

## EXHIBIT M



February 8, 2021

To: Parks, Recreation and Community Services Commission  
Glendale City Council  
Onnig Bulanikian, Director, Community Services and Parks  
Peter Vierheilig, Project Director, Community Services and Parks  
David Jones, Sustainability Officer  
Roubik Golanian, Interim City Manager

From: Glendale Environmental Coalition

Re: **Artificial Turf in Park Capital Improvements, Fremont Park Master Plan**

We are writing to urge the city to thoroughly investigate natural grass alternatives to artificial turf for its sports fields, or delay installations until suitable alternatives to artificial turf are found. Artificial turf is proposed for a total of five sports fields in the Community Services & Parks Department October 19, 2020, Capital Improvement Program Update. They are:

1. Fremont Park soccer field
2. Cerritos Park multi-purpose field
3. Wilson Middle School multi-purpose field
4. Pacific Park multi-purpose baseball/soccer field
5. Sports Complex multi-purpose baseball/soccer field

The city is proposing a synthetic grass product called "Shawgrass," with a [geofill](#) infill made of coconut hulls and sand and a synthetic shock pad beneath.

The Glendale Environmental Coalition (GEC) understands that one of the primary concerns for Parks staff is playability—that the surface be able to withstand the wear and tear of constant use, including for soccer. We understand that staff have reported that the natural grass fields currently in existence do not meet those needs and exhibit excessive wear and tear. And, we understand the city wishes to expand use of those fields beyond current use.

**Our position is that natural grass alternatives should be proposed (we suggest a model for exploration below—others may be in development and should be researched). Artificial turf systems have detrimental environmental, program, and health impacts and should not be installed on Glendale sports fields.**

### **POSSIBLE ALTERNATIVE TO ARTIFICIAL TURF FOR SPORTS FIELDS**

It is our position that an alternate natural grass system, such as the [Environmental Passive Integrated Chamber System](#) (EPIC) could be a viable alternative. EPIC is an efficient,

economical, and long-lasting natural grass system that combines passive subsurface irrigation, water storage, and filtration. This system encourages long root systems into a substrate of sand and subterranean water, greatly upgrading the health of the grass to be able to better withstand heavy use. The system promotes excellent drainage, absorbs stormwater, allows for below-surface greywater usage, uses water economically, supports healthy soil, and demonstrates cooler surface temperatures and safer conditions for athletes than artificial turf. With good care and maintenance, it can be used indefinitely. Franklin Elementary is considering this system for their multi-purpose field. We are glad that the City has been researching this option and understand that the City is seeking conversations with organizations that have installed it for similar, high-use, athletic field purposes.

A synthetic product called “Netlon” is also available to integrate into the system to increase durability and is in use at SMU Soccer Field, University Park in Texas. This is one of the contacts that was given to the city as a reference for a high-use field. In addition to EPIC, we are hoping the city can find additional natural grass systems that provide similar benefits. Monica Campagna’s August 11, 2020, comment [letter](#) on the Wilson Middle School Athletic Field, which contains details about the EPIC system, is linked for reference.



## NEGATIVE IMPACTS OF ARTIFICIAL TURF

Artificial turf is a fossil fuel product with several negative impacts, summarized here and expanded upon below.

**Environmental impacts:**

- It requires synthetic shock pads, which will eventually require landfilling.
- It requires virgin plastic to manufacture (top layer).
- It does not promote effective stormwater capture.
- It does not promote effective greywater use.
- It requires extra maintenance including watering.
- It sheds plastic fragments into storm drains.

**Program impacts:**

- It may not increase days of use in Glendale as it produces its own heat island effect, becoming as hot as 160°F on a 90°F day. When that happens, it needs to be watered in order to cool, with temporary (and not always effective) impact.
- Many studies on artificial turf have shown a greater number of player injuries than natural grass, including anterior cruciate ligament (ACL) tears, concussions, and ankle sprains, and longer recovery times needed between games. The proposed Shawgrass product is yet to be proven. “Turf burns” (resulting from a heated surface) are a known factor.

**ENVIRONMENTAL IMPACTS**

**Product End-Life Disposal/Virgin Plastics:** The lifespan of Shaw’s “Shawgrass” artificial turf is short, approximately 8 years. The proposed product is unique, in that when the surface needs to be replaced, Shaw will take the old surface and recycle it in the SoCal region into shock pad material. The shock pad being proposed, called “Nxtplay,” has a possible lifespan of 24 years. Despite this company’s recent innovation in artificial turf recycling, we see three problems: (1) The turf surface will only last 8 years, (2) replacing that surface requires the manufacturing of new product with virgin plastic, and (3) the shock pad will eventually need to be landfilled at the end of its life. We contend that there is ultimately no safe, environmentally sound manufacturing or disposal of artificial turf and shock pads.

