



# Esprit Park

## Community Guidelines and Standards



Esprit Park Community Advisory Group (ECAG)

May 22, 2019

# Esprit Park Advisory Group

Represent tax-paying park users, nearby residents, schools, neighborhood groups and other project stakeholders

Provide insight and feedback as the current design moves to construction and share project status with our constituents

Help facilitate community outreach for the park restoration

# Esprit Park: A History

1982 - Created by Esprit Corps and founders Doug Tompkins and Susie Tompkins Buell as part of its corporate campus, open to public

2001 - Gifted to the City of San Francisco, but originally rejected and saved as a community park by Friends of Esprit Park (FOEP) and key community stakeholders

30+ years of multi-purpose community use, including families, children, and dogs

2017 - Park Users band together to raise \$7.7MM to rehabilitate the park

- ❑ \$5MM in cushioning from UCSF - DPTF and DPTF working group
- ❑ \$2.7MM approved from EN CAC - SF Planning

2019 - SF Recreation & Park Department (RPD) and ECAG are at a standstill after 6 months of meetings



Esprit Park is the only city park and open  
green space in Dogpatch





Esprit Park is the center of community for  
Dogpatch



Dogpatch doesn't want a



Dogpatch wants to keep its

Multi-purpose  
shared  
community  
space

# Neighborhood Parks with Shared Community Space



Dolores Park  
15.94 Acres  
Pop. 14,988  
46 Sq.Ft/person



Alamo Square Park  
12.7 Acres  
Pop. 7,637  
72 Sq.Ft/person



Duboce Park  
4.3 Acres  
Pop. 4,956  
37.7 Sq.Ft/person

## Currently:

Esprit Park  
1.83 Acres  
Pop. 2,361  
33.8 Sq.Ft/person

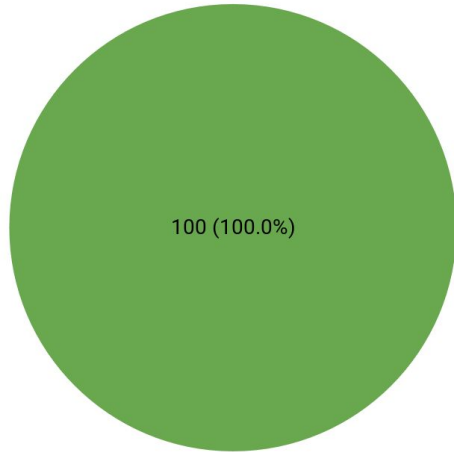
## With RPD Proposed Dog Run:

Esprit Park in 2020  
.9 Natural Acres  
Pop. 5,500  
7.1 Sq.Ft/person

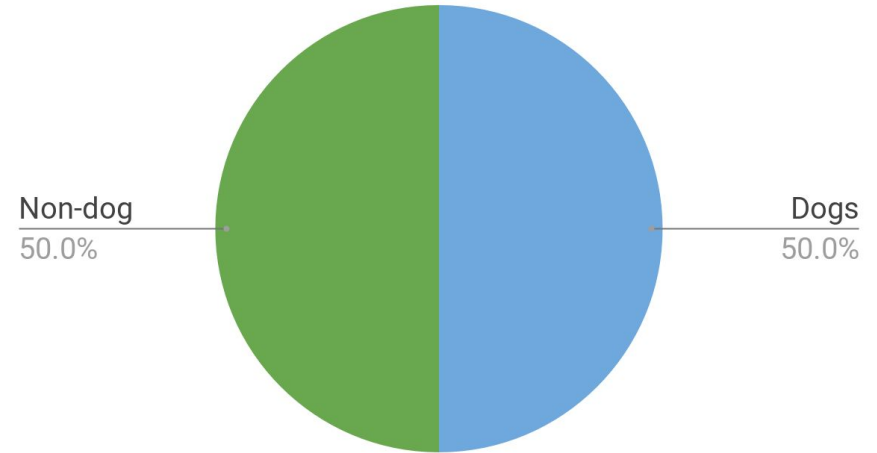
Esprit Park in 2025  
.9 Natural Acres  
Pop. 8,000  
4.9 Sq.Ft/person

# Reducing Shared Spaces 101

Current % of park accessible for non-dog related activities

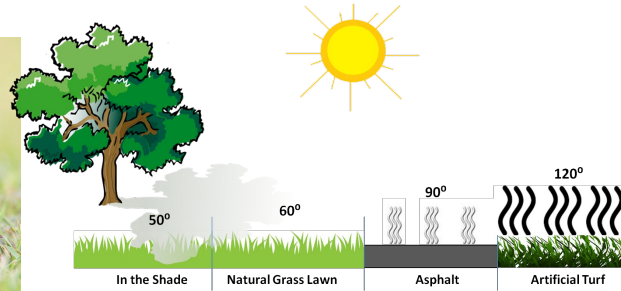


RPD Proposed Usage





# Artificial Turf



## PLASTIC

Petroleum-based product that creates pollution and waste in the manufacturing process

