Town of Arlington
Department of Health and Human Services
Office of the Board of Health
27 Maple Street
Arlington, MA 02476

Tel: (781) 316-3170
Fax: (781) 316-3175

Artificial Turf Study Committee Meeting Minutes

Meeting Date: February 20, 2024
Meeting Time: 5PM-6:30PM
Location: Zoom

Objectives:

1) To hear from subject matter experts on various topics concerning the Health, Safety, and Environmental concerns associated with natural grass and artificial turf fields.
2) To discuss the draft bullet reports submitted by each working group.

Committee Members present: James DiTullio, Chair; Natasha Waden, Clerk; Mike Gildesgame; Leslie Mayer; Joseph Barr; Jill Krajewski; Marvin Lewiton; Claire Ricker; Joseph Connelly

Agenda

I. Acceptance of Meeting Minutes

Motion to approve meeting minutes from 02/13/2024 was made by Marvin Lewiton.

2nd by Leslie Mayer.

Vote:
Mike Gildesgame, Abstain
Leslie Mayer, Yes
Joseph Barr, Not present for vote
Jill Krajewski, Absent
Natasha Waden, Yes
Marvin Lewiton, Yes
James DiTullio, Yes

Approved (4-0 with 1 Absent, 1 Abstain, and 1 not present for the vote)

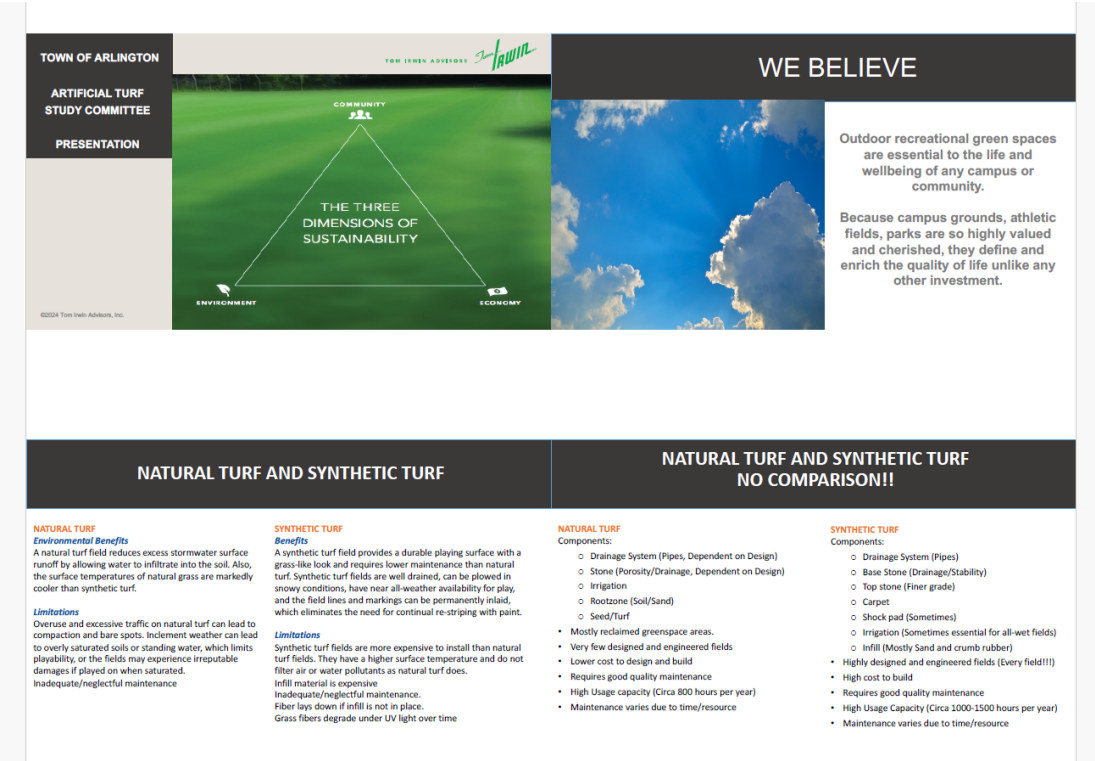
II. Correspondence Received

There was no correspondence received.

