

# Memorandum

## City of Lawrence

### Planning & Development Services

**TO:** Planning Commission

**FROM:** Mary Miller, Planning Staff

**CC:** Scott McCullough, Planning and Development Services Director  
Sheila Stogsdill, Assistant Planning Director

**Date:** For August 24, 2011 meeting

**RE:** Agenda Item No. 6: TA-4-6-11, a text amendment to the City of Lawrence Development Code; synthetic turf as landscaping material

**Attachments:** A-G attached with original Staff Report

- 1— Photos of natural and artificial landscaping
- 2— Information from other communities
- 3— Association of Synthetic Grass Installers
- 4— Why Native Plants
- 5— Synthetic Surface Heat Studies

The Planning Commission considered the text amendment referenced above at their June 22 meeting and voted 7 to 1 to defer the item to the July meeting and directed Staff to provide additional information on the topics noted below.

1. Information on the Alternative Compliance provision in the Development Code
2. More information regarding other communities regulations pertaining to synthetic turf
3. Explanation of how the text amendment relates to the Environment Chapter
4. Discuss the table comparing synthetic turf, traditional lawn and low maintenance landscaping. (Cite sources. Also provide photos of other projects. )
5. Provision of 3 code options:
  - a. Specifically prohibiting the use of synthetic turf as landscaping material even as Alternative Compliance
  - b. Permitting use of synthetic turf as a landscape material in a limited fashion through Alternative Compliance, and
  - c. Permitting use of synthetic turf as a landscape material and establishing standards for its use.



In this instance, screening is provided in the 15' parking lot setback and through the provision of street trees. The presence of utilities along Fairfield Street conflicts with the use of dense plantings. Alternative compliance is being used in lieu of a full scale buffer yard along the west property line.

The Code requirement for buffering between commercial and industrially zoned properties is intended to buffer commercial and industrial uses. However, in this case, the adjacent uses in the IL and CC zoning districts were both commercial. A site constraint was present in the form of utilities along Fairfield Street which conflicted with the bufferyard plantings. Alternative Compliance was granted for this property based on the site constraint of underground utilities in the bufferyard area and the fact that additional landscaping between two commercial uses would not serve the purpose of buffering, i.e. "to mitigate the impacts associated with incompatible land uses on adjacent properties. The standards require landscape bufferyards between such uses to minimize the harmful impacts of noise, dust/debris, glare and other objectionable activities." [Section 20-1005(a)].

The example below is Alternative Compliance which was approved from the interior parking lot landscaping area requirement in Section 20-1003(c) for the redevelopment of the Dillons at 1740 Massachusetts Street:

Interior Parking Lot Landscaping		
<b>Code Requirement:</b>	<b>Provided on plan:</b>	
<b>Area:</b> 40 sq ft / parking space 129 spaces x 40 = <u>5160 sq ft</u>	Area: <u>2241 sq ft</u>	
	<b>Deficit: 2919 sq ft</b>	
<b>Plantings:</b> 1 tree and 3 shrubs per 10 spaces 129 spaces = 13 trees and 39 shrubs	Trees: 13	Shrubs: 0
	<b>No Deficit</b>	<b>Deficit: 39 shrubs</b>
<b>Discussion:</b> The irregular configuration of the property and small area creates a space constraint for redevelopment. The applicant requested a variance from the Board of Zoning Appeals from the amount of parking required to permit 129 parking spaces which they've indicated should be adequate for their business. Requiring additional interior parking lot landscaping area would reduce the area available for parking or for the store itself. The amount of landscaping being provided is much greater than that which is currently provided on site: 1,895 sq ft of pervious surface is currently provided; 9,985 sq ft, is proposed. With the overall increase in landscaping with this redevelopment, alternative compliance from the interior parking lot landscaping area requirement is appropriate. The City Horticulture Manager indicated that space is available on the interior parking lot landscaping islands to provide 3 shrubs per tree.		
<b>Planning Director Determination on Alternative Compliance for Interior Parking Landscaping:</b>		
<b>The Planning Director approves Alternative Compliance to permit 2,241 sq ft of interior parking lot landscaping area. The number of required trees and shrubs shall meet the code requirement of 13 trees and 39 shrubs.</b>		

These examples illustrate that it must first be shown that Alternative Compliance is necessary based on the applicability requirements in Section 20-1007. It then must be determined that the alternate landscaping being proposed 'meets or exceeds' that which is required by Code. In the case above, alternative compliance was approved from the area requirement, but as it was determined that adequate space was available for all the landscaping materials, Alternative Compliance was not approved for a reduction in the number of shrubs provided.

