

TOWN OF ARLINGTON

**ARTIFICIAL TURF
STUDY COMMITTEE**

PRESENTATION

TOM IRWIN ADVISORS



COMMUNITY



THE THREE
DIMENSIONS OF
SUSTAINABILITY



ENVIRONMENT



ECONOMY

WE BELIEVE



Outdoor recreational green spaces are essential to the life and wellbeing of any campus or community.

Because campus grounds, athletic fields, parks are so highly valued and cherished, they define and enrich the quality of life unlike any other investment.

NATURAL TURF AND SYNTHETIC TURF

NATURAL TURF

Environmental Benefits

A natural turf field reduces excess stormwater surface runoff by allowing water to infiltrate into the soil. Also, the surface temperatures of natural grass are markedly cooler than synthetic turf.

Limitations

Overuse and excessive traffic on natural turf can lead to compaction and bare spots. Inclement weather can lead to overly saturated soils or standing water, which limits playability, or the fields may experience irreparable damages if played on when saturated.

Inadequate/neglectful maintenance

SYNTHETIC TURF

Benefits

A synthetic turf field provides a durable playing surface with a grass-like look and requires lower maintenance than natural turf. Synthetic turf fields are well drained, can be plowed in snowy conditions, have near all-weather availability for play, and the field lines and markings can be permanently inlaid, which eliminates the need for continual re-stripping with paint.

Limitations

Synthetic turf fields are more expensive to install than natural turf fields. They have a higher surface temperature and do not filter air or water pollutants as natural turf does.

Infill material is expensive

Inadequate/neglectful maintenance.

Fiber lays down if infill is not in place.

Grass fibers degrade under UV light over time

NATURAL TURF AND SYNTHETIC TURF NO COMPARISON!!

NATURAL TURF

Components:

- Drainage System (Pipes, Dependent on Design)
- Stone (Porosity/Drainage, Dependent on Design)
- Irrigation
- Rootzone (Soil/Sand)
- Seed/Turf
- Mostly reclaimed greenspace areas.
- Very few designed and engineered fields
- Lower cost to design and build
- Requires good quality maintenance
- High Usage capacity (Circa 800 hours per year)
- Maintenance varies due to time/resource

SYNTHETIC TURF

Components:

- Drainage System (Pipes)
- Base Stone (Drainage/Stability)
- Top stone (Finer grade)
- Carpet
- Shock pad (Sometimes)
- Irrigation (Sometimes essential for all-wet fields)
- Infill (Mostly Sand and crumb rubber)
- Highly designed and engineered fields (Every field!!!)
- High cost to build
- Requires good quality maintenance
- High Usage Capacity (Circa 1000-1500 hours per year)
- Maintenance varies due to time/resource

COST OF SYNTHETIC SURFACE – CONSTRUCTION/MAINTENANCE

10 Year Projection

Initial cost of field \$1M

Average maintenance cost of \$15K per year = \$150K over 10 years

Recarpet in year 10 = \$600K + \$65K Removal and disposal = \$665K

Total cost over 10 years is circa - \$1.82M (Average Inflation add 7%)