III. Guest Speaker (s)

a. Ian Lacy, Lead Project Advisor for Tom Irwin
https://tomirwin.com/about-us/

Ian presented the Committee with the following Power Point Presentation:



Mr. Lacy started the presentation by asking folks to try and remove any negative thoughts they may have about either artificial or natural grass turf fields. Mr. Lacy explained that you can't compare Natural turf to synthetic turf fields because they are completely different systems. Synthetic turf fields are designed and highly engineered systems, whereas the majority of natural grass fields are indigenous fields that have adapted over time into playing fields. Mr. Lacy discussed the benefits and limitations of both types of fields but asserted that there is no way you can get the same level of usage from a natural grass turf playing field as compared to a synthetic turf playing field.

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

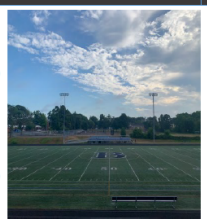
Total cost over 10 years is circa - $1.82M (Average Inflation add 7%)

= $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)

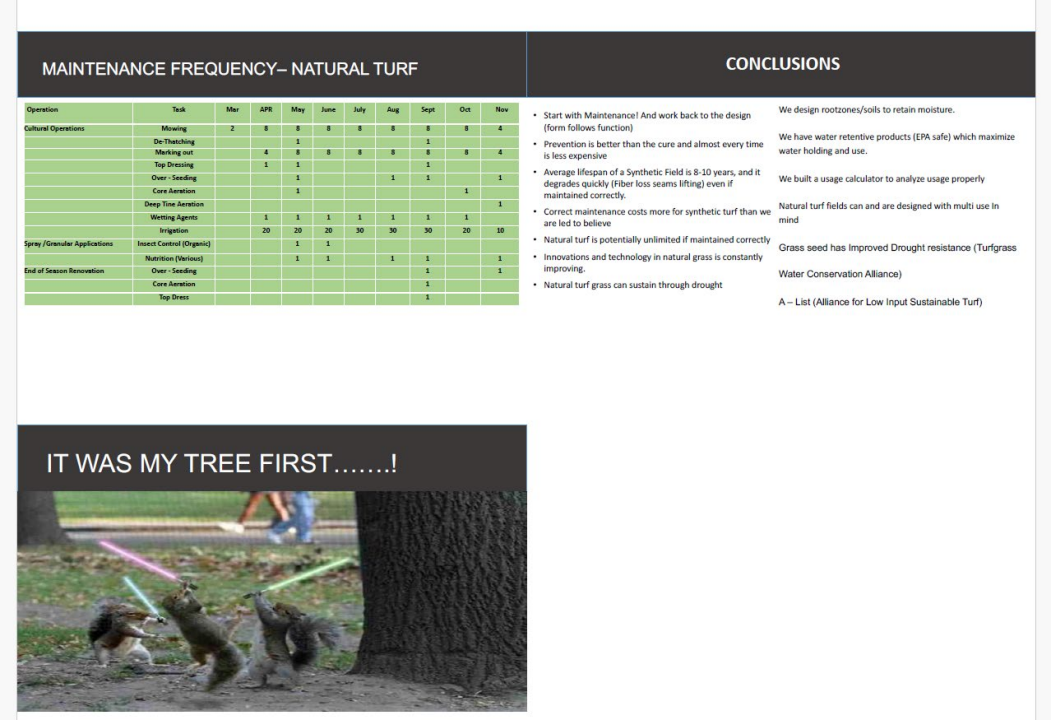
• Remove existing infill and carpet	$40K	(Needs to be bagged and removed as per disposal)
• Dispose of infill and carpet	$25K	(Disposal as per environmental requirements)
• Remove Topping stone (Approx. 2")	$30K	(Could be recycled for other uses)
• Remove 3" of base stone	$50K.	(Could be recycled for 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

