

STAFF RESPONSE TO APPLICANT LETTER DATED AUGUST 19, 2011

The page of the applicant's letter is noted with excerpts from the letter listed below in **blue print** followed by staff discussion.

Page 1

**"The City had routinely approved the use of synthetic turf in all of our playing fields at both high schools and at the Oread Hotel"**

Page 2

**"The reluctance to approve artificial turf at the Frontier Apartments appears to be a changing condition that requires clarification."**

Synthetic turf is viewed as a 'surfacing' material, not a landscape material. It has been approved for the surfacing of athletic field---not the landscaping of these fields.

Artificial turf was also installed at the Oread out of compliance with the approved site plan and the Planning Director approved the use through alternative compliance, given the specific site characteristics. The Code specifically states that each site is to be considered individually and that alternative compliance does *not set a precedent*. There has been no change in the Code or staff's position on the use of artificial turf.

Page 3

**"Its (artificial turf) use meets the policies of Horizon 2020 that encourage landscaping with reduced long-term maintenance costs, conservation of water, reduction of pesticides and fertilizers and reduction of emissions."**

Artificial turf does have the benefits noted: reduced water and chemical use and reduced need to mow. The use of all pervious surfacing materials...such as artificial turf, gravel, or pervious concrete... do not require any inputs as they are not living systems. They also require less maintenance than a living system. However, none of these surfacing methods provide the environmental benefits associated with living plants: they do not filter stormwater, reduce the heat island effect, contribute oxygen to the environment, provide habitat, etc.

Page 3

**"The use of artificial turf protects the environment by conserving water, reducing pesticides, fertilizers and emissions. Artificial turf increases the economic health of our community by requiring lower long-term maintenance costs."**

As noted in the staff report and follow-up memo, low maintenance landscaping has all the benefits noted for artificial turf, with the addition of the environmental benefits that is provided by living plants.

Page 4

**"Whether the landscape material is living or non-living, it should be of high quality and should decrease long-term maintenance costs."**

Staff does not disagree that high quality materials should be used.

#### Page 4

**“Decreasing the cost of long-term maintenance of turf areas with the use of artificial turf improves the economic vitality of the community as well as improving the environment.”**

Staff is not qualified to state that reduced maintenance costs associated with turf will improve the economic vitality of the community; however, reduced costs are a worthwhile goal and should certainly increase the economic vitality of an individual project. However, low-maintenance landscaping would also decrease the maintenance cost and would have a more positive effect on the environment than the use of artificial turf.

Reducing chemical usage and emissions is a goal of the environment chapter which the applicant indicates that is achieved with the use of artificial turf. The negative impacts of artificial turf: the raw materials and energy used in its processing, its contribution to the heat island effect, and the fact that it neither takes up carbon dioxide or produces oxygen make it a less viable alternative than low maintenance landscaping. Low maintenance landscaping provides all the environmental benefits of artificial turf, and more.

#### Page 7

**“Artificial turf may use recycled materials such as crumb rubber”.**

Concerns have been raised about the use of crumb rubber infill in synthetic turf. It is our understanding that the applicant does not intend to use crumb rubber infill.

**“Artificial turf does not generate yard waste that may be dumped in a land fill.”**

The City has a compost program for yard waste. Yard waste is picked up and made into mulch or compost which is provided to citizens for free or very low prices. The mulch reduces evaporation from the soil and reduces the water needs of a planting area. The compost adds organic matter and nutrients to the soil. This is a truly sustainable practice.

#### Page 8

**“Artificial turf generates no yard waste to be collected and taken away, thereby also reducing emissions from trash trucks. ”**

For this benefit to be realized, the City would need to require ALL landscaping in an area to be completely artificial. Tree limbs, shrubbery cuttings and leaves make up a large part of the yard-waste pickup. An environmentally conscious means of managing grass clippings is to mulch the clippings as you mow. Grass clippings should very seldom need to be included in the yard waste.

#### Page 8

**“Green infrastructures are those that preserve the high quality agricultural soils, critical habitats for endangered species, wildlife habitats, native prairies, rural woodlands and urban forests. It is not consistent with urban development. It does not encourage development of any kind. The use of artificial turf is only appropriate on land that has or is developing to urban densities. Green infrastructures or open space networks may be appropriate for undeveloped land.”**

Green infrastructure is the use of natural systems to provide infrastructure functions. Some examples are detention ponds which detain water in the urban area before releasing it slowly into area streams; thereby reducing the amount of stormwater piping and underground facilities needed. Other examples are the use of trees to provide shade. The shade results in cooler

temperatures, reducing the need for air conditioning. Grass is an important component of the green infrastructure system in that it filters pollution when water percolates through; thereby maintaining the quality of our groundwater. It also aids in reducing energy needs by cooling the air through evapotranspiration. Turfgrass Producers, International (TPI) claims that a 2.500 ft A2 (230 m A2) lawn releases “enough oxygen for a family of four to breath.” (Facilities Management Benchmarking Feature: Natural Landscaping and Artificial Turf: (page 4, staff report attachment f))

Green infrastructure is a very important part of the urban system and living plants are a crucial part of green infrastructure.

Page 9

The applicant pointed out that staff did not agree that the use of artificial turf meets the requirement of using high quality materials.

Artificial turf, in and of itself, is not ‘high quality’. If artificial turf is approved, it would be necessary to develop standards so that the turf that is used is a high quality material in order to comply with this recommendation of the comprehensive plan.