= \$1.94M

20 Year Projection

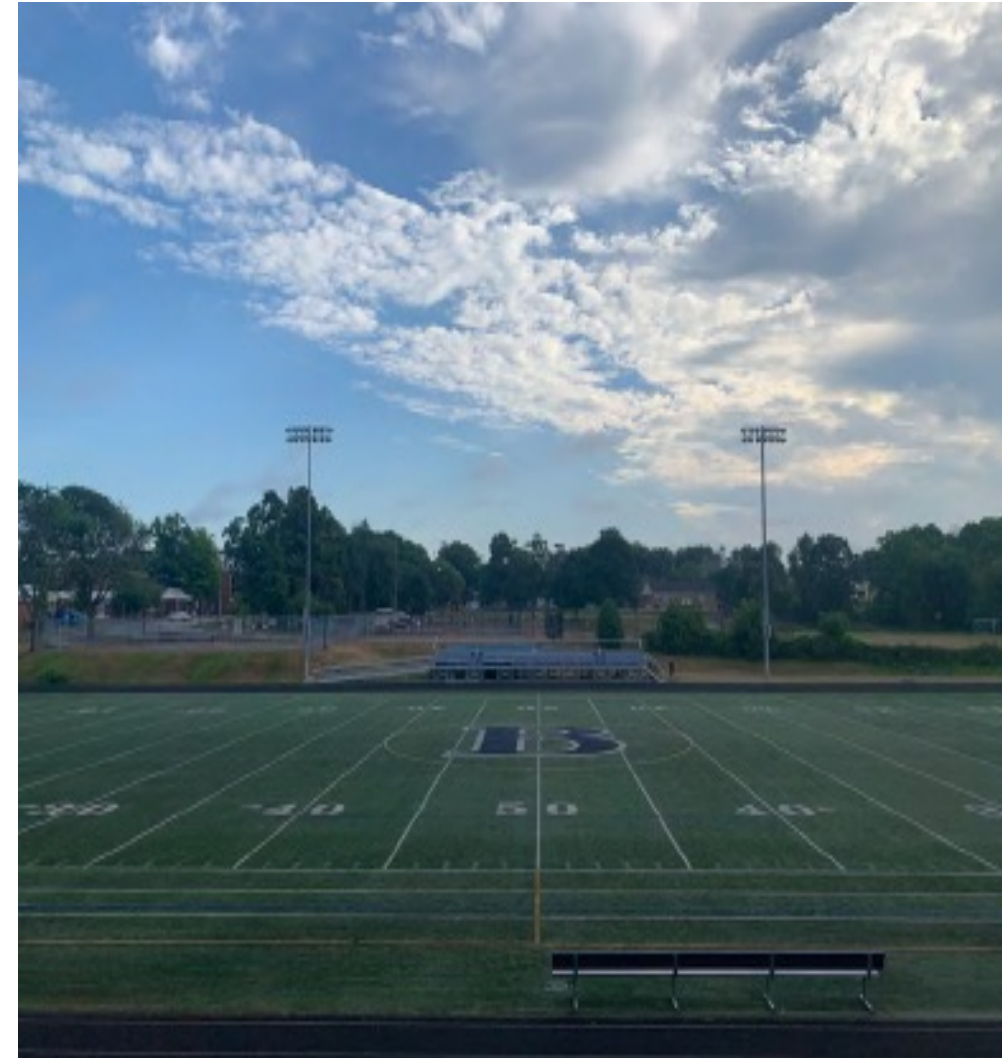
Initial cost of field \$1M

Average maintenance cost of \$15K per year = \$300K over 20 years

Recarpet in year 10 = \$665K (Circa) and year 20 at \$800K (Circa)

Total cost over 20 years is circa - \$2.66M (Average Inflation add 7%)

= \$2.85M



COST OF NATURAL TURF – CONSTRUCTION/MAINTENANCE

10-year projection

- Initial cost of field \$400K
- Average maintenance cost of \$30K per year = \$300K over 10 years
- Re-sod in year 10 = \$150K (This is not necessary if all maintenance has been carried out, but I added it as a worst-case scenario)

Total Cost over 10 years is circa - \$850K (Average Inflation add 7%)

= \$910K

Natural Turf based on 20-year projection

- Initial cost of field \$400K
- Average maintenance cost of \$30K per year = \$600K over 20 years
- Re-sod in year 10 = \$150K; Re-sod in year 20 = \$200K

Total Cost over 20 years is circa - \$1.35M (Average Inflation add 7%)

= \$1.45K



CONVERSION FROM SYNTHETIC TO NATURAL GRASS

CONVERSION PROCESS AND COSTS (Timeline: 3-4 weeks for transition and then 6 months to grow in and establish for use)

- Remove existing infill and carpet \$40K (Needs to be bagged and removed as per disposal)
- Dispose of Infill and carpet \$25K (Disposal as per environmental requirements)
- Remove Topping stone (Approx. 2") \$30K (Could be recycled for other uses)
- Remove 3" of base stone \$50K (Could be recycled for other uses)
- Regrade base stone to agreed grading plan \$15K (Allows correct sub-base drainage)
- Install Irrigation system \$60K (Correct design)
- Install Geotech fabric \$20K (Reduces migration of rootzone into the subbase)
- Install Rootzone and grade to agreed grading plan \$80K (To Provide hydration and drainage capacities)
- Apply rootzone amendments and nutrition \$15K (Organic based to provide sustainability for turf)
- Overseed \$10K (low nutrition/water wear tolerant varieties)
- Grow in and establishment \$20 (Provide essential conditions for sustained use)

Total Cost circa \$360K

MAINTENANCE FREQUENCY – SYNTHETIC SURFACE

Operation	Task	JAN	FEB	Mar	APR	May	June	July	Aug	Sept	Oct	Nov	Dec
Operations	Brushing			4	4	4	4	4	4	4	4	4	
	Aeration			1			1		1			1	
	Infill re-distribution			12	12	12	12	12	12	12	12	12	
	Top Dressing (Localized)		1	1			1		1			1	
	Grooming		1	1	1	1	1	1	1	1	1	1	
	Magnet Sweep			1			1		1				1
	Surface sanitization			1			1		1				
	Marking out (If required)	2	2	2	2	2	2	2	2	2	2	2	2
	Seam inspection/Repairs	1	1	1	1	1	1	1	1	1	1	1	1
	Snow Plough/ Removal	1	1	1									1
	Revitalization			1			1					1	
	Top Dress			1					1				
	Leaf/Debris Removal							1	1		1	1	1

MAINTENANCE FREQUENCY– NATURAL TURF

Operation	Task	Mar	APR	May	June	July	Aug	Sept	Oct	Nov
Cultural Operations	Mowing	2	8	8	8	8	8	8	8	4
	De-Thatching			1				1		
	Marking out		4	8	8	8	8	8	8	4
	Top Dressing		1	1				1		
	Over - Seeding			1			1	1		1
	Core Aeration			1					1	
	Deep Tine Aeration									1
	Wetting Agents		1	1	1	1	1	1	1	
	Irrigation		20	20	20	30	30	30	20	10
Spray /Granular Applications	Insect Control (Organic)			1	1					
	Nutrition (Various)			1	1		1	1		1
End of Season Renovation	Over - Seeding							1		1
	Core Aeration							1		
	Top Dress							1		

CONCLUSIONS

- Start with Maintenance! And work back to the design (form follows function)
- Prevention is better than the cure and almost every time is less expensive
- Average lifespan of a Synthetic Field is 8-10 years, and it degrades quickly (Fiber loss seams lifting) even if maintained correctly.
- Correct maintenance costs more for synthetic turf than we are led to believe
- Natural turf is potentially unlimited if maintained correctly
- Innovations and technology in natural grass is constantly improving.
- Natural turf grass can sustain through drought

We design rootzones/soils to retain moisture.

We have water retentive products (EPA safe) which maximize water holding and use.

We built a usage calculator to analyze usage properly

Natural turf fields can and are designed with multi use In mind

Grass seed has Improved Drought resistance (Turfgrass

Water Conservation Alliance)

A – List (Alliance for Low Input Sustainable Turf)

IT WAS MY TREE FIRST.....!