Not biodegradable - Will ultimately end up in a landfill

Microplastics can migrate into the ocean

## WILDLIFE

Turf creates a desert

Natural grass is habitat for insects, bees, and other organisms, and provides food for birds

## HEAT

Hotter than natural grass by 40%

Natural grass max temp is 84F

Can cause burns, dehydration, and heat exhaustion

They may be too hot to play on at times

In 2017, the SF high temp was 106F

## OXYGEN

We live next to a highway

Natural grass helps remove carbon dioxide from the atmosphere through photosynthesis and stores it as organic carbon in soil, making them important "carbon sinks"

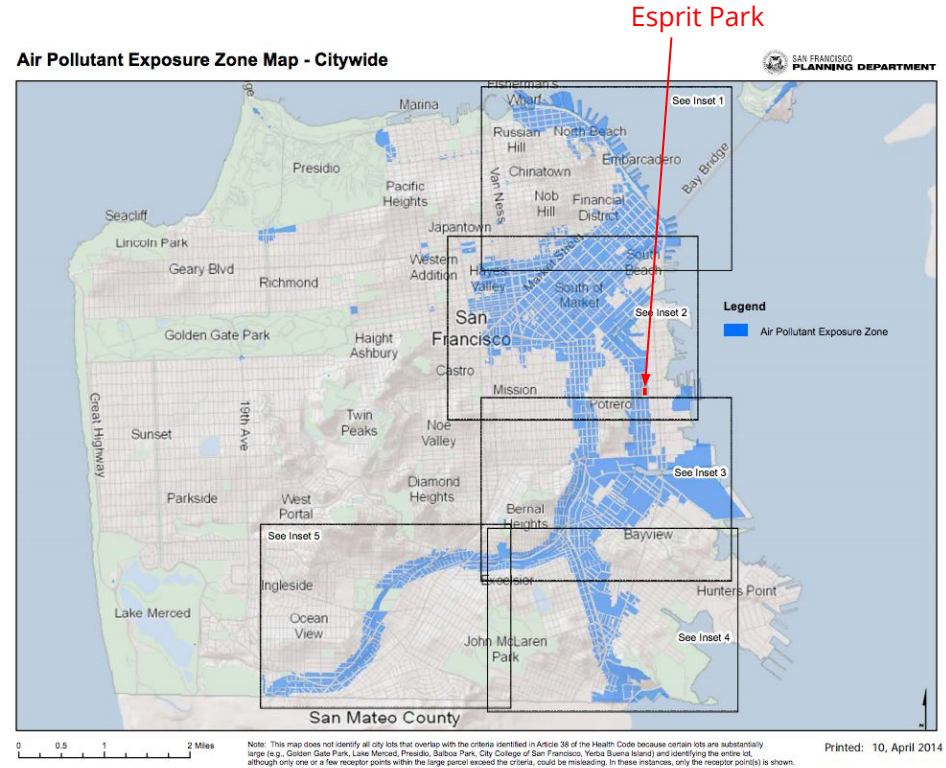
# Health Concern in Dogpatch: Pollution

Asthma-related emergency room visits. Reported cases for every 10,000 people between 2013 and 2015 show big differences based on neighborhood proximity to freeways:

