

# Agenda Report

**Date:** December 15, 2008

**TO:** CITY COUNCIL

**THROUGH:** FINANCE COMMITTEE

**FROM:** CITY MANAGER

**SUBJECT:** COMPARISON OF THE COSTS ASSOCIATED TO MAINTAIN A THREE ACRE MULTI-USE SYNTHETIC TURF ATHLETIC FIELD VERSUS A THREE ACRE MULTI-USE NATURAL TURF ATHLETIC FIELD, IN A CITY PARK

**RECOMMENDATION:**

This report is presented for information purposes only.

**BACKGROUND:**

Several months ago staff was asked to research the extent to which monies saved on decreased water usage and maintenance activities associated with synthetic turf fields offset the purchase and installation costs of a synthetic turf athletic field. In response, staff has provided a summary of the costs associated with ongoing maintenance of synthetic turf athletic fields and calculated the savings that will result from reduced water usage. Additionally, staff contacted Maranatha High School and several local outside agencies (the cities of Chino Hills, Fontana and Temecula) to discuss their experience with synthetic turf athletic fields. The summary of the information staff received was as follows: while general maintenance practices represent a small cost savings, there was a substantial increase in usage/play time of the synthetic turf athletic fields as well as significant decrease in irrigation and field renovation costs.

Natural turf athletic fields are limited to 35 to 46 hours of usage/play time per week, depending on the sport. A synthetic turf can support 60 to 71 hours (25 additional hours) of play time per week. The usage of synthetic fields would not need to be limited to preserve the health of the natural turf. The cost to develop a new three acre synthetic turf field could range from an estimated \$2 million to \$3.5 million depending on site specific conditions. This cost would include grading, drainage, utility connections, fencing, backstops, walkways and the cost of the synthetic turf.

	Natural Turf	Synthetic Turf
<b>FIELD CONSTRUCTION COMPONENTS</b>		
Sod/Turf	\$300,000	\$1,000,000
Irrigation System	250,000	50,000
<b>Total Field Construction Components</b>	<b>\$550,000</b>	<b>\$1,050,000</b>

The life expectancy for the synthetic turf is 10 to 15 years. In order to factor the cost of replacing the synthetic turf into the evaluation an annual allowance of \$100,000 per year should be added to the annual cost of a synthetic field.

**The estimated annual costs for maintaining a natural turf athletic field are \$22,484 and include:** Daily inspection, litter removal, auditing and repairing irrigation system, mowing, edging, periodic fertilizing, aerifying, and overseeding. The cost is derived by estimating that the athletic field will be maintained using approximately 675 labor hours, per year.

Natural turf athletic fields require periodic renovations which are not necessary for synthetic turf fields. The bi-annual renovation of a high use natural turf athletic field costs approximately \$100,000 and requires a 12 week field closure.

**The estimated annual costs for maintaining a synthetic turf athletic field are \$20,985 and include:** daily inspection and litter removal, blowing edges, general repairs, application of top dressing, maintenance of the infill, broom turf lip, broom and sweeping, gum removal, removal of weeds and moss, removal of oil stains and bodily fluids, static control and contracted maintenance as needed. The cost is derived by estimating that the synthetic athletic field will be maintained using approximately 630 labor hours, per year. There are also some additional specialty maintenance materials such as scrub detergent and gum remover that are needed to maintain synthetic turf.

Additionally synthetic athletic fields require annual turf de-compaction with a hydraulic sweeper which is not necessary for natural turf fields. The annual de-compaction of a high use synthetic turf athletic field costs approximately \$6,000 a year and does not require a field closure.

The estimate does not include the one-time costs of \$9,800 associated with the purchase of new equipment (drag brush, sweeper and groomer) in addition to the cost of operating and maintaining this equipment, which would be available for maintenance of additional synthetic turf fields.

Water savings is significant. However, it should be noted that a synthetic field requires routine watering for a few minutes to eliminate debris, bacteria and to control static. Research indicates that synthetic turf can retain temperatures of up to twice as high as temperatures on natural grass fields. To mitigate this, the field would be irrigated as needed during summer weather.

Fencing around the synthetic turf field would provide additional security to protect the field. The costs, of approximately \$250,000 - \$300,000, associated with fencing the field

would be included in the total installation cost of the project. With this installation, it is not anticipated that additional security services would be necessary to protect the field.

**The following comparison costs are calculated based on maintaining a three acre natural turf athletic field versus maintaining a synthetic turf athletic field**

	Natural Turf	Synthetic Turf	Variance
<b>FIELD CONSTRUCTION</b>			
Field Construction Cost Comparison	\$550,000	\$1,050,000	\$500,000

<b>INCREASED FIELD USEAGE</b>			
Field Usage	46 hours max.	71 hours max.	25 hrs/wk 1,250 hrs/yr

<b>MAINTENANCE COSTS</b>			
Annual Cost for Maintenance	\$ 22,484	\$ 20,985	
Total Decrease			\$ 1,499

<b>ANNUAL IRRIGATION COSTS</b>			
Annual water usage	5,417 HCF*	1,354 HCF*	4,063 HCF*
Annual Cost for irrigation	\$ 13,626	\$ 3,406**	
Total Decrease			\$ 10,220

<b>ANNUAL RENOVATION COSTS</b>			
Bi-annual Natural Turf Field Renovation (contracted maintenance)	\$ 50,000***	\$ 0	
Annual Synthetic Turf Replacement Cost	\$ 0	\$100,000	
Annual Synthetic Turf De-Compaction with Hydraulic Sweeper (contracted maintenance)	\$ 0	\$ 6,000	
Total Increase			\$ 56,000

<b>GRAND TOTAL COSTS PER YEAR</b>	<b>\$ 86,110</b>	<b>\$130,391</b>	<b>\$44,201</b>
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\*HCF – unit of measure used for water consumption - hundreds of cubic feet

\*\*Water usage estimated at 25% of irrigation water used to water a three acre natural turf athletic field

\*\*\*Represents one half of the \$100,000 bi-annual renovation costs.

**Summary and Findings**

Based the information gathered from outside agencies and staff analysis, the annual additional cost of a three acre multi-use synthetic athletic field versus a three acre multi-use natural athletic field is approximately \$44,000 annually when the cost of replacement is considered.

Staff believes that the annual maintenance cost is about the same as that for a natural turf field although the activities performed are different. The amount of water required to maintain a three acre multi-use synthetic athletic field is significantly less than that which is required to maintain a three acre multi-use natural athletic field. This benefit will become even greater if water availability becomes even more critical, which will in turn reflect an increase in the cost of water.

The greatest benefit of installing a three acre multi-use synthetic athletic field will be the approximately 25 additional hours of usage/play time weekly that the athletic field will support. A comparison of the annual maintenance and renovation cost indicates that a synthetic field costs \$14/hour less to operate than a natural turf field because of the additional hours available on a weekly basis.

Another important point this comparison illustrates is that the conversion of two natural turf fields to synthetic athletic fields will net the City enough additional hours of use over 12 months to equal the total hours available from three natural turf fields. While the demand for the fields at certain times of the day or weeks of the year is not factored into the calculations, the net available use of a field increases substantially through the use of synthetic turf.

**FISCAL IMPACT:**

This is an information item and has no current fiscal impact.

Respectfully submitted,



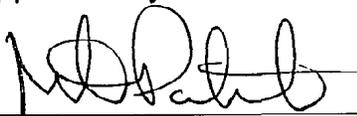
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