#### SYNTHETIC TURF AND ALTERNATIVE COMPLIANCE

The reduced maintenance and reduced amounts of fertilizer, pesticide and water necessary for landscapes utilizing synthetic turf are not factors to consider with an Alternative Compliance request. The request must meet one of the following applicability requirements in Section 20-1007:

- Topography, soil, vegetation, space constraints or other site conditions are such that full compliance is impossible or impractical, or improved environmental quality would result from the alternative compliance, or
- Safety considerations make alternative compliance necessary.

The staff report discussed the sustainability of synthetic turf in relation to low maintenance landscaping or traditional lawns. Sections 3 and 4 of this memo provide additional information on the sustainability discussion and an analysis of the compliance of synthetic turf with the Environment Chapter. The conclusion of this discussion and analysis is that the use of synthetic turf does not result in improved environmental quality.

Other site conditions include topography or space constraints. Synthetic turf requires a fairly level grade, so the only site condition that could apply would be space constraints: that is, if a landscaped area is so narrow that it is not possible to maintain regular turf or low maintenance landscaping effectively. The pictures in Attachment 1 show landscaping at various apartment developments throughout Lawrence. These examples show that it is possible to maintain attractive live landscaping in a limited space. Pictures of the synthetic turf which was installed at the Frontier Apartments show that the areas landscaped with synthetic turf are larger than those which are effectively landscaped with live plant materials at other developments. Given the fact that space constraints can be resolved with low maintenance or traditional landscaping (see attached photos), synthetic turf would not meet the requirements for Alternative Compliance as we have grown to understand the code through this text amendment process.

In addition, it is evident that permitting Synthetic Turf with Alternative Compliance creates confusion. Synthetic Turf was permitted with Alternative Compliance at the Oread Inn, also shown in Attachment 1, based on the unique circumstances of this development and with notice to the owner that such material is not typical. The same developer then applied synthetic turf at the Frontier Apartments without approval through Alternative Compliance, stating that he mistakenly assumed it was an approved landscape material. While Staff believes the code is clear in its allowance of only living plant materials, the Oread Hotel approval has clearly produced confusion on its use.

## SUMMARY

As the use of synthetic turf would meet the applicability requirement for Alternative Compliance in only *very* limited situations, and the fact that permitting it with Alternative Compliance results in unclear regulations, staff recommends that the use of Artificial Plants, whether synthetic turf, flowers, shrubs, or trees not be permitted as a landscaping material with Alternative Compliance.

## 2. Other Communities Regulations Pertaining to Synthetic Turf

Several communities permit the use of synthetic turf as landscaping material. Some of these are listed in Attachment 2. The decision to permit synthetic turf was generally based on the need to conserve water. These communities are predominately located in areas with very low annual precipitation and they have adopted water conservation policies. The communities which permit synthetic turf have 15 inches of rainfall or less. (Lawrence's annual rainfall is 39.8 inches).

Some states which are experiencing severe water shortages, such as California and Arizona, have adopted strong water conservation measures which require their communities to reduce water usage per capita. From the State of California, Division 6 of the Water Code:

"b) Growing population, climate change, and the need to protect and grow California's economy while protecting and restoring our fish and wildlife habitats make it essential that the state manage its water resources as efficiently as possible."

"g) The Governor has called for a 20 percent per capita reduction in urban water use statewide by 2020."

California adopted a Model Water Efficient Landscape Ordinance, which many California communities have also adopted. The ordinance recommends the use of native plants.

The Arizona Division of Water Resources has also established a set of conservation regulations. Plant lists have been developed to encourage the use of low-water usage plants. In 2008, Tucson became the first municipality in the county to require developers of commercial properties to harvest rainwater for landscaping. The city requires that new developments must meet 50% of their landscaping requirements by capturing rainwater. While many communities permit the use of synthetic turf, others do not.

The Kansas Water Plan notes that most communities in Kansas have adequate water at this time, but water conservation is important to insure water supplies in the future. (page 1, Kansas Water Plan, Water Conservation Policy and Institutional Framework, January 2009) On page 5, the plan suggests that water needs could be reduced through the installation of low flow plumbing, low water need landscaping and reduction of runoff from watering and car washing and on page 9, the plan recommends water 'reuse' as a potentially significant conservation action.