93 - Bayview

74 - South of Market

12 - West Portal



# San Francisco Tree Population

● Trees 4 meters or taller

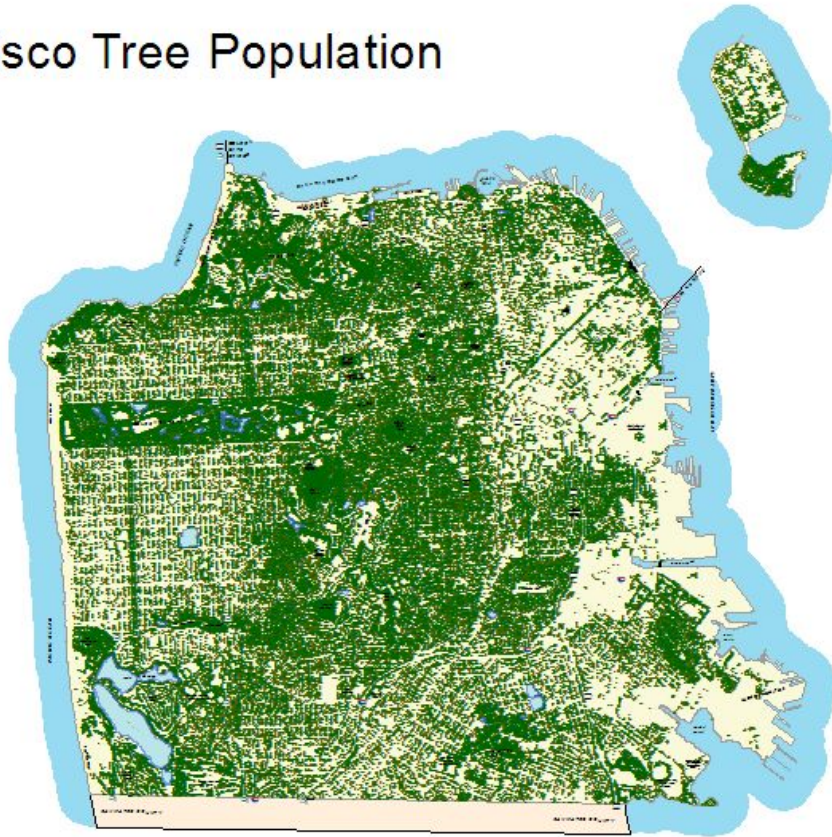


0 0.5 1 2 Miles

Source: Science Application  
International Corporation 2007

City and County of San Francisco  
Department of Public Health  
Environmental Health Section

Available at [www.thehdmt.org](http://www.thehdmt.org)



# San Francisco



# Artificial Turf



## COST

Artificial fields cost in the range of one-half to two million dollars

It will need to be fully replaced **every** 10-20 years



## CONTAMINATION

[silver sodium hydrogen zirconium phosphate](#) is blended into the plastic fibers for its antimicrobial properties and to prevent discoloration. Safe for humans and animals, **very toxic in the aquatic environment**, with potential to bioaccumulate

Whales worldwide are dying with up to 80 lbs of plastic in them. SF has had 9 beached whales this year



## NOISE

We live next to a highway

Natural grass provides greater noise abatement and glare reduction when compared with synthetic turf. Because grassed areas present an irregular soft surface, they are very effective at reducing noise levels




## SANITATION

Dog, bird, and other droppings do not decompose on artificial turf


Newly installed turf at Avalon already smells

It will need chemicals and regular washing to stay clean. If sprinklers are difficult to manage, how about turf?





**“For the sake of convenience and not wanting the children to get muddy, what is it we are losing here?”**



Paul de Zylva  
senior nature campaigner for Friends of the Earth

# Proposed DPA Performance Criteria

## Multi-Use DPA (ex. Duboce and Dolores Parks)

1. Retain multi-use activities
2. Maintain park flexibility and enhance capacity by not introducing dog runs
3. Use natural grass in areas which fall in the Bay Area Air Quality Management District high pollution zones
4. Utilize signage and physical markings to indicate DPA boundaries
5. Leverage technology to notify users of short term meadow closures in real time
6. Minimize Closures
7. ADA Accessible



Duboce Park Multi Use DPA

## Dedicated DPA Requirements (ex. Lafayette, Upper Douglass, Alta Plaza, Alamo Sq.) - RPD generated Nov 2018

1. Minimal Closures
2. Maintainable during and after a rain event
3. Maintainable without holes
4. ADA Accessible
5. Affordable - both natural and synthetic turf are affordable options



1/9/2019: Alamo Sq DPA during rain event

# RPD, where is your data?

# of days Esprit is closed vs. Duboce and vs. Dolores?

What is current maintenance budget for Esprit?

What is projected maintenance budget for Esprit? Budget if turf? Budget if grass?

How would fixing the underlying problems of the park increase the maintenance cost if the park is already being used as a DPA?

What is the lifetime cost of each surface?

Is there an EPA study? Fake Grass + Dogs + Kids?

311 Calls - How many? What topic? How many relative to Duboce? Dolores?



# Budget Questions

# Appendix

# UCSF Dogpatch Community Taskforce (DPTF)

- ❑ **Description:** Formed to identify and discuss potential impacts of UCSF's proposed development in Dogpatch and determine mitigations, using a series of public meetings held over eight months
- ❑ **Profile:** Invited Dogpatch and Potrero Hill Leaders, Neighbors, Merchants, SF City staff and UCSF staff
- ❑ **Outcomes:** UCSF recognized neighbors' hard work, thoughtful dialogue and spirit of cooperation to ensure that Dogpatch is a safe, vibrant and welcoming community. Neighbors and UCSF Regents approved a \$10.55 million cushioning investment that will address potential effects of proposed UCSF projects on the neighborhood:
  - ❑ Esprit Park Renovation: \$5 million
  - ❑ The Dogpatch Community Hub: \$4.2 million
  - ❑ Traffic Signal at 18th and Minnesota Streets: \$600,000
  - ❑ 22nd Street Stair Connector: \$500,000
  - ❑ Caltrain Gateway (22nd St. Stop upgrade): \$250,000

# Esprit Park Community Advisory Group (ECAG)

- ❑ **Purpose:** Assembled to help facilitate community outreach for the park restoration, a community benefit funded by UCSF Cushioning funds and EN CAC impact fees.
- ❑ **Scope:** To provide insight and feedback as the current design moves to construction and share project status with our constituents.
- ❑ **Profile:** We represent park users, nearby residents, schools, neighborhood groups and other project stakeholders.

