

MIAMI BEACH

COMMITTEE MEMORANDUM

TO: Land Use and Sustainability Committee Members

FROM: Eric Carpenter, City Manager

DATE: February 20, 2025

TITLE: DISCUSS AMENDING THE LAND DEVELOPMENT REGULATIONS FOR SINGLE FAMILY ZONING DISTRICTS TO EXPAND EXISTING ALLOWANCES FOR ARTIFICIAL TURF IN REAR AND SIDE YARDS.

RECOMMENDATION

The Administration recommends that the Land Use and Sustainability Committee (LUSC) endorse the proposed amendment to the Land Development Regulations of the City Code (LDRs) and recommend that the Mayor and City Commission (City Commission) refer a draft ordinance to the Planning Board.

BACKGROUND/HISTORY

On December 11, 2024, at the request of Commissioner Kristen Rosen Gonzalez, the City Commission referred the item (C4 H) to the LUSC.

ANALYSIS

As noted in the attached referral memorandum, the item sponsor has requested that the LUSC evaluate and discuss the possibility of expanding the permissible areas for artificial turf usage in rear and side yards to provide single-family homeowners with greater flexibility for their properties.

Artificial turf is currently permitted, in a limited capacity, pursuant to the regulations set forth in Chapter 4 of the Land Development Regulations of the City Code (LDRs). Specifically, artificial turf is limited to the rear yards of homes in single family districts, in those areas that generally see a high degree of activity.

The following are some environmental concerns related to the use of artificial turf.

- **Disruption of natural water permeability.** Artificial grass can prevent natural water infiltration and aeration, disrupting the natural microbial life and soil health underneath.
- **Microplastics pollution.** Fragments from artificial turf have been found to pollute the environment and runoff from artificial turf may carry pollutants, such as infill materials (e.g., crumb rubber), into local water bodies, impacting aquatic ecosystems. Since artificial turf components are made of plastic, they do not biodegrade. Instead, they only break up into smaller pieces – microplastic. One study found the presence of artificial turf fibers in a river and in coastal waters being analyzed.
- **Solid Waste generation.** Artificial turf is not biodegradable and lasts for 8 – 10 years, after which it is typically disposed of in a landfill, contributing to long-term plastic pollution. Only some components of the turf system may be reusable one or more times, while others must be disposed of after their useful life, contributing to solid waste pollution. Also, older or poorly

made artificial turfs may release harmful chemicals, such as heavy metals or plasticizers, into the soil or water over time.

- **Leaching chemicals and exposure to toxins.** Few laboratory and epidemiology studies have been performed on the potential health impacts to humans. Various groups have tested artificial turf, and some have found levels of toxic chemicals such as Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS).
- **Production of greenhouse gas emissions.** Artificial turf creates greenhouse gas emissions throughout its lifecycle including during the manufacturing, transportation and installation of the product.
- **Loss of biodiversity.** Artificial turf does not provide the benefits to living organisms that natural groundcover does, including the restriction of access to the soil beneath or ground above for burrowing insects and worms, limiting access to natural materials like leaf litter and grass clippings, and displaces living plants.
- **Exacerbate the urban heat island effect.** Numerous studies have analyzed the impacts to surface temperature of artificial turf and have found that artificial turf reaches significantly higher surface temperatures compared to natural turf. Also, artificial grass absorbs and retains more heat than natural grass, contributing to higher local temperatures. This can exacerbate the urban heat island effect, and the increased heat can affect surrounding plants and soil conditions.
- **Increased Flood Risk and Runoff.** One study of artificial and living grass has shown that artificial grass displayed greater volumes and proportion of runoff, and that living grass was significantly better at retaining water and delaying drainage. Artificial turf systems require soil compaction prior to installing the surface making the substrate impermeable to stormwater. In addition, artificial lawns that are not properly installed, or become old and worn can become impermeable, leading to increased water runoff during heavy rain.

Alternatively, Florida-friendly groundcovers and lawn grass provide the following environmental benefits:

- **Boosts biodiversity.** Depending on the type of groundcover, it can provide shelter for insects and other living organisms, attract pollinators, and help to improve soil health.
- **Sequesters carbon and contaminants.** Ground cover, like all other plants, absorbs carbon dioxide from the atmosphere through the process of photosynthesis and the carbon is sequestered in soil. Additionally, natural groundcover root zones can filter and absorb dissolved nutrients and contaminants.
- **Improve water quality.** Depending on the type of groundcover and maintenance practices, like all plants and trees, it can help to filter water. A robust root zone with healthy soil will help to decrease nutrient leaching into ground water.
- **Cooling effect.** Average surface temperatures of natural turfgrass have been reported to be as much as 10°F cooler than artificial turf.