[http://www.kwo.org/Kansas\\_Water\\_Plan/KWP\\_Docs/VolumeII/Rpt\\_KWP\\_2009\\_Water\\_Conservation.pdf](http://www.kwo.org/Kansas_Water_Plan/KWP_Docs/VolumeII/Rpt_KWP_2009_Water_Conservation.pdf) )

Many communities, primarily those in states with mandated water conservation measures and set attainment measures, permit the use of artificial turf as a landscaping material. The

Kansas Water Plan does not include a reduction of landscaped areas in the recommended conservation measures but does suggest the reuse of water.

Some of the communities reviewed permit synthetic turf but specifically omit it from the water conservation rebate. Glendale, Arizona removed synthetic turf from the rebate program following the Center for Disease Control and Prevention's warning. Santa Cruz, California specifically omitted synthetic turf with the following reasoning:

*"The City of Santa Cruz' Lawn Removal Rebate Program was developed to help reduce peak water demand, improve water use efficiency, assist customers in controlling their utility costs, and encourage environmentally friendly landscape practices. The use of artificial turf is not consistent with a holistic landscaping approach and is therefore not rebated through the City's Lawn Removal Rebate program for the following reasons:*

- 1. Artificial turf does not foster soil health. Healthy living soil will:*
  - Increase microbial activity which helps cycle nutrients and filter pollutants*
  - Increase water holding capacity*
  - Improve water quality*
- 2. Artificial turf is not easily recycled.*
  - Cost and lack of infrastructure are an issue to end-of-life recycling for artificial turf*
  - It ends up in the landfill*
- 3. The production, processing, and transportation of synthetic turf components are associated with significant greenhouse gas emissions."*

*(<http://www.cityofsantacruz.com/Modules/ShowDocument.aspx?documentid=20963>)*

Cerritos, California, adopted a prohibition on the use of synthetic turf as a landscape material and provided the following explanation:

*"The City of Cerritos takes great pride in the park-like appearance of the City. In order to maintain this lush environment, it has been a long-standing City policy to prohibit the use of artificial plant material and/or turf in landscape applications. Chapter 20.30.470 of the Cerritos Municipal Code specifically prohibits the use of artificial landscape materials including, but not limited to, silk plants, synthetic turf, and plastic shrubs and trees.*

*City staff researched the use of synthetic turf material in residential applications and found that the use of artificial turf creates an area of diminished biological activity which inhibits the flow of oxygen and nutrients to the soil. Organic landscapes comprised of trees, shrubs and turf produce oxygen and store carbon, and provide benefits such as shade, lower temperatures and pollution mitigation. The use of artificial turf has the potential to diminish the health of trees and plants located in the surrounding landscape and environment.*

*The City has determined that the use of artificial turf in residential applications is not an adequate substitute for organic plant material, and that it does not meet the City's development standards as established within the Cerritos Municipal Code for residential applications. California native and/or drought tolerant ground covers and shrubs are more beneficial substitutes for turf if property owners are looking for ways to lower water use and/or landscaping maintenance".*

The communities who permit synthetic turf range from permitting it only with Alternative Compliance or as a Special Exception, to permitting it in all zoning districts. The communities have all adopted standards related to synthetic turf. A summary of the standards is included in Attachment D. This summary illustrates the type of standards that would be necessary if synthetic turf is permitted as a landscaping material.

## **SUMMARY**

The communities that permit synthetic turf seem to be attempting to meet an objective of conserving water in locations where water is sparse. The Midwest is fortunate to not have this issue to the degree that these other locations do. Even when permitted, synthetic turf appears to be the exception and not the rule.

### **3. Text Amendment's relation to Environment Chapter**

Sustainability is one of the overall *Horizon 2020* Planning Goals and it is also a key goal in the Environment Chapter. "We will strive to ensure the sustainability of our physical environment, both natural and built, the health of our economy and the efficient and effective functioning of our community." (Page 16-1)

The "Summary of Issues for the Human and Built Environment" portion of the chapter states that creating a sustainable community can include minimizing negative impacts from development on the environment and promoting sustainable building and land use practices. (page 16-23)

The applicant indicated that synthetic turf is a sustainable alternative to turf grass for the following reasons:

- 1) Less watering needed: water conserving.
- 2) No fertilizer or pesticide required: reduced pollutants.
- 3) No need to mow: reduced emissions.