Source: [Greenbenefit.org](https://greenbenefit.org)

# UCSF Community Advisory Group (CAG)

## ❏ Mission:

- ❏ Serve as a community advisory body and sounding board for UCSF administration on planning issues, based on both a neighborhood and a city-wide perspective
- ❏ Identify strategies and actions for addressing community concerns
- ❏ Assist UCSF in strengthening communication with and engagement of the public on broader issues of community concern
- ❏ Provide essential and relevant feedback on programs, campus planning and development activities

# Eastern Neighborhoods Citizens Advisory Committee (CAC)

- ❑ **Description:** The central community advisory body charged with providing input to City agencies and decision makers with regard to all activities related to implementation of the Eastern Neighborhoods Area Plans and allocation of impact fees.
- ❑ **Profile:** Members appointed by the Mayor of San Francisco or San Francisco District Supervisors
- ❑ **Purpose:** Provide input on the prioritization of Public Benefits (impact fees), update the Public Benefits program, relay information to community members in each of the four neighborhoods regarding the status of development proposals in the Eastern Neighborhoods, and provide input to plan area monitoring efforts as appropriate.

# UCSF Office of the Chancellor

- ❑ **Priorities:** Chancellor Sam Hawgood has identified four priority areas for UCSF: equity and inclusion, continuous learning, precision medicine, and transformative partnerships.
- ❑ **Priority Statement:** UCSF will champion diversity, equity and inclusion as core to its mission
- ❑ **Objectives:**
  - ❑ Foster an ongoing dialogue between our campus and the Bay Area community about issues of equity, inclusion, disparities and social justice
  - ❑ Establish metrics for UCSF's culture of equity and inclusion and measure, evaluate and report on outcomes on an annual basis to ensure accountability and transparency

# Park Overview - Dedicated DPA

## LAFAYETTE PARK - Acreage: 11.49 (4 blocks)

- Hill-top park set amid the Pacific Height's graceful homes
- Source of respite and recreation: grassy lawns, city and bay views, tennis courts, playground, picnic tables, and dedicated off-leash dog-play area.
- **Address:** Gough & Washington **District 2**



## ALTA PLAZA PARK - Acreage: 11.91 (4 blocks)

- Alta Plaza Park is set atop a hill in the affluent Pacific Heights neighborhood
- Dogs can roam free on the sloped grass or paved pathways in the southeast corner of park
- Park has children's play area, mixed-use court, two tennis courts
- **Address:** Jackson & Steiner **District 2**



## UPPER DOUGLASS PARK - Acreage: 7.45

- Tree-lined hillside in Noe Valley, it's two parks connected by a steep path.
- On the upper terrace, a rocky wall helps keep your best four-legged friend in view and away from the street.
- The lower terrace has a playground, tennis and basketball courts, and picnic areas. The clubhouse offers an After-School Program and can be reserved for private events.
- **Address:** 26th & Douglass St **District 8**





# Park Overview: Multi-Use DPA

## Duboce Park - Acreage: 4.31

- A lively community hub, this sunny neighborhood park is a gathering spot for families and dog owners from Noe Valley, the Castro and Duboce Park neighborhoods
- This park features both an off-leash dogs area and on-leash dog areas and is known for the social scene among parents, dog-owners and other park visitors
- **Address:** Duboce & Scott St    **District 8**



## Esprit Park - Acreage: 1.83

- A lively community hub and well loved, sunny oasis in midst of high density residential living.\*
- A popular place to toss a Frisbee with with two or four legged friends, work out on the parcours circuit, or lunch under the stately Redwoods\*
- **Address:** Minnesota St & 19th St    **District 10**



# Parks: Detailed descriptions

## LAFAYETTE PARK - Acreage: 11.49 (4 blocks)

Lafayette Park is another hill-top park set amid the Pacific Height's graceful homes. This terraced park offers commanding views of the entire city and the San Francisco Bay and Golden Gate Bridge.

With its grassy lawns, lovely views of the city and the bay, tennis courts, playground, picnic tables, and off-leash dog-play area, this hilly park is a source of respite and recreation for residents of San Francisco's Pacific Heights neighborhood.