**Stormwater Capture:** Real grass allows rainwater to seep down into the soil. An EPIC type system not only absorbs that water very quickly through the sand base, but is able to store it for future use. The built-in storage within the system can be augmented and increased with the addition of a low-profile surge tank within the same footprint to capture even more stormwater runoff. Depending on the location and application, this water management system uses 50-85% less water than conventional irrigation methods. Synthetic turf is typically designed to allow SOME water to soak through, but it may not allow all rainwater to seep down into the soil, especially if the soil underneath becomes compacted, which would result in excess water streaming straight into the sewer. Artificial turf would not be able to make use of ANY stormwater capture for future use.

**Greywater Use Opportunity:** As mentioned, because EPIC is a true subsurface system, it can also be augmented to collect and reuse water from AC condensation lines, water fountains, and even bathroom sinks. All the water within the system is well below ground and does not pose a health risk. On the other hand, greywater cannot be used for artificial turf, as the water application is entirely above ground.

**Reclaimed Water Opportunity:** For either system, there are unique opportunities to use existing reclaimed water pipe infrastructure at 4 out of the 5 proposed athletic field sites. We

understand that it is not a challenge to add demand to the system and that the system has sufficient capacity.

There is direct access to reclaimed water at the following proposed artificial turf locations:

- Wilson Middle School
- Sports Complex
- Cerritos Park
- Pacific Park

These have no direct access:

- Fremont Park - 700 feet away from Glenoaks purple line

**Maintenance Requirements, Costs and Resources:** A well-maintained field is essential for safety and longevity. Maintenance costs for EPIC fields are lower than for artificial fields. EPIC fields must be aerated (athletic fields constructed with sandy soils, such as EPIC, are normally aerated three or four times per year) and damaged grass areas repaired (replaced). They need to be watered (with much less water than any other natural field—about 60% less) and fertilized. This is done by simply replenishing the underground stored water and adding fertilizer to this subterranean system as needed. This system does not have the water loss that often occurs with above ground sprayers. With good care and maintenance, an EPIC field has an indefinite lifespan.

A well-maintained Shawgrass field requires the following. (1) The field must be swept with a machine, once per week. (2) The field must be groomed with a towed apparatus after each 48 hours of play (approximately every 4-5 days). If this grooming is not done, the condition of the infill and overall feel of the field will be affected, and it will shorten the lifespan of the installment. (3) Artificial turf fields may require patching of damaged areas and drainage repairs. (4) Sanitation of the artificial grass is a particular concern. While contaminants like blood and saliva rinse off real grass, synthetic grass doesn't share this trait. Messes that could potentially be a health hazard need to be cleaned and the surface sanitized. (5) Though not required, it is recommended that the field be watered regularly to maintain the safest level of play, as the field will hold more moisture. If the field is not watered regularly, the turf will harden. (6) In the warmer months, to mitigate surface temperatures, Shaw recommends watering the field for 5-10 minutes each morning when the dewpoint has not been reached to satisfactorily moisten the field. If the field is watered in this way, it can cool approximately 20-30°F, which may in fact not be enough to cool the field to below 120°F or the cooling may not last the entire day. (7) Lastly, artificial turf surfaces need to be replaced after 8 years, on average.

**When replacement and ongoing maintenance costs and required resources are considered, a well-maintained artificial grass playing field may compare unfavorably to that of a well-maintained EPIC natural grass field.**

**Microplastics shedding:** Microplastics are also a concern, as artificial turf surfaces slowly degrade and shed fragments. These fragments are meant to be swept up with regular maintenance. Despite regular brushing that is meant to mitigate this concern with regards to crumb rubber infill (which is not being proposed for these new installations), fragments are still shedding into gutters. The following photos were taken in 2021 and show the current artificial turf installation at the Sports Complex shedding rubber infill into the Verdugo Wash.





Infill on artificial turf surface

Infill moves to sidewalk

Infill is now in gutter

## PROGRAM IMPACTS

**Days of Use for Program Needs:** Currently, we understand that the grass fields at Pacific Park and the Sports Complex are available approximately 275–325 days per year. This means 40–90 days that the fields are not in use as a result of maintenance closures to rest or refurbish the grass (from November to January in preparation for baseball season), rainy days, and days required for the field to dry.

The soggy field issues and grass refurbishment/rest time currently necessitated with natural grass fields would be mitigated by an EPIC installation. The system is designed to drain rapidly through a layer of sand while capturing that stormwater for later use and, thanks to this design, grows much healthier and stronger grass. Rain would pose no problem for this system. The incredible drainage means the field is ready to play on the day after a rain event. In fact, the manufacturer claims that depending upon the severity of the rain event, the fields may even be usable DURING rain. Furthermore, the standard arguments for artificial turf on sports fields in general are not applicable in Glendale. **Artificial turf is often touted as offering 90 more days per year of use because of better drainage after rain** (the equation being 30 days of rain plus 2 days of dry time typically required by normal grass fields per rain event), **but Glendale doesn't typically receive 30 rain days annually. Instead, we are much more likely to get 30 days during the year of 90°F-plus weather, making the artificial turf surface too hot to play on!** In 2020, our city had 77 days over 90°F (10 were over 100°F) and only 15 days of rain. Also, unlike some cities, our rainy season is not during the summer when most sports are played. It is in December, January, and February when sports leagues are indoors.

