Benefits of Turf

1. Environmental
2. Sports & Recreation
3. Functions of Urban Living

Carbon Sequestration - Plants take on atmospheric carbon dioxide and use it as photosynthesis to create usable energy in the forms of sugars and carbohydrates. With increasing levels of carbon dioxide associated with the Green House effect or global warming landscapes serve as a source of carbon storage or sequestration. Most of landscape or turf volume, mass or biomass is below ground. Given the perennially nature of landscape, the storage of carbon in root mass, and organic matter development in soil, landscape is a significant carbon sink. An average size healthy lawn is a carbon sequestration system that can catch as much as 300 lbs of carbon per year. Research has also shown that carbon storage in turf is comparable to the rate of carbon storage to the land placed in the Conservation Reserve Program.

Lawns can capture up to 300lbs of carbon a year, athletic fields up to 700 lbs of carbon, and an average golf course fairway up to 1500 lbs(3/4ton). A practical example of carbon sequestration is that one soccer field can offset the carbon produced by one car driving 3,000 miles. Although positive carbon sequestration does occur in a turf system some of the benefits are reduced by maintenance practices that require such as mowing and the production of fertilizers. Never the less research has shown that practices like mowing, the returning of grass clippings, feeding and watering increases the lawn capabilities of carbon sequestration. Basically the healthier the lawn the more carbon it can store. Turf grasses also play an important role in soil stabilization, dust and erosion control by holding the soil in. The fibrous root systems in turf provide excellent netting that reduces dust and stabilizes the soil on flat and slopping surfaces. Healthy turf has the ability to absorb and conserve water, filter water and prevent run off, which is why turf is used on slopes, around parking lots and roadsides. It is an important part of storm water management. Run-off and soil erosion is considered to be one of the main causes of nutrient contamination of our water supplies. Reducing storm water run-off from impervious surfaces is a relatively new concept in landscape design with rain gardens being developed in some residential neighborhoods. Some researchers are also recommending designing turf areas to serve as catchments and filtrations zones for polluted run-off water. Turf systems are not only efficient at catching and filtering water but are also very efficient at holding on to nutrients. Nutrients such as phosphorus are fixed onto soil particles or taken up by the turf, and they do not leach out readily. The only way for phosphorus and other fertilizer nutrients to leave tuft is by one of the following means: 1. If application on a hard surface or a driveway are not swept up. 2. If the fertilizer is applied to a hard soil or bare soil, it could be washed away by rain or 3. If the grass clippings are removed or swept into the road. The bottom line is that fertilizers applied to a healthy turf are held in the soil and utilized by the plant. Turf parks also benefit wildlife. The natural states of these landscapes, coupled with trees, ponds and wetlands support a diverse population of birds, animals and plants.

As communities grow from a village to a town to a city an increase in temperature occurs. In major cities the term Urban Heat Island is used. To characterize, the temperature can be 10 degrees higher in an urban area compared to the surrounding areas. A 5,000 square foot Kentucky Blue Grass lawn can contain up to 9,000.000 individual

shoots while an average bent grass putting green can contain up to 72 million individual shoots. Each of these plant shoots contains a cooling process called transpiration. Transpiration helps reduce temperatures in the urban environment by dissipating high levels of radiation. To that end turf is considerably cooler than most other common surfaces. The effects of various surface types on surface temperature at an average air temperature of 81 degrees farenheit are by average the following, synthetic turf 117 degrees farenheit, concrete 94 degrees farenheit, asphalt 109 degrees farenheit and bare soil 98 degrees farenheit. In comparison natural turf's average is 78 degrees farenheit. Transpirational cooling is dependent on an adequate supply of water. In turf areas, water is supplied by rainfall and sometimes supplemented by irrigation depending on the length of the growing season, temperature, evapotranspiration rate, soil types, turf species and management practices. Massachusetts is a "Rich" water state and the wise use of available water is as an important natural resource.

If supplemental irrigation is needed that are standard guidelines on the usage of available water. This information can be obtained from the Irrigation Association of New England upon request. These standard guidelines include the timing, amount, and frequency based on the individual site to make sure water is used sparingly and wisely.

In addition to environmental benefits, turf is used extensively for recreational activities and sports. Lawns and other recreational areas are placed where adults, children and pets can spend time outside of the house. Turf is used for play, places to relax and for entertaining friends. This all contributes to the quality of one's life. Sports are important not just to the economy but to people's health and well being. There are 267 million people in the United States aged 7 or older (per US Census). 80 million regularly play sports on turf. In the top five sports played on turf, it is estimated that Golf Courses have the most activity over 25.62 million people play golf, baseball and soccer have around 15,000,000 each nationwide. The importance of encouraging people to play sports cannot be down played particularly when the Center for Disease Control estimates that 17% of children and adolescents are obese. Also important is that it is an environment for children and adults to spend their leisure time in a positive and safe environment.

The third and last role that turf plays in society is aesthetic value in landscape situations. Turf grasses help provide a pleasing urban requirement through noise abatement, glare reduction, fire protection and pest reduction. Studies looking at home values and landscaping have found that there is a positive relationship between a home's value and the existence of trees up to a certain threshold. A more recent study suggests that a lawn also has a positive effect on the value of a home with a lawn ¼ to 1/3 of an acre associated with the greatest effect on the selling price.

In summary, turf grasses are plants that are used extensively as a stable and perennial ground cover. Turf is a positive carbon sink and offers many benefits not just to the environment but also to urban living. 80 million people in the United States play sports on turf and 35,000 people in Massachusetts are employed in the Green Industry. Most importantly, turf gives us a place to enjoy our families and spend our recreational time, which ultimately improves our quality of life.