STAFF REPORT

Meeting Date: November 4, 2014

To: Honorable Mayor & City Council

From: Trish Rhay, Assistant Director of Public Works Services
Michelle Tse, Senior Management Analyst

Subject: Review of Synthetic Turf in Residential Front Yards to Achieve Water Conservation

Attachments:
1. May 4, 2010 Staff Report – Use of Synthetic Turf in Residential Front Yards to Achieve Water Conservation Goals

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INTRODUCTION

The City Council directed staff to provide information about synthetic turf given recent inquiries on this approach to reduce outdoor water use. This report highlights how cities are regulating synthetic turf use as it relates to water conservation. Staff is seeking guidance on synthetic turf and how to balance water conservation efforts with the garden quality of the community as outlined in the City's General Plan.

DISCUSSION

Given the severe drought conditions, the State enacted emergency regulations to reduce outdoor water use and to promote water conservation. Part of the State's directive requires water suppliers taking action within thirty (30) days from the State's declaration, effective July 28, 2014, to limit outdoor water use and implement other water conservation measures. At the September 23, 2014 formal meeting, the City Council adopted a Resolution declaring the City's Stage B Water conservation program imposing the State's outdoor watering restrictions and the citywide outdoor watering schedule. In addition, on October 7, 2014, the City Council adopted an ordinance approving modifications to the Stage B program which is to exempt Tier 1 single- and multi-family water customers from the penalty surcharge assessments.

Landscaping accounts for 65-70% of overall water use. Changes in landscaping can result in some of the most substantial reductions in water use. There are several options for reducing outdoor water use. Recently, there has been renewed interest in the use of synthetic turf in front yards and parkways as a way to conserve water.

Reductions in landscape water use can be done in a variety of ways. The following highlights the various options available, costs, and potential for water use reduction that may be expected.

More Efficient Irrigation Techniques
There are now more efficient irrigation techniques to better control outdoor water use. For example, weather-based irrigation controllers allow for more accurate, customized irrigation by automatically adjusting the watering schedules and the amount of water in response to changing weather conditions. Tests of such devices show water savings in the range of 10% to 60% compared to conventional controllers, which do not adjust schedules due to weather changes. Such devices range from $260-$800, depending on the functionalities and the option for on-site or off-site sensors to calculate the weather conditions.

In addition, drip irrigation systems allow for water distribution to be concentrated along target plants and eliminate excess water flow. Costs for a drip irrigation system ranges from $2.45 to $4.53 per square foot, including installation and average material costs. Such systems, however, requires periodic flushing to remove mineral buildup and periodic inspections to ensure that there are no blockages to the emitters. Excessive sun exposure may shorten the lifespan of the drip system, but can last as long as twenty years if thoroughly buried in the soil.

Drought Tolerant Landscaping
A large variety of drought resistant trees, shrubs, and perennials are both aesthetically appealing and require minimal water use. The use of drought tolerant plants make more water available for other uses and less time is needed for overall garden maintenance. However, compared to grass which is soft, dry landscapes often incorporate the use of gravel, rocks or woodchips. In addition, the use of drought tolerant plants may be considerably less useful for outdoor activities and sports.

Artificial Turf
The quality of synthetic turf varies but the design has improved during the last few years. The simplest synthetic turf design is carpet-style; the more sophisticated synthetic turf systems installed today includes a drainage layer, a multi-layered backing system, and resilient "grass" blades that may be in-filled with a granular filler to resemble natural turf. Cost of artificial turf ranges from $5-$20 per sq. ft. with installation. The infill materials may be silica sand or crumb rubber, which come from recycled car tires. There have been recent reports, however, that the rubberized materials may be toxic and may lead to negative health effects. Some cities and entities have used other infill materials besides rubber to avoid the possibility of toxicity-related issues.

By way of background, the City Council previously discussed the synthetic turf issue in 2010 when a similar Stage B water conservation program was enacted at that time. The May 2010 staff report is attached for reference. The 2010 report highlights some of the synthetic turf issues relating to toxicity, drainage/runoff, heat, maintenance and safety. There are also other benefits with synthetic turf such as durability and requiring less maintenance than grass.

