

Safe Healthy Playing Fields Comments on Draft Climate Action Plan – Synthetic Turf

Synthetic turf cuts across several climate change related issues (from heat to flooding to carbon footprint and greenhouse gas emissions) . So the language below and actions can be included in several places in the [Climate Action Plan](#)¹ including pages 53 ,57,59, 64, 69 and 164 (A10 Green infrastructure) as all possible places to indicate the following: The Climate Action Plan should account for the climate impacts of synthetic-turf (aka synturf), Including direct and embodied greenhouse emissions from the plastic carpeting², and the opportunity cost impacts of reducing existing green infrastructure. Climate-oriented actions should prioritize retention of natural grass and other vegetated surfaces and improving their function, instead of installing synthetic-turf and encourage elimination of synthetic turf, and replacement with green infrastructure for which benefits are well documented in the Draft CAP (Actions A6 and A-10).

BACKGROUND:

A conservative ballpark estimate, based on a county inventory³ and more recent county information, is that synthetic turf in Montgomery County has carpeted greater than 50 acres and expanding with plastic, which increases the carbon footprint and climate risk in a 2-fold way: by decreasing oxygenating cooling vegetated surfaces and replacing them with hotter-than-asphalt, impervious, plastic surfaces that contribute directly to greenhouse gas emissions through-out their lifecycle.

The climate impacts include:

HEAT: Using synthetic turf replaces cooling, oxygenating grass with plastic carpeting that is hotter than asphalt, and thereby exacerbates the Urban Heat Island (UHI) effect.

FLOODING and STORMWATER POLLUTION: Synthetic turf also adds to impervious surfaces, thereby increasing stormwater runoff that is already overwhelming stormwater management infrastructure. This infrastructure, which is not designed to treat chemicals and fine synthetic particulates, also carries infill and degraded carpet materials that contain toxic chemicals to

¹ <https://www.montgomerycountymd.gov/green/Resources/Files/climate/draft-climate-action-plan.pdf>

²Why plastics are also a climate issue Holly Kaufman, March25, 2020, <https://www.greenbiz.com/article/why-plastics-are-also-climate-issue> ; plastic is also a climate issue; we can't tackle one successfully without tackling the other, as many reasons for and solutions to the growing plastic and climate problems are the same.

³ Estimate is based on the February 2011 report of the Solid Waste Advisory Committee to the County Executive, Appendix K, <https://www.montgomeryschoolsmd.org/uploadedFiles/departments/facilities/construction/studies/Appendices%20A-M.pdf> , which provides an estimate that at the time there were 24 football-sized (on avg 80,000 sq ft.) artificial turf installations in Montgomery County, and 150 additional installations of up to 5,000 square feet. It also estimated that each field uses 350,000 pounds of plastic carpet and rubber material that are sent to landfills after 8 to 10 years.

waterways. Synthetic-turf systems are a point source of synthetic solid waste (plastic/microplastic/rubber) which is released into air, soil and water as the components disintegrate.

GREEN HOUSE GAS EMISSIONS: Plastic emits greenhouse gases indirectly in the manufacturing process and in its embodied materials. Plastics in water as well as on land have been shown to release the greenhouse gases methane and ethylene⁴.

PLASTIC WASTE DISPOSAL: Any material captured by a stormwater BMP also represents new synthetic waste to be disposed of by the county in a landfill, incurring additional costs to the county.⁵ Synthetic turf fields are replaced on average, every 8 years, sending approximately 40,000 pounds of plastic synturf carpeting and 350,000 pounds of rubber, plastic or other granulated material per field to landfills or unregulated, unmonitored dumpsites.

ENVIRONMENTAL INJUSTICE: More information is needed on the distribution of synthetic turf fields to determine where they may disproportionately impact children (who are more vulnerable to heat and toxins) and vulnerable communities which already have fewer vegetated green spaces and trees and more impervious surfaces and are therefore more impacted by heat and flooding.

IN SUMMARY: Green vegetated infrastructure, including grass, has a cooling effect, reduces runoff by absorbing more rainfall, oxygenates the air and sequesters carbon. Synthetic turf has a climate impact opportunity cost in that it displaces grass and soil, reducing spaces available for green infrastructure, especially in urban areas where it is needed the most and replaces such infrastructure with hot, impervious, green-house gas embodying and emitting surfaces..

⁴ Royer, S.-J., Ferrón, S., Wilson, S. T., & Karl, D. M. (2018). Production of methane and ethylene from plastic in the environment. *PLOS ONE*, 13(8), e0200574. <https://doi.org/10.1371/journal.pone.0200574>

⁵ Legislation Seeks More Environmentally-Friendly {Syn}Turf Removal – Maryland Matters by Hannah Gaskill in Maryland Matters, Feb 20, 2020 <https://www.marylandmatters.org/2020/02/20/proposed-legislation-could-see-more-environmentally-friendly-turf-removal/>