
| Draft Model Ordinance | Prepare draft regional model ordinance and supporting documents (staff templates, FAQs, public education materials, LTF white paper). | ZWS Staff, Legal Counsel | May – June 2026 |
| LTF & Technical Review | Present draft to the AB 939 Local Task Force for review, technical | LTF Turf Ad Hoc Committee | July 2026 |

| | | | |
|---|---|---|---|
| | edits, and policy recommendations. | | |
| ZWS Board Review and Adoption of Model Ordinance Template | ZWS Board considers adopting the model ordinance and authorizes staff to distribute it to member jurisdictions. | ZWS Board of Directors | August 2026 |
| Member Jurisdiction Consideration | Cities, Town, and the County review, adapt, and determine whether to adopt the model ordinance or a moratorium. | Member Jurisdictions | Sep. – Dec. 2026 |
| Regional Implementation & Outreach | Support implementation with technical assistance, disposal guidance, and regional outreach materials (aligned with SB 676 and SB 1383 goals). | ZWS Staff | Jan. – June 2027 |
| Evaluation & Reporting | Review adoption status and environmental outcomes and report back to ZWS Board. | ZWS Staff, LTF | Late 2027 – Early 2028 |

Notes:

- The schedule allows approximately 12 months for research, drafting, and stakeholder engagement before ordinance consideration.
- Adjustments may be made based on findings from the County's December 2025 Turf Workshop and legal review.
- Early coordination with member jurisdiction parks and public works staff is encouraged to align with planned field replacement cycles.