Cities such as Glendale, Burbank and other cities and/or water providers are offering rebates for turf removal. Santa Monica, for example, offers rebates for turf removal but does not cover synthetic turf placement projects. Metropolitan Water District (in which the City of Beverly Hills is a member agency), is currently offering a rebate amount of $2 per square foot of turf removed. The City currently does not supplement the Metropolitan Water District's rebate program.

While cities are promoting water conservation measures, many of the cities support turf removal but limit synthetic turf to areas that are not visible from the public street such as

front yards. In lieu of synthetic turf in front yards, cities encourage the use of drought tolerant plants, and utilizing water efficient irrigation systems as ways to reduce outdoor water use. Similarly, the City of Beverly Hills limits synthetic turf to areas not visible from the public street. This is due in part to the Water Efficient Landscape Ordinance adopted by the City Council in 2009, which was in response to State legislation to conserve water resources. The ordinance essentially focuses on efficient irrigation to minimize wasteful watering. However in order to maintain the City's garden quality as highlighted in the General Plan, the Zoning Code limits the use of non-living materials, such as synthetic turf, in front yards.

Parkways, the area between the outside edge of the sidewalk and the inside edge of the curb, are a component of the public right-of-way. These areas are typically maintained by the property owner. The City of Glendale currently does not allow synthetic turf in both residential front yards and parkways but will be re-evaluating this issue at their December City Council meeting. In contrast, the City of Santa Monica has regulations in place which allows the use of synthetic turf, permeable paving, and climate-appropriate plants for parkways to promote public safety, curb appeal, and water conservation. According to the Beverly Hills Municipal Code, the abutting property owner shall plant and maintain the parkway with grass or other plant material that is maintained at no more than six inches (6") in height as approved by the city's arborist.

Some cities have incorporated synthetic turf in public space areas. For example, the City of Glendale partnered with a local elementary school to install artificial turf at the Pacific Park multi-purpose field. As of November 2013, the City of Los Angeles has installed a total of 21 synthetic turf fields for recreational use. And in 2006, the City of Beverly Hills helped fund the installation of synthetic turf at the Beverly Hills High School athletic field for joint uses by both the city and school.

The City's Parks and Recreation Commission are currently evaluating the possible use of synthetic turf in some of the City's park spaces. Additionally, the Public Works Conservation Subcommittee has discussed the synthetic turf issue. Although the Subcommittee recognizes synthetic turf as one of several available options to curtail outdoor water use, the preference is that "landscape-friendly" alternatives be used. The Planning and Design Review Commissions have not had any recent discussions on synthetic turf at this time.

If the City Council directs staff to proceed with allowing synthetic turf in front yards, the topic will be further discussed by the Planning, Design Review, and Public Works Commissions and a proposed program will be developed for City Council's consideration at a future meeting.

FISCAL IMPACT

None.

RECOMMENDATION

Staff is seeking direction regarding use of synthetic turf and in residential front yards and parkways.

George Chavez
Approved By

Attachment 1

CITY OF BEVERLY HILLS
STAFF REPORT

Meeting Date:	May 4, 2010
To:	Honorable Mayor & City Council
From:	Shana Epstein, Environmental Utilities Manager Jonathan Lait, AICP, City Planner
Subject:	Use of Synthetic Turf in Residential Front Yards to Achieve Water Conservation Goals
Attachments:	None

INTRODUCTION

In an effort to reduce water consumption, there is a growing interest in the use of synthetic turf in place of grass or other living ground cover in front yards. This is due, in part, to the City's Stage B water conservation emergency and also, in part, to the City's Water Efficient Landscape Ordinance, itself a response to State legislation to conserve water resources. However, in order to maintain the City's garden quality, the Zoning Code limits the use of nonliving material in front yards. Thus, synthetic turf is currently prohibited in the front yard setback. Staff is seeking the City Council's guidance on how to balance these two objectives.

While the recent interest in synthetic turf was fueled by the two City actions above, the California Legislature adopted SB 7 last November, which requires a longer-term 20% reduction in urban per-capita water use by 2020.