Plans call for a low barrier fence with plantings along one side of the dog play area in the southeast corner of the four-block park

- **Address:** Gough & Washington St
- **Park Service Area:** PSA 1
- **Supervisory District:** District 2
- **Hours:** 5am to Midnight
- **Restroom Hours:** 8am to 8pm

## ALTA PLAZA PARK - Acreage: 11.91 (4 blocks)

Alta Plaza Park is set atop a hill in the affluent Pacific Heights neighborhood and offers dramatic 360-degree views of the San Francisco Bay and Golden Gate Bridge. broad, tiered staircase climbs the terraced southern slope of this steep hillside park; when you reach the top, you will find panoramic views of the city and Bay. Dogs can roam free on the sloped grass or paved pathways in the southeast corner of this four block park. On-leash, they can accompany their owners past the renovated children's play area, mixed-use court, two tennis courts, and through to Scott Street .

- **Address:** Jackson & Steiner
- **Park Service Area:** PSA 1
- **Supervisory District:** District 2
- **Hours:** 5am to Midnight
- **Restroom Hours:** 8am to 8pm
- **Accessibility:** Limited Wheelchair Access

## Upper Douglass Park - Acreage: 7.45

Explore this tree-lined hillside in Noe Valley and you'll find it's actually two parks (for the price of one), connected by a steep path. On the upper terrace, a rocky wall helps keep your best four-legged friend in view and away from the street.

The lower terrace is human-friendly, with a playground, tennis and basketball courts, and pleasant picnic areas. The clubhouse offers an After-School Program and can be reserved for private events.

- **Address:** 26th & Douglass St
- **Park Service Area:** PSA 5
- **Supervisory District:** District 8
- **Hours:** 6am to 10pm
- **Restroom Hours:** 8am to 8pm

# Parks: Detailed descriptions

## Duboce Park - Acreage: 4.31

There's always something to do at this lively community hub, home of the newly renovated [Harvey Milk Recreational Arts Center](#). sunny neighborhood park is a gathering spot for families and dog owners from all over Noe Valley, the Castro and the surrounding Duboce Park neighborhood. The entire area including the Harvey Milk Arts Center was updated in 2008 and that renovation included substantial work on the dog play area.

This park features both an off-leash dogs area and on-leash dog areas and is known for the social scene among parents, dog-owners and other park visitors.

- **Address:** Duboce & Scott St
- **Park Service Area:** PSA 6
- **Supervisory District:** District 8
- **Hours:** 6am to 10pm
- **Restrooms:** Yes

## Esprit Park - Acreage: 1.83

Toss a Frisbee with friends or work out on the parcours circuit at this sunny oasis in historic Dogpatch.

The well-groomed field, bordered with benches and stately Redwoods, was previously a corporate garden, gifted to the City by Esprit Corp. Picnic tables fill up with neighborhood workers at lunchtime, while BBQs are in high demand on weekends

- **Address:** Minnesota St & 19th St
- **Park Service Area:** PSA 2
- **Supervisory District:** District 10
- **Hours:** 5am to Midnight
- **Restrooms:** No

## **PARK MAINTENANCE OBJECTIVES** (source: [sfrecpark.org](http://sfrecpark.org))

Maintenance objectives for parks renovated through 2008 and 2012 bond funding. These objectives are targeted for completion in fiscal year 17/18.

### **ALAMO SQUARE**

- Establish one rain-garden near new restroom to maximize irrigation/rain water diversion from storm water drains in park.
- Ensure proper establishment of over 135 trees planted during the 2017 renovation.
- Work to fully establish sustainable, climate appropriate plantings throughout the park to improve appearance, control weeds, provide habitat and control erosion.
- Aerate and overseed dog play meadows 2X/year to mitigate compaction and wear from users

### **LAFAYETTE PARK**

- Renovate turf twice annually (aerate, fertilize, overseed and topdress) to mitigate heavy use by park visitors.
- Replace damaged or failed plant material with climate appropriate plants which contain species diversity, drought tolerance, habitat potential and hardiness (can take abuse).
- Continue to add Ceanothus and Artemisia to areas in the ‘Yarrow’ beds along Sacramento St. where the kikuya grass and other stubborn invasion weeds have taken over. The dense and spreading habit of these low perennial plants have proven to suppress these problem weeds the best.
- Replace the oversized flax around the CPA with more appropriate sized plants to improve visibility.
- Continue to sheet mulch planting beds which supports the goal of reducing water use, suppressing weeds and encouraging a healthy soil with good structure, nutrients and plentiful microorganisms.
- Maintain the protective fencing already installed around the park entry planting beds as they fail, to continue to discourage people and dogs from entering them.
- Continue to collaborate with Friends of Lafayette Park on monthly volunteer clean-up events and schedule additional volunteer groups to participate in the stewardship of this beautiful facility.
- Work to replace the supplemental plastic fencing on the wrought iron fence surrounding the off leash dog area to keep the balls from going into the landscape.
- Coordinate with outside vendor to come out and re-install tennis wind screens that were vandalized.
- Develop possible plans to install more lighting in the park to address safety concerns.

## **PARK MAINTENANCE OBJECTIVES** (source: [sfrecpark.org](http://sfrecpark.org))

Maintenance objectives for parks renovated through 2008 and 2012 bond funding. These objectives are targeted for completion in fiscal year 17/18.