Regarding closure for yearly maintenance, EPIC field regeneration is significantly quicker than regular fields and allows for easy replacement of only the portions of the field that are most damaged, with new sand-based sod. Usually sod will “grab” into the sand profile within the first 3 days or so (depending on climate), and within 7 days it will be completely grown in. Extra sod could also be grown along the sidelines of the field and could be readily used to replace damaged areas of the play field. Overseeding throughout the year can also help with

maintaining the field and having more play days. One of the most important maintenance items for EPIC is aeration, which should be done on a regular basis to keep the system in optimum condition.

**Field temperatures over 120°F are a health hazard.** In 2002, Brigham Young University initiated [a study](#) after one of the coaches received burns on the bottoms of his feet through his tennis shoes while holding a football camp on a newly installed synthetic turf practice field. This study showed the surface temperature of artificial turf is significantly higher than air or soil temperature. The hottest surface temperature recorded during this study was 200°F on a 98°F day. It is worth noting that while watering the field did have a cooling effect, the temperature rebounded within 20 minutes.

Scientists at Columbia University who analyzed satellite thermal images of New York City over two summers concluded that synthetic turf fields were up to 60 degrees hotter than grass fields. These high surface temperatures, combined with friction, cause “turf burns,” which differ from the minor scraping or scratching one may experience from other injuries. Because friction causes these types of skin abrasions, and this friction removes a layer of skin, it can be intensely painful and last for one or two weeks until the abrasion heals. From the Brigham Young study [emphasis added]: **“When temperature reaches 122°F it takes less than 10 minutes to cause injury to skin.** At this temperature the surface had to be cooled before play was allowed to continue on the surface. The surface is monitored constantly and watered when temperatures reach the maximum. The heat control adds many maintenance dollars to the maintenance budget.”

The City is proposing a Shaw infill product called Geofill, which claims a 20–30°F cooling effect from evaporation of the water-infused coconut husk/sand mix. A Shaw sales representative states, “For fields that use GeoFill or NaturalPlay, watering is not a requirement, but is recommended when the weather conditions are hot and dry, the field’s infill is dry, and the field is planned to be used. Fields in drier climates will see more frequent watering while more temperate/wetter areas will use less.” According to the manufacturer, the fields need about 1/16” of water to moisten the fill. It is possible that some of this moisture may occur naturally, if dew settles onto the field in the evening and in the early morning; otherwise, the turf will need to be watered for approximately 5–10 minutes each day.

Consider this. In 2020, Glendale experienced 77 days over 90°F (and 10 over 100°F). On a sunny, 90°F day, artificial turf surfaces (with non-Geofill infill) have had recorded temperatures of 165°F. **Even if the potential cooling proposed by Shaw occurs (30°F), temperatures will STILL be well above natural grass high temperatures and often above the 120°F threshold for safe play.** Finally, this brings up the environmental concern raised previously: the amount of water needed to keep large fields properly cooled for safe play and the question of how long the moistening would retain those lower temperatures.

In contrast, real grass has a cooling effect when the air temperature is high, which artificial grass lacks. In 2011, a [Penn State University](#) study comparing surface temperatures during hot days found that the surface temperature of synthetic fields reached anywhere from 140°F to 170°F on summer days. The study found that natural grass rarely reached above 85°F on the same type of day.

## **NATURAL GRASS SOLUTIONS ARE THE FUTURE**

With respect to the first project on the Capital Improvement schedule, Fremont Park, we urge Community Services and Parks and the Glendale City Council to eliminate installation of artificial turf for the Fremont Park Soccer Field and search for a better natural grass solution.

We further urge Community Services and Parks and the Glendale City Council to put aside plans for artificial turf installations in the other four projects. We understand that standard grass fields are worn down quickly. The EPIC design may offer a solution, or others might become available. In the meantime, Glendale residents are struggling because of the COVID-19 disaster, and most of these projects were approved well before the crisis. We see informal soccer matches and youth sports teams on the fields as they exist now. Let's make do with partial grass fields, or simply hold off on this significant expense for the five proposed fields until there is a good, natural solution that involves planting and maintaining grass.

We need to do without the "convenience" of a product that is expensive, impermanent, time-consuming to properly maintain, bad for the environment, ineffective in using stormwater and greywater, and potentially injurious to players, that gets dangerously hot, and that will ultimately end up in a landfill!

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