Page 9

“However the Memo does not provide a single reference to [Horizon 2020](#) that discourages artificial turf.”

The memo was prepared in response to the Planning Commission’s request for clarification of items in the staff report. The original staff report discussed the text amendment’s compliance with the comprehensive plan, but no further clarification was requested so this was not repeated in the memo. Per Page 3 of the staff report:

**The comprehensive plan does not recommend the use or synthetic landscaping materials, but in several places emphasizes the importance of natural features and natural vegetation.**

- **“The Plan proposes the development of neighborhoods in a range of densities to provide a sense of community and to complement and preserve natural features in the area.” (Page 3-1, Background Studies)**
- **“Natural environmental features within residential areas should be preserved and protected. Natural vegetation and large mature trees in residential areas add greatly to the appearance of the community as a whole and should be maintained. Changes to the natural topography should be minimal.” (Policy 5.1, page 5-19 Residential)**
- **“Promote the integration of mature trees, natural vegetation, natural and environmentally sensitive areas whenever possible to buffer low-density developments from more intensive land uses. (Policy 6.1(c)(2)(a), page 5-21, Residential)**
- **“Site design and building features shall be reflective of the quality and character of the overall community and incorporate elements familiar to the local landscape.” (Page 6-2, Commercial)**

- “Encourage the use of existing vegetation, such as stands of mature trees, and other natural site features into the landscape design as natural buffers or focal points.” (Policy 3.1(d)(4)(c). Page 7-16 Industrial and Employment)

Horizon 2020 does not specifically address synthetic landscaping materials, but does in several instances recommend the use of natural landscaping materials. The plan states in the residential chapter that natural vegetation ‘adds greatly to the appearance of the community as a whole’. When discussing commercial development it recommends that site design should be reflective of the quality and character of the overall community and should incorporate elements familiar to the local landscape. The type of landscaping material used has an impact on the character of the area.

Page 12

The applicant discusses the Development Code requirement in Section 20-1001(a)(2) which states that the regulations of this article are intended to “enhance environmental conditions by providing...air purification, oxygen regeneration, groundwater recharge, filtering of stormwater runoff...”

Artificial turf provides groundwater recharge but does not meet any of the other intents noted in the Code for landscaping. It does not purify the air, regenerate oxygen or filter stormwater runoff as living landscapes do. Its benefits are more similar to permeable pavement surfacing than to a landscape material.

The applicant also mentions that artificial turf has been approved as a surfacing material for the high school playing fields.

The playing fields were surfaced with artificial turf, not landscaped. Artificial turf as a surfacing for play fields may be appropriate; but, this does not provide a basis for its use throughout the community as a landscape material and was not used at the high schools as a landscape material.

The applicant also mentions that the staff report raised concerns about infection, latex allergy and chemical exposure.

The portion of the staff report referenced by the applicant follows:

## **Health and Environmental**

The State of New York Health Department prepared a fact sheet on crumb-rubber infilled synthetic turf athletic fields in 2008. The items reviewed were: heat stress, injury, infection, latex allergy, chemical exposure.

**HEAT STRESS:** The fact sheet states that the average surface temperature on a synthetic turf field at Brigham Young University in June 2002 was reported to be 117°F while the average surface temperature on natural turf and asphalt were 78°F and 110°F respectively. The maximum temperature reported on the turf field was 200°F. Measurements taken at the University of Missouri field had a 138°F air temperature at ‘head-level’ height on a 98° F day. The surface temperature of the field was reported to be 178°F. A study at BYU found that watering synthetic turf

reduced the surface temperature from 174°F to 85°F but the temperature rose to 120°F in five minutes and 164°F in twenty minutes.

**INFECTION:** The review concluded that synthetic turf surfaces are no more likely to harbor infectious agents than other surfaces.

**LATEX ALLERGY:** Tire rubber is used in many synthetic turf products as the infill material. Some people are allergic to 'latex allergens' which are substances within the latex in rubber tires. Tests did not find any relation between the crumb rubber used in synthetic turf and latex allergies.

**CHEMICAL EXPOSURE:** Studies have been conducted on the various chemicals used in synthetic turf and no negative results were obtained with the exception of 'lead'. Some types of synthetic turf fibers contain elevated levels of lead. Degradation of these fibers can form a dust that presents a potential source of lead exposure. The Centers for Disease Control and Prevention addressed the potential for lead exposure in a June 2008 Health Advisory, attached.

The staff report attempted to look at all aspects of synthetic turf and, as can be seen from the excerpt above, noted that synthetic turf was no more likely to harbor infectious agents than other surfaces and that tests did not find any relation between the crumb rubber used in synthetic turf and latex allergies. The chemicals used in turf were found to not be harmful with the possible exception of lead.

Page 13

**The applicant mentioned materials that were provided staff at our July meeting.**

The materials are included in the communication packet as attachments to the July 21 memo. Staff prepared a review of the materials provided and that is included at the end of this memo. Of particular note is the study by Milone & MacBroom. They agreed with the findings from the other studies, that the surface temperature gets much hotter than grass or pavement, but disagreed with the findings that the temperature was higher at head level. Our principal objections to the elevated temperatures of synthetic turf are 1) dangerous for children to walk on barefoot and 2) addition to the heat island effect. The heat may or may not dissipate before it reaches 4 or 5 ft from the surface, but the overall impact on the heat island effect remains the same.