### **ESPRIT PARK**

- With the assistance of the Friends of Esprit Park, conduct an irrigation audit and implement recommended corrective actions to ensure proper water delivery to support park trees and plantings.
- Work to fully establish sustainable, climate appropriate plantings along Indiana Street to improve appearance, control weeds, provide habitat and control erosion.
- Replace 3 missing Sycamore trees in Minnesota St alley.
- Aerate, overseed and topdress meadows 1X/year to mitigate compaction and wear from users.
- Refresh DG paths along 19th St. and Minnesota St.

There is, of course, an environmental and social justice angle that needs to be considered when discussing air quality in San Francisco,. A [2007 study called "Still Toxic After All These Years"](#) released by the [Center for Justice, Tolerance & Community](#) at UC Santa Cruz found that African Americans are three times more likely to live within one mile of a source of toxic air pollution than are white San Franciscans, while Latinos are more than twice as likely and Asians are “slightly more likely.” The report also found that closer proximity to sources of air pollution and lower incomes were closely correlated.

*In fact, the San Francisco Recreation and Park Department (2008) notes that the cost and a lack of infrastructure are an issue with the end-of-life recycling of artificial turf. They note that at the time of the report's publishing only one company in the industry recycled turf material. When turf is not recycled, a large amount of waste must be disposed of at the end of the field's useful life. According to the City of Larchmont, California, 400 tons of debris is created when an 80,000 sq. ft. field is replaced (San Francisco Recreation and Park Department, 2008).*

*One concern with synthetic turf is its role in the heat island effect - the increase of urban temperatures due to the replacement of vegetation with impervious surfaces that radiate heat. (New York City Department of Health and Mental Hygiene, 2008; Turfgrass Resource Center, 2008; Rosenzweig et al. 2006; New Yorkers for Parks, 2006). This effect occurs when heat from direct sunlight is absorbed by surfaces and then dissipated, raising ambient air temperatures. Urban heat island has an adverse impact on the environment because it increases the demand for cooling energy, intensifies air pollution—such as ground level ozone, and increases heat-related health problems (New York City Department of Health and Mental Hygiene, 2008; Rosenzweig et al. 2006; San Francisco Recreation and Park Department, 2008). Since synthetic turf has been shown to be hotter than the surrounding air and other surfaces (see Section 2.2: All-weather availability), it is a contributor to the heat island effect.*

There are various ways for microplastics from artificial playing fields to end up in the ocean:

- Particles are released to paved areas surrounding the field (e.g. transported via shoes and clothing or deposited with cleared snow) and are subsequently released to the sewerage system via grates.
- Release of infill particles to the indoor environment, as the particles get stuck in sportsbags, shoes and clothing where they can be released to sewerage system via discharges from washing machines.
- Release to drainage via drainage water (directly through run-off or blown by the wind). Drainage water may then be released to the sewerage system or end up in nearby streams due to heavy rainfall.

**In Sweden, the amount of microplastics entering the sea and waterways is estimated at 70 kg (or 293 million particles) per year for each artificial playing field. This figure might be higher in countries which have less stringent wastewater treatment practices.**

<http://www.kimointernational.org/feature/microplastic-pollution-from-artificial-grass-a-field-guide/>

Mathew Frith, director of conservation at the London [Wildlife](#) Trust, said: “You are using fossil fuels to make it, so there is a carbon impact there, you have to remove a significant amount of soil to lay it so you are reducing the direct and indirect porosity of the soil, you are removing habitat which a wide range of species are dependent on and at the end of its life this is a non-biodegradable product which ultimately goes back into landfill. So yes we are concerned at its proliferation.”

Paul de Zylva, senior nature campaigner for Friends of the Earth, said: “I think the negative impacts of artificial grass are substantial. **For the sake of convenience and not wanting the children to get muddy, what is it we are losing here?**

“You will find bees burrowing into lawns which are a mix of grass seeds, other insects will be in there too, and worms – which are incredibly important in terms of the ability of the soil to absorb nutrients and keep soil structured, so that when you have heavy rain or drought you have a soil system which can cope. By using artificial grass, you lose all this. You are creating a **‘Don’t come here sign,’ for wildlife.**”

<https://www.theguardian.com/environment/2016/jul/04/growth-in-artificial-lawns-poses-threat-to-british-wildlife-conservationists-warn>



## Carbon footprint

When comparing the carbon footprint of natural grass and synthetic turf the whole life cycle of the product, not just the maintenance component needs to be investigated. The carbon footprint for natural grass tends to come from the installation and maintenance stage (fertiliser production, mowing and lawn management), whereas for synthetic turf it is derived from production, transportation and disposal of materials. Synthetic turf is a **petro-chemical product which requires the use of virgin materials, high levels of processing and production, transportation and disposal at end of life**. When considering the entire life cycle, these material impacts of synthetic turf significantly increase the total emission of this product and far outweigh the emissions that occur from maintaining natural grass.[7]