DISCUSSION

Landscaping represents 65% of the water demand in Beverly Hills. Changes in landscaping can therefore result in some of the most substantial differences in water usage by a household. Synthetic turf presents one of the

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more obvious means of reducing landscape water demands while maintaining a green aesthetic to neighborhoods. A 2004 study conducted by the City of Anaheim concluded that an average of 457 gallons of water per square foot could be saved over a typical 15-year lifespan of an artificial lawn. With its development for use on athletic fields, high-quality, properly-installed synthetic turf is durable, requires less maintenance than grass, and produces no stream of green waste. There continue to be improvements to make artificial grass more aesthetically natural.

Synthetic turf does have a number of disadvantages to natural grass, but improvements are continually being made.

Synthetic Turf Issues	
Issue	**Comments**
Toxicity: Some synthetic turf includes silicon and rubber recycled from used tires. These may contain heavy metals that can leach into ground water, where the City obtains much of its water supply. Lead content has been an issue in with some manufacturers.	The City can prohibit lead, material from recycled tires, and/or other potential contaminants.
Drainage/runoff: Generally less permeable than natural lawns, synthetic turf provides less opportunity for rainwater to recharge the local aquifer and places a corollary increase in load on the City's and County's storm drain systems.	The City can require a minimum level of permeability.
Heat: In sunlight, synthetic turf tends to be much hotter than grass and can create undesirable microclimates.	Synthetic turf is often installed where poor access to sunlight makes it difficult to grow and maintain natural grass. Heat can still be an issue where artificial lawns are more exposed to sunlight, but the heat issue is generally associated with large athletic fields with little shade. The effect can be reduced with a complement of trees and drought-tolerant plant material.
Maintenance: Although properly-installed synthetic turf requires relatively low maintenance, it eventually deteriorates from exposure to the elements and wear.	The City can include standards for replacement.
Safety: Synthetic turf is more prone to cause abrasive injuries than grass.	Given the extensive use of synthetic turf on athletic fields, improvements have been significant in this area.

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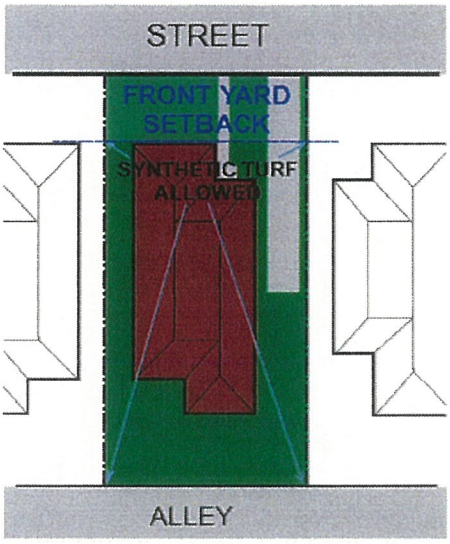
Synthetic Turf Issues	
Issue	**Comments**
Pathogens: Synthetic turf generally impedes the natural breakdown of pathogens (also impedes the natural organic processes that recycles nutrients back into soil), so periodic disinfection may be required, with corollary environmental issues.	Grass lawns are not without their respective environmental considerations. Chemical fertilizers, insecticides, and weed killers used in the maintenance of regular lawns.
Global Climate Change: The manufacture and composition of synthetic turf, together with the reduction in living plant material, could increase the community's carbon footprint.	This is offset to some degree by the elimination of the need to regularly mow the lawn. Artificial lawns can be complemented with drought-tolerant plant material.

The City's Zoning Code only prohibits synthetic turf in residential front yard setbacks. The Code limits the amount of paving allowed in front yards, requiring the remaining portion to be plant material (non-living accent materials are allowed). But these same provisions also restrict paving to a narrow palette of materials, largely those intended to bear the weight of a vehicle (excluding asphalt). Thus, as synthetic turf is neither paving nor plant material, it is generally not allowed in the front yard setback. Synthetic turf is allowed on residential property outside of the front yard setback.