#### 1) WATER CONSERVATION

Water conservation is addressed in Policy 6.6 with the following recommendations:

- Encourage the use of drought-tolerant native species,
- Encourage the use of alternative irrigation methods,
- Provide education on measures such as mulch and drip irrigation which would reduce water consumption for landscaping,
- Provide incentives for building and facility design which minimizes water usage such as water efficient plumbing fixtures, and reuse of gray water for irrigation. (page 16-25)

The chapter encourages water conservation. Reduced water usage is in compliance with the recommendation of the Environment Chapter; however, the chapter does not encourage or recommend the reduction of vegetation as a means to conserve water.

#### 2) EMISSIONS

Policy 3.3: "Encourage education and outreach programs which explain the need for improvement and provide information on steps individuals, businesses, institutions, the City and the County can take to reduce their contribution to emissions in Douglas County."

The chapter encourages reduced emissions and focuses on reduced vehicle miles, mixed use development, and other changes to the built environment to reduce emissions. Reduced emissions is in compliance with the recommendation of the Environment Chapter; however, the chapter does not encourage or recommend the reduction of vegetation as a means to reduce emissions.

### 3) POLLUTANTS

Policy 1.2(d) "Encourage continued alignment with the Kansas Water Plan which lists the following measures:

- d.1 Use native plants in yards and gardens; they need fewer chemicals and water.
- d.2 Use fewer chemicals on lawn, gardens, fields and forests to protect water quality.
- d.3 Separate livestock operations from streams with a vegetated filter and adequate distance." (page 16-5)

Policy 1.5 "Develop programs and regulations, such as pesticide-free park programs and further stormwater regulations, to minimize pollutants leaching into underlying groundwater systems to help ensure the quality of our groundwater resources." (page 16-6)

Policy 1.7 "Encourage minimal and appropriate use of fertilizers, pesticides and other chemicals to reduce stormwater pollutants." (page 16-7)

The chapter encourages reduction of pollutants into the sub-surface water resources and recommends regulations to minimize pollutants into the groundwater. The reduced use of fertilizer and pesticide is in keeping with the recommendations of the Environment Chapter; however, the chapter does not encourage the reduction of vegetation as a means to reduce fertilizer and pesticide usage.

### **GREEN INFRASTRUCTURE**

A principal concept of the Environment Chapter is the utilization of Green Infrastructure. The chapter encourages the use of natural systems to serve as green infrastructure. "Green infrastructure strategies actively seek to understand, leverage, and value the different ecological, social, and economic functions provided by natural systems in order to guide more efficient and sustainable land use and development patterns as well as protect ecosystems." (Page 16-2)

The chapter strongly recommends the use of 'green infrastructure': "A strategically planned and managed network of natural lands, working landscapes and other open spaces that conserve ecosystem values and functions and provide associated benefits to human populations." (Glossary, page16-27) Turf grass, ground cover, and other natural plants work as 'green infrastructure' to maintain air quality, reduce stormwater flow, filter pollutants, and reduce heat. The proposal to use artificial landscaping is not in compliance with the recommendation of the Environment Chapter to utilize natural systems as green infrastructure.

### **SUMMARY**

The applicant's statement that synthetic turf is sustainable due to the fact that it requires little water, no mowing, and no fertilizer or pesticides ignores the fact that synthetic turf provides no benefits to the environment: it does not serve as a component of the green



infrastructure system, provides no habitat, neither takes in carbon dioxide or releases oxygen, and degrades the quality of the underlying soil. Reduced water usage, less frequent mowing, and reduced or eliminated use of pesticides and fertilizers are all in line with the Environment Chapter; however, reaching this objective through the use of native species and appropriate green infrastructure are preferred when compared with artificial materials. While synthetic turf does not require mowing, watering, fertilizer or pesticide, it contributes nothing to the environment and does not function as living components of green infrastructure. The use of synthetic turf as a landscaping material is not in compliance with the recommendations in the Environment Chapter.