In 2007, a Canadian study set out to estimate the greenhouse gases emitted during the life cycle of the synthetic turf system as opposed to a natural grass surface. The study also determined the number of trees to be planted to achieve a 10-year carbon neutral synthetic turf installation. This was a very complicated process and many assumptions were made, but the findings give an indication of the greenhouse gas emissions related to the life cycle (from raw material acquisition through manufacturing, transportation, use and maintenance, and end-of-life disposal) of the synthetic turf field. **In conclusion, the study found for a 9,000 square metre facility over a 10-year period, a total CO2 emission of 55.6 tons plus additional greenhouse gases. The tree planting offset requirements to achieve a 10-year carbon neutral synthetic turf installation for the same sized facility was estimated to be 1861 trees (based on a medium growth coniferous tree, planted in an urban setting allowed to grow for 10 years).**[8]

**Natural grass helps remove carbon dioxide from the atmosphere through photosynthesis and stores it as organic carbon in soil, making them important “carbon sinks.”** A typical lawn (2,500 sq. ft./232 m<sup>2</sup>) converts enough carbon dioxide from the atmosphere to provide adequate oxygen for a family of four. [9] There is some recent research from the United States that suggests greenhouse gas emissions from fertiliser production (mowing, leaf blowing and other lawn management practices) are greater than, the amount of carbon that can be stored in them, suggesting that natural grass may contribute to global warming rather than reduce it. This study also found that athletic sports fields do not store as much carbon as ornamental grass due to soil disruption by tilling and resodding.[10] However, it was later discovered that there were several computation errors in this research and when the computations were corrected, it was found that natural grass actually is a net sequesterer of carbon dioxide, reversing the conclusions of the original report.[11] This is backed up by another recent US study that concludes “After reviewing the direct carbon sequestration of grasses and their root systems, we found that **managed lawns sequester, or store, significant amounts of carbon, capturing four times more carbon from the air than is produced by the engine of today’s typical lawnmower**. The study also finds that well-managed turfgrasses (natural) that are cut regularly and at the appropriate height, fed with nutrients left by grass clippings, watered in a responsible way, and not disturbed at the root zone actively pull pollutants from the air, creating a greater carbon benefit.”[12]

<https://www.dsr.wa.gov.au/support-and-advice/facility-management/developing-facilities/natural-grass-vs-synthetic-turf-study-report/broader-environmental-considerations>

Astroturf boasts the exclusive use of AlphaSan® antimicrobial protection by Milliken. AlphaSan® is [silver sodium hydrogen zirconium phosphate](#), but any silver-based antimicrobial will raise similar issues.

According to reports submitted by the Milliken, the antimicrobial effectiveness of AlphaSan® is based on the [release of silver ions](#). Such antimicrobial agents are so safe for humans that they are approved even for food contact applications. Testing even shows it is safe for birds and mammals. But **silver ions are very toxic in the aquatic environment, with potential to bioaccumulate.**

<https://www.treehugger.com/green-food/artificial-turf-versus-real-grass-which-is-greener.html>

Artificial turf is designed to replicate the effect of a grass pitch and provide cushioning if players fall to the ground. Unfortunately, the microplastics used in its construction can find their way into water systems when they are showered off.

**According to football governing body FIFA, these pitches have a lifespan of roughly eight years, after which the polyethylene and polypropylene surface must be landfilled, incinerated or recycled.**

[Research](#) conducted by UK consultant Eunomia found that recycling each pitch could save around 400 tonnes of equivalent CO2 emissions when compared to incineration. However, recycling centres are scarce, with only one notable example located in Denmark.

<https://www.euractiv.com/section/energy-environment/news/death-knell-for-microplastics/>

**It must also be noted that whilst synthetic turf does not require mowing, it still does require ongoing maintenance, often using fuel powered machinery to help keep it clean and performing well. Ride on mowers with brushes rather than mowing blades are used to brush the surface and leaf blowers are also used to remove leaves from fields. This maintenance equipment produces greenhouse gas emissions but unlike natural grass there is no carbon sink to counter balance it.**

Figure 2: Ride on grooming and cleaning machine with petrol engine used to maintain synthetic turf.

Often artificial turf replaces a natural grass surface, so another contribution synthetic turf makes to global warming is the removal of a natural grass surface that reduces carbon dioxide, by converting it into oxygen. [13]

Additionally, lead exposure remains an object of some concern. The results of experimental evaluation of lead in these fields have been thus far inconclusive. Most studies have cleared the fields as safe in terms of lead risk, but others have noted an elevated presence of lead.[16] Given the fact that lead levels in tyres varies significantly, according to production processes, it is advisable, as part of the tender process to insist upon suppliers that all materials are lead-free.