The limited use of artificial turf in rear yards does have some benefits from a maintenance standpoint, particularly on properties with heavier shade at the ground level or areas being heavily used as play areas. However artificial turf should not be applied from one property line to the other and an increased minimum landscape buffer at the property periphery would improve storm water runoff into shallow retention areas with natural planting materials. Also, artificial turf systems should not be placed directly on top of tree roots, particularly if the tree has shallow roots, as there is a potential for suffocating the roots.

The following are draft amendments to Section 4.2.3 of the LDRs to address some of the issues identified above:

4.2.3 Minimum standards

The following standards shall be considered minimum requirements unless otherwise indicated in the land development regulations:

Lawn grass/sod area/artificial grass.

- 1. Grass areas, including lawn and sod areas, shall be planted with natural growing species well adapted to localized growing conditions in the city. Grass areas shall be sodded and used in swales or other areas subject to erosion.*
- 2. Exclusions from maximum permitted lawn areas:*
 - A. Stabilized grassed areas used for parking.*
 - B. Grassed areas designated on landscape plans and actively used for sports, playgrounds or picnic areas.*
 - C. Grassed areas in the right-of-way.*
 - D. Stormwater retention/detention areas planted in grasses which are very drought tolerant, as well as tolerant to wet soils.*
 - E. Very drought tolerant grasses and low growing native plants, including grasses and forbs may be used as groundcover beyond the maximum permitted grass areas.*
- 3. Artificial grass areas may be permitted within required rear yards in single-family zoning districts, in accordance with the following:*
 - A. Artificial grass shall be allowed as an alternative to lawn grass and shall count towards the maximum lawn area as described in Table A.*
 - B. Artificial grass shall be installed as a system that is pervious and contributes to storm drainage. The permeability shall be equal to or greater than that of natural grass.*
 - C. The artificial grass system shall have a minimum setback of five (5') feet from all adjacent property lines and shall allow for adequate storm water runoff.*
 - D. The artificial grass system shall not be placed directly on top of any tree roots.*
 - E. Landscape permit plans shall be provided with artificial grass system specifications, sections and details for review and approval by planning department staff.*
 - F. Applicants shall provide an owner affidavit agreeing to perpetually maintain the artificial grass system in good working order in order to ensure that there is continued ground permeability.*
 - G. The artificial grass system shall utilize organic plant-derived and other natural infill components to the maximum extent feasible, including, but not limited to, cork, coconut, corn husk, rice husk, and sand. The use of crumb rubber and other synthetic materials shall be minimized.*
- 4. Maximum permitted lawn grass/sod areas for all zoning districts are referenced in Table A.*

If there is consensus on this amendment, a draft ordinance can be prepared for referral to the Planning Board by the City Commission.

FISCAL IMPACT STATEMENT

No Fiscal Impact

Does this Ordinance require a Business Impact Estimate?
(FOR ORDINANCES ONLY)

The Business Impact Estimate (BIE) was published on .

See BIE at: <https://www.miamibeachfl.gov/city-hall/city-clerk/meeting-notices/>

FINANCIAL INFORMATION

Not Applicable

CONCLUSION

The Administration recommends that the LUSC endorse the proposed amendment to the LDRs and recommend that the City Commission refer a draft ordinance to the Planning Board.

Applicable Area

Citywide

Is this a "Residents Right to Know" item, pursuant to City Code Section 2-17?

Yes

Is this item related to a G.O. Bond Project?

No

Was this Agenda Item initially requested by a lobbyist which, as defined in Code Sec. 2-481, includes a principal engaged in lobbying? No

If so, specify the name of lobbyist(s) and principal(s):

Department

Planning

Sponsor(s)

Commissioner Kristen Rosen Gonzalez

Co-sponsor(s)

Condensed Title

Discuss Amending The Land Development Regulations For Single Family Zoning Districts To Expand Existing Allowances For Artificial Turf In Rear And Side Yards.