**4. Discussion of Comparison Chart**

	Synthetic Turf	Low Maintenance	Traditional Lawn
<b>Low water usage</b>	✓	✓	

- Synthetic turf requires watering for cooling in hot temperatures and for cleaning. (Att F, Natural Landscaping and Artificial Turf, Page 4; Att 3, Association of Synthetic Grass Installers, Page 4)
- Low maintenance landscaping uses hardy native or adapted plants that are drought tolerant and well adapted to the climate and other characteristics of the area. Watering is not necessary. (Att G, K-State Report, Page 2) (Att B, LEED, page 30)
- Traditional lawn turf typically requires watering, although more drought tolerant varieties are available. (Att F, Page 1) (Att G, Page 1)

	Synthetic Turf	Low Maintenance	Traditional Lawn
<b>No Pesticide usage</b>	✓	✓ *	

- Synthetic turf is a non-living material and does not require pesticide. (Att. F, Page 4)
- \*Low maintenance landscaping may require pesticides prior to establishment to remove weeds from planting area but they should not be required once the plantings are established. (Att F, Page 2) Native plants have developed their own defenses against many pests and diseases. (Att 4, Why Native Plants, page 1) (Att B, LEED, page 30)
- Traditional lawns typically require yearly applications of pesticides to prevent weeds.

	Synthetic Turf	Low Maintenance	Traditional Lawn
<b>No Fertilizer</b>	✓	✓ *	

- Synthetic turf is a non-living material which does not take nutrients from the soil; therefore, fertilizer is not needed. (Att. F, Page 4)
- \*Low maintenance landscaping known as 'native landscaping' does not require fertilizer. (Att F, Page 2); native grasses should be fertilized sparingly or not at all. (Att G, Page 4) Att B, LEED, page 30)
- Fertilizers are routinely applied to traditional lawns. (Att F, Page 1)

	Synthetic Turf	Low Maintenance	Traditional Lawn
<b>No mowing</b>	✓	✓ *	

- Synthetic turf is a non-living material; as it does not grow, mowing is not required.
- \*Low maintenance landscaping utilizes ground covers and other hardy adapted plants. Mowing may be required if turf grasses are included in the low maintenance landscaping. The amount of mowing is less with a low-maintenance landscape than with a traditional lawn.(Att B, page 30)
- Traditional lawns require regular mowing; however, new turf grasses are being created which may reduce the need to mow traditional lawns.

	Synthetic Turf	Low Maintenance	Traditional Lawn
<b>Pervious</b>	✓	✓	✓

- The synthetic turf industry states that synthetic turf is pervious; however, each brand has a different degree. Proper base preparation and installation along with the correct product selection is important to insure permeability. (Att 3)
- Low maintenance and natural lawns are pervious.

	Synthetic Turf	Low Maintenance	Traditional Lawn
<b>Filters pollutants</b>		✓	✓

- Live plants in low maintenance or traditional lawns acts as a natural filter, reducing pollution by purifying the water passing through its root zone. (Att 4)
- Synthetic turf does not have a root zone so pollutants are not filtered.

	Synthetic Turf	Low Maintenance	Traditional Lawn
<b>Provides Habitat</b>		✓	✓

- Soil organisms are unable to live in the soil under synthetic grass. The soil under synthetic turf often becomes degraded due to lack of oxygen and soil organisms. (Att F, page 4)

	Synthetic Turf	Low Maintenance	Traditional Lawn
<b>Provides Oxygen</b>		✓	✓
<b>Absorbs Carbon Dioxide</b>		✓	✓

- Plants take up carbon dioxide and produce oxygen through photosynthesis. (Att F, Page 4)

	Synthetic Turf	Low Maintenance	Traditional Lawn
<b>Reduces Heat Island</b>		✓	✓
<b>Adds to Heat Island</b>	✓		

- Natural grass has the ability to cool the surrounding area through evapotranspiration. (Att F, Page 4)

- Artificial turf is often much hotter than grass, which adds to the heat island effect. (Synthetic Surface Heat Studies, Att 5,)

## 5. Provision of 3 Alternative Code Options

The Planning Commission requested three code options as described and discussed below to clarify whether synthetic turf is permitted in the Development Code. While the code is explicit in its prohibition on the use of artificial plants, staff's approval of its use at the Oread Hotel has created confusion and the need to add clarity in the code.