Finally, and most significantly, repeated testing has shown that the presence of zinc in leachate from crumb rubber fields remains problematically high. It would appear that levels of zinc leaching into groundwater from crumb rubber fields are significant. Further research needs to be conducted into this question to determine whether it is a real issue, and if it is, greater innovation needs to be carried out at the level of product development to eliminate this issue.40

**Most synthetic turf surfaces absorb rather than reflect sunlight, causing the emission of heat. These high temperatures not only impact the surrounding environment, but they can also affect the health and safety of athletes and children who use the synthetic turf grounds.** They can become an uncomfortable playing surface very quickly, especially for summer sports like cricket, tennis and lawn bowls. (Refer to section 9 for more information on the health impacts of heat related issues). Recent local research for the AFL and CA, suggests that in hot conditions, an artificial grass sporting area can be up to 40% hotter than a natural field, although this increased heat dissipates quickly on a windy day.[19]

Natural grass plays an important role in controlling climate. Natural grass is one of the best exterior solar radiation control ground covers, because it absorbs radiation and converts it to food for growth through photosynthesis. Natural grass surfaces reduce temperature extremes by absorbing the sun's heat during the day and releasing it slowly in the evening.44

The replacement of natural grass with synthetic turf has the opposite effect and can contribute to rising temperatures in urban settings, known as the urban heat island effect. Urban heat islands are created when natural grass and trees are replaced by impervious surfaces which absorb heat. Urban heat islands increase demand for energy (particularly air conditioning), intensify air pollution, and increase heat-related health problems. Not only does removing natural grass exacerbate the urban heat island effect – most synthetic turf fields absorb rather than reflect sunlight, causing them to emit heat.[20]

<https://www.dsr.wa.gov.au/support-and-advice/facility-management/developing-facilities/natural-grass-vs-synthetic-turf-study-report/broader-environmental-considerations>

Department of Local Government, sport, and Cultural Industries of Western Australia

**Natural grass provides greater noise abatement and glare reduction when compared with synthetic turf. Natural grass plants have the ability to absorb sound. Noise levels are affected by the softness or hardness of the surface over which sound travels. Because grassed areas present such an irregular soft surface, they are very effective at reducing noise levels.**[21] To help reduce glare from synthetic turf fields it is important in the design stage, that the pitch is orientated correctly to avoid high sun glare during peak playing times, it is also important to place lights in the correct position to avoid glare.

Figure 6: Sun glare arising from a recently installed synthetic turf soccer pitch in Melton, Victoria

Natural grass offers habitats for insects, plants, and other organisms, and provides food for birds. Natural grass and the topsoil are home to zillions of beneficial organisms that break down and recycle organic and inorganic products that fall into the grass. Plants absorb gaseous pollutants into their leaves and assimilate them, helping to clean the air and create oxygen. **Synthetic turf does nothing to enhance biodiversity, though most synthetic turf fields have drainage systems, they do not contain microorganisms that can break down pollutants.**[22]

<https://www.dsr.wa.gov.au/support-and-advice/facility-management/developing-facilities/natural-grass-vs-synthetic-turf-study-report/broader-environmental-considerations>

Department of Local Government, sport, and Cultural Industries of Western Australia

It is a petroleum-based product that creates pollution and waste in the manufacturing process. And, while it is often made partially with recycled materials, it is not biodegradable. After a long life of from 15 to 25 years, it will, ultimately, end up in a landfill.

Critics point to synthetic turf as an environmental heater. It absorbs heat and feel hot to the touch in direct sun. Pet owners give synthetic grass a mixed review. It does not absorb animal waste (but is permeable so liquids pass through to the ground underneath).

<https://www.gardenista.com/posts/pros-and-cons-artificial-grass-versus-a-live-lawn-hardscaping-101/>

Fake turf is a heat trap, creating "urban heat islands" with temperatures far higher than everything around it. As Columbia University research scientist Stuart Gaffin says, it's the equivalent of "putting a parking lot around your house." Is that what you want your kids playing on?

Phony grass can smother the soil, and with it, all the critters small and large that make the ecosystem work.

Bogus turf can be impermeable, like smearing even more concrete and asphalt over a city where the little rainwater we do get has fewer and fewer places to soak into the water table, where we desperately need it, and instead has to get wastefully sloughed off out the storm drains and into the ocean.

<https://www.latimes.com/opinion/opinion-la/la-ol-california-drought-lawn-fake-grass-20141111-story.html>

311 Calls      May 19, 2018 - May 19, 2019 ( <https://sf311.org/information/reports> )

Esprit Park - 92

- 9 dog-related. Other concerns: Gardeners, Park Closures, Human Waste, Gardener Activity, Community Aggression

Dolores Park - 340

Duboce Park - 82