



SANTA MONICA - MALIBU UNIFIED SCHOOL DISTRICT

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THE GRASS AND TURF DISCUSSION: Additional Context, Operational Challenges and an overview of the NV5 study

The Santa Monica – Malibu Unified School District (SMMUSD) is committed to educating the whole child. Whole Child Education extends beyond academic to include development in the arts, social-emotional learning, equity, community engagement, and physical health. Supporting healthy students includes ensuring access to nutritious food, safe conditions, mental health resources, and ample opportunities for physical activity. Physical Education (P.E.) is a required part of the curriculum, and our multi-purpose rooms, blacktops and playfields serve as essential learning environments for this work.

Just as the district strives to create the best indoor learning environments, it is equally important that our outdoor learning spaces are safe, engaging and varied. Our Santa Monica fields are heavily used, older, and small relative to the enrollment. While financial resources for maintenance, staffing and capital improvements are limited, improving outdoor learning facilities remains an important priority.

Playfields across the Santa Monica schools are overused. Beyond daily instructional use, fields support afterschool sports, student team activities, and city-permitted community use through the Playground Partnership which supplements the limited Santa Monica park space. Grass – especially non-native, irrigated turfgrass – requires significant water, high levels of maintenance, and mostly, rest time. These conditions have led the district to consider installing synthetic turf on some future field projects.

During the Franklin Elementary campus planning process, a plan was developed to replace the overused grass field with synthetic turf. Some parents and community members expressed concerns about synthetic turf. The Board of Education, consistent with the scientific inquiry and critical thinking we require of our students, requested an independent analysis of both natural grass and synthetic turf systems.

The study compared current SMMUSD grass fields with newer generations of synthetic turf, as existing studies and literature is heavily based on older turf products or professional-level grass fields not representative of school conditions. NV5, a global environmental consulting company, was selected to conduct the third-party review.

The full study is available at this [link](https://drive.google.com/file/d/1BUQby43xlt66c8HSLsPcZ9FOTSyJ7zl/view):
<https://drive.google.com/file/d/1BUQby43xlt66c8HSLsPcZ9FOTSyJ7zl/view>

As expected, the study does not identify a single optimal solution for all situations. The findings present mixed impacts across several categories, including:
(This is a summary, please read the report for details)

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Exposure to Chemical Hazards

- Natural grass fields require synthetic fertilizers and pesticides.
- Older synthetic turf systems have been associated with heavy metals, PFAS, PAHs, and VOCs.
- Newer turf generations have significantly reduced or eliminated many of these materials.
- Evidence shows **minimal exposure risk** to users—via inhalation, ingestion, or skin contact—on both surfaces. While toxins might exist, there is not a pathway for exposure.

Environmental Considerations

- Natural grass requires substantial water and poses runoff concerns related to fertilizers and pesticides.
- Synthetic turf may release microplastics.
- Newer turf systems have removed crumb rubber and other non-organic infills, reducing primary microplastic concerns.
- The newest turf designs drastically reduce secondary microplastic release—by approximately **99%**—through infill-free construction.

Heat Impacts

- Grass naturally stays cooler for both users and the environment.
- Synthetic turf can reach high surface temperatures.
- The mild Santa Monica coastal climate moderates extreme heat, but concerns remain until manufacturers can mitigate this issue.

Physical Injury Risk

- There is a risk of physical injury when playing a sport.
- Grass fields can contribute to injuries—particularly when overplayed or poorly maintained. Grass fields are associated with various injury types like dislocations and fractures.
- Synthetic turf has historically been linked to some lower-extremity injuries; however, injury rates continue to decrease with newer turf systems.
- Many existing studies focus on professional-quality fields, not school sites that endure heavy daily use. More research needs to be done.

Operational and Economic Factors

- Grass requires significantly more water and ongoing maintenance.
- Synthetic turf is costly to install but has lower annual maintenance needs.
- Over 20–30 years, total costs between the two may be comparable; however, grass maintenance is a **general-fund expense** while turf installation is a **capital-fund expense**.

End-of-Life Considerations

- Grass fields can be maintained indefinitely with proper care and restricted use.
- Synthetic turf typically requires carpet replacement after roughly ten years of heavy use.
- Earlier generations often ended up in landfills; newer systems now have **recycling pathways**, and next-generation products are designed to be **fully recyclable**.

Given all these factors, grass has many challenges and synthetic turf has many concerns. And while turf continues to evolve, grass might be the better choice except for one major factor:

- Safe Playable Hours –
 - Natural grass needs regular and annual upkeep to preserve playability. Grass fields need to be closed during rain period. The fields need months of rest time, preferably during the rainy season. To maintain safe playability, grass field access should be limited to **1,104 hours** per year.

- Synthetic turf requires minimal maintenance downtime allowing for up to **4,888 hours** of use annually for a field without field lights.
- Santa Monica Elementary School Fields are used up to 1260 hours for physical education per school year. After-school athletic and play programs add an additional 540 hours of use. Playground Partnership hours potentially add 936 hours for weekend use and use during breaks can add up to 490 hours of use. While all these **3,226 hours** of potential field use hours don't get used or don't have heavy play, the use easily exceeds the 1,104 hours of use recommended for safe grass fields.

The need for more safe playable hours is the challenge. Given rising child obesity rates and increased concerns about excessive screen time, students need more, not fewer, hours of safe, playable field access.

Both grass and synthetic turf present advantages and challenges. However, when prioritizing student needs—particularly access to safe, reliable play space—the difference in playable hours is significant. Continued study, transparency, and the well-being of students will guide the District's future decisions.