### A. COMPLETE PROHIBITION (new language in **bold** print)

#### Section 20-1007 ALTERNATIVE COMPLIANCE

##### (b) Approval Criteria

To be approved, an alternative compliance landscape plan shall be equal to or exceed traditional compliance in terms of quality of materials and visual effect, effectiveness in meeting the purpose established in Section 20-1001, and material durability and hardness. **Only living plant materials may be approved for landscaping with Alternative Compliance. The use of artificial plants such as turf, flowers, shrubs or trees, shall not be permitted.**

#### Section 20-1009 LANDSCAPE MATERIAL STANDARDS

##### (b) Artificial Plants

No artificial plants shall be used to meet any standards of this section. **Artificial plants include, but are not limited to, artificial (synthetic) turf, flowers, shrubs and trees.**

### B. LIMITED USE OF SYNTHETIC TURF WITH ALTERNATIVE COMPLIANCE

#### Section 20-1007 ALTERNATIVE COMPLIANCE

##### (b) Approval Criteria

To be approved, an alternative compliance landscape plan shall be equal to or exceed traditional compliance in terms of quality of materials and visual effect, effectiveness in meeting the purpose established in Section 20-1001, and material durability and hardness. **Only living plant materials may be approved for landscaping with Alternative Compliance except that artificial (synthetic) turf may be used in limited circumstances as noted below and with the following standards:**

- 1. Synthetic turf may only be used as a border to define a landscaped area of living material and only when said border does not exceed 18 inches in width.**
- 2. Synthetic turf may not be installed within the City Right-of-Way.**
- 3. Specifications:**  
Standards regarding the colors, weight, style, permeability, material and infill, backing, warranty, etc
- 4. Replacement:**  
When synthetic turf is faded or damaged so that it no longer resembles a healthy thriving lawn, as determined by the Planning Director, the turf must be replaced within 60 days of the determination. Replacement turf materials and installation must be reviewed and approved by Planning Director.

**5. Items required for submittal.**

**Artificial turf must be shown on the landscape plan. Note the materials which must be submitted with the landscape plan.**

**C. SYNTHETIC TURF AS AN APPROVED LANDSCAPE MATERIAL**

**20-1009 LANDSCAPE MATERIAL STANDARDS**

**(b) Artificial Plants**

**No artificial plants or vegetation may be used to meet any standards of this section, with the exception of synthetic turf. The following standards apply to the use of synthetic turf as a landscape material:**

**1. Locational criteria:**

**The zoning districts it would be permitted in.**

**Any restrictions on the areas in which it would be permitted.**

**2. Specifications:**

**Standards regarding the colors, weight, style, permeability, material and infill, backing, warranty, etc.**

**3. Installation:**

**Required method of installation and authorized installers.**

**4. Maintenance:**

**Standards to insure the turf is cleaned of debris and maintained in a clean and attractive condition. Damage to the turf must be repaired within a certain amount of time or the turf must be replaced. Replacement turf materials and installation must be reviewed and approved by Planning Director.**

**5. Replacement:**

**When synthetic turf is faded or damaged so that it no longer resembles a healthy thriving lawn, as determined by the Planning Director, the turf must be replaced within 60 days of the determination. Replacement turf materials and installation must be reviewed and approved by Planning Director.**

**6. Approval process:**

**Permit required for artificial turf in single family residential areas.**

**Artificial turf must be shown on the landscape plan. Note the materials which must be submitted with the landscape plan.**

**SUMMARY**

Of the options, staff recommends Option A to clarify that the use of synthetic turf and other types of artificial plants are not allowed as landscape material.

Permitting the use of turf presents the following practical concerns:

1. Utility locates – appearance of the turf as companies mark their lines. Markings will remain for long periods of time.
2. Utility maintenance – Utility staff has little knowledge of, nor will necessarily take responsibility for, repairing turf if it is damaged when a line is repaired.
3. Produce expertise – how will staff determine at time of site plan approval that a product is of high enough quality and safe to meet the high standards of the community?

4. Concern for enforcing the future maintenance of the product when it fades, tears, burns, etc. Grass and other live materials are quick and inexpensive to establish.

In staff's opinion, this request to amend the code is not grounded in solving any identified public issue or concern. If environmental concerns are the applicant's justification for its use, then there are clearly more appropriate alternatives that address the environmental concerns and also maintain the health and permeability of the soil, aesthetics of the development, without creating practical issues for its maintenance for the city or owner.