

INVESTIGATION of EXISTING PROGRAM and CONDITIONS

In order to aid the district in the decision making process we are providing a Synthetic Turf vs. Natural Turf Cost Analysis in Subsection 3E below to understand the benefit of one type of field to another. In following Section 3 we have designs for these two options and schematic costs. We have also developed recommended remedial steps and budget costs for the other facilities on both campuses so the School District can plan future budgets.

3E. Synthetic Turf vs. Natural Turf Cost Analysis

To address the need to provide proper field rotation and recovery on the High School / Elementary School campuses additional fields are not an option. The only methods available are to reconstructed some of the natural grass fields to a higher-level field (with subdrainage and irrigation) or consider synthetic turf as an alternative approach. Where a natural turf field similar to the current fields can handle approximately 50 to 75 events per year (three seasons) it is generally accepted in the athletic industry a well-constructed natural grass field, on average, can support 100 events per year. A synthetic turf field can handle a minimum of 1,000 events per year when lighted and operating four seasons.

Installation Cost

When synthetic turf is considered as an option the concern is the upfront cost to install the field compared to a natural turf field. For fields of comparable size synthetic always costs more primarily due to the stone subbase, turf, and infill (Approx. \$22.00 / SF). Installation of a higher quality natural grass native soil field as currently exists on the complex will fall in the higher range of cost of natural grass construction (Approx. \$10.50 / SF¹). Using a 100,000 SF field area for comparison the costs are shown on Table D below:

TABLE D - Installation Costs						
Synthetic Turf			Natural Grass ¹			
Cost Per (SF)	Field Area (SF)	Total Cost	Cost Per (SF)	Field Area (SF)	Total Cost	Difference
\$22.00	100,000	\$2,200,000	\$13.50	100,000	\$1,350,000	\$850,000

¹ Premiere natural grass having prepared subgrade, 6" topsoil, sodded, sand grid underdrain system, irrigation system. Unit cost/total are based on renovation of existing field area with limited bulk earthmoving. Costs may vary based upon actual field conditions.

Seasonal Maintenance Cost

Premier natural grass fields require a significant amount of maintenance compared to a synthetic turf field. Mowing is the most intense, followed by lining, repairs, and irrigation. Synthetic turf requires grooming and maybe lining. Comparison of maintenance costs are shown on Table E below:



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TABLE E - Seasonal Maintenance Comparison					
Synthetic Turf (ST) / Natural Grass (NG)					
Maintenance Item	Hours (ST)	Hours (NG)		Synthetic Turf	Natural Grass
Mowing	0.0	56.0	Material Cost	\$ 2,900.00	\$ 7,200.00
Brushing	56.0	0.0			
Irrigation	0.0	32.0	Labor Rate	\$ 60.00	\$ 60.00
Fertilization	0.0	16.0			
Aeration/Seeding	0.0	24.0	Total Labor	\$ 4,080.00	\$ 13,440.00
Field Markings	12.0	48.0			
Turf Repair	0.0	48.0	Total Cost	\$ 6,980.00	\$ 20,640.00
Total Hours	68.0	224.0			

Maintenance hours estimated as follows (Typical Public High School or Municipal Agency):

- ¹ Mowing/Brushing: 28 weeks x 1 mowing/brushing per week x 2 hours, Synthetic Turf includes adding rubber/infill and brushing in at (2) applications per year
- ² Irrigation (Natural Grass): 16 weeks x 2 hours per week for water wheel transport and set-up
- ³ Fertilization (Natural Grass): Fall and Spring applications, pre/post emergent herbicide, (4) total maintenance events x 4 hours each
- ⁴ Aeration/Seeding: Core field, pulverize and drag plugs, drill, or slit seed, 3-person crew x 8 hours = 24 hours
- ⁵ Field Markings (Natural Grass): Line markings, 2 hours each application, applied bi-weekly each Fall (6) and Spring Season (6) x 2-person crew
- ⁶ Field Markings (Synthetic Turf): Line markings (Field Hockey Only), 2 applications x 2 hours each x 2-person crew + 4 hours each
- ⁷ Turf Repair (Natural Grass): Spot repair, resodding, topdressing, 2 hours per week x 2-person crew x 12 weeks each Spring/Fall
- ⁸ Turf Repair (Synthetic Turf): Turf repair included as part of Warranty (No Cost)

Note: Labor rates are approximate and assumes allowance for hourly rate plus benefits.

Per Event Cost Comparison

To properly compare the per-event cost a well-maintained premier natural grass field is considered since that will provide a better and safer playing surface for student-athletes and be better capable of withstanding heavier use. This type of field can be expected to support 100 events per year.

The following Table F illustrates the average costs that can be anticipated for a 100,000 SF field:

Table F - Synthetic Turf vs. Natural Grass Per Event Cost		
	Synthetic Turf	Natural Grass
Initial Cost Installation Cost / SF:	\$22.00/SF = \$2,200,000	\$13.50/ SF = \$1,350,000
Maintenance / Replacement Costs (10 years)	\$404,671	\$335,000
Total:	\$2,604,671	\$1,685,000



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Annual Number of Events:	1000 x 10 Yrs. = 10,000 Events	100 x 10 Yrs. = 1,000 Events
Average Cost Per Event:	\$260.47	\$1685.00

¹ Square Foot Cost based on Sportsturf Managers Association publication "A Guide to Synthetic and Natural Turfgrass for Sports Fields" Current Edition adjusted for inflation.

² Id

³ Mowing, maintenance, water, equipment at \$30,000, over seeding at \$600, fertilizer at \$8000, wetting agents at \$1200, weed treatment at \$500

⁴ Includes prorated sweeper cost, 30 turf sweepings, miscellaneous repairs

So, although valid concerns exist for the upfront and Life Cycle Cost of a synthetic field the cost per event proves to be significantly less. The increased number of events that can be handled by the synthetic field can lessen the event demand on natural grass fields allowing them to be rested and recover.