CURRENTLY PERMISSIBLE AREAS FOR SYNTHETIC TURF

The purpose of the front yard paving restrictions is to maintain the garden quality of the community, one of the goals in the General Plan. They also minimize hardscape, which allows rainwater to percolate into the ground and recharge the water table. Artificial lawns of high quality may be able to aesthetically satisfy this goal, but without some of the other environmental and ecological benefits of living plant material (fragrance, microclimate, fauna, absorption of carbon dioxide). However, use of synthetic turf can help to advance one of the other General Plan goals— water conservation through reduced consumption. It should be recognized that synthetic turf is one among several options to reduce water consumption for landscaping. Drought-tolerant grasses, landscape alternatives to lawns, and highly-efficient irrigation systems can also reduce water consumption.

On May 13, 2009, City Council declared a Stage B water conservation emergency, requiring a 10 percent reduction in the use of potable water in the community. The declaration instituted a number of water-saving measures, such as restrictions on when

watering is allowed and requirements for expeditious repairs of irrigation and plumbing. In addition, water usage beyond a 90% baseline can result in penalty surcharges at double the regular water rates. While the Stage B declaration is intended as a temporary measure during droughts, the City faces long-term mandates instituted by the State: 10 percent reduction by 2015, and 20 percent reduction by 2020. Water agencies that do not comply with the requirement can lose eligibility for State water grants and loans.

On November 17, 2009, City Council adopted the Water Efficient Landscaping Ordinance. The ordinance essentially focuses on efficient irrigation to minimize wasteful watering. As it requires no irrigation, synthetic turf can reduce the landscape area subject to ordinance requirements.

Currently, the City does not offer a rebate for installing synthetic turf, but many other communities within the Metropolitan Water District's (MWD) jurisdiction do. If City Council wants to consider matching MWD's artificial turf rebate then that is an additional expense to the Water Enterprise Fund that is not included in the rate analysis currently being submitted to the City Council. With the match a customer would receive $1.20 per square foot for up to half an acre (60¢ from the City, matched with 60¢ from the MWD). However, the Metropolitan Water District is currently considering the discontinuation of the rebate program, because there is little evidence that the rebate has been a motivating factor in owners' decisions to install artificial lawns.

Should the City Council wish staff to proceed with the development of zoning text amendment, it is suggested that it be considered and discussed in the context of other priorities assigned to the Community Development Department, including:

- Update of the Housing Element
- Commercial Common Interest Development
- Trousdale/Hillside View Preservation Ordinance
- Extension of Single-Family Residential Design Review into Hillside and Trousdale Areas
- Medical Office Land Use Ordinance
- Amendments/Updates to the Zoning Code

FISCAL IMPACT

Development of zone standards would require staff time for research and work with the Planning Commission. It is estimated that fully-burdened staff costs (i.e. including overhead) would be approximately $15,400 for development of the ordinance and the public hearing process. Additionally, City Council would need to appropriate approximately $2,500 to the Planning Division to cover the costs of public notice requirements associated with the public hearings before the Planning Commission and the City Council.

If the City proceeds with an artificial turf rebate program that matches Metropolitan Water District matching funds, its impact on the Water Enterprise Fund will depend how much demand there is to install artificial turf, and whether the City caps the annual funding at a certain level. For a typical single-family residential property between Santa Monica and Sunset Boulevards, the landscaped portion of the front yard setback would be about 1,900 square feet. If the landscaped portion is entirely covered with artificial

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lawn, the rebate would be $2,280, of which $1,140 would be the City's portion of the cost. As noted above, the MWD will probably discontinue its rebate program, so any rebate program implemented by Beverly Hills is likely to be funded entirely by City funds. Most lots south of Santa Monica Boulevard have smaller front yards; lots north of Sunset Boulevard are larger, but vary widely on the depth of their front yard setbacks. At this time an artificial rebate program is not included in the revenue requirements in the water utility rate increase.

RECOMMENDATION

If the City Council is favorable toward allowing synthetic turf in the front yard setback, staff can explore how well the disadvantages of synthetic turf can be addressed through stringent requirements while ensuring that the General Plan goals of a garden quality community are advanced. Synthetic turf would be addressed through a text amendment to the Zoning Code. Staff would develop the standards with the Planning Commission and return with a zoning text amendment for consideration by the City Council.

Susan Healy Keene, AICP,
Director of Community Development
Approved By

David D. Gustavson,
Director of Public Works
Approved By