Mr. Lacy presented approximate estimates for the cost associated with the construction and maintenance of both synthetic and natural turf fields. There was a lengthy discussion about the importance of maintaining the synthetic turf field and how improperly maintained synthetic turf fields can lead to the decreased life expectancy of the field carpet and/or potentially increase the costs if repairs are needed. As such, Mr. Lacy stressed that maintenance should be taken into consideration when/if the Town makes a decision about a particular playing surface. Mr. Lacy pointed out that although it is clear from the slides artificial turf field costs are significantly more than natural grass fields, it does not take into account the usage rate. In comparing the usage rate, Mr. Lacy estimated that it's possible to get 1/3 to ½ more usage from a synthetic turf field than that of a natural grass turf field. When factoring usage into the equation, artificial turf is still more expensive, but it becomes a bit more comparable to that of a natural grass turf field. Mr. Lacy reiterated that before a decision is made on the type of field to be installed, municipalities should look at the maintenance costs associated with both types of fields, because if it can't be properly maintained, you are not likely to get the most use out of the field.

Additionally, Mr. Lacy has begun receiving inquiries from other municipalities about converting an existing synthetic turf field back to a natural grass field; therefore he reviewed the estimated costs associated with this type of conversion.



At the end of his presentation, Mr. Lacy answered several questions asked by Committee Members which are summarized below:

A Member asked a question about the disposal of artificial turf carpet and infill materials and whether or not recycling actually occurs. Mr. Lacy responded that it differs among installation companies. In his experience, he stated that typically when a carpet is lifted, all of the infill is shaken out and collected into bags and kept separate from the carpet. He has heard of multiple kinds of recycling: in some cases, the carpet may end up at a facility that just collects that material, but is still at a landfill; in other cases, the carpet may physically be recycled by grinding and melting and then either disposing the material or being utilized again for a different purpose/industry. He has also heard of the synthetic carpet being used as a top surface at landfill sites, or utilizing the used carpet as pathways on golf courses. Mr. Lacy acknowledged that recycling of this material is still a bit of a grey area, but it is an important question that should be asked.

Another Member asked Mr. Lacy if he was familiar with Tencate's work and their efforts on recycling synthetic turf. Mr. Lacy acknowledged that Tencate is a large global organization with many arms including one that focuses on recycling. He explained that their recycling approach for turf consists of grinding up the carpet so that it can be reused as material that might be utilized by other industries. Mr. Lacy stated that this was good, but that more manufacturers need to take on the responsibility of recycling this material as well.

Another Member asked Mr. Lacy what the life expectancy is of an artificial turf field in New England. Mr. Lacy stated that this depends on the usage and maintenance. In some

cases, he has observed fields starting to degrade (in high use areas) in 3-4 years, but that doesn't necessarily mean it's dangerous to use, just that it is degrading. Mr. Lacy mentioned that 95% of fields Tom Irwin Advisors have assessed in New England are not maintained to the level that they should or need to be. As a result, the typical life expectancy may be 7-8 years, but again, there are variables related to each field that could shorten or extend the life expectancy.

Another Member asked what percentage or measurement such as weight/volume of infill replacement is needed to maintain a synthetic turf field. Mr. Lacy provided an overview of the infill material stating that a new carpet typically weighs 8-9lbs per square foot. However, it is typically the weight of the actual carpet and sand that holds the carpet in place and contributes to the weight per square foot, while the weight of the rubber does not contribute much to the overall weight. As such, the infill is typically composed of 30% sand and 70 % rubber or other alternative infill material. In regards to what is needed for infill, Mr. Lacy stated that it is dependent on the maintenance and use. But, typically, 10- 20 tons of rubber infill would be needed to top off the central area of the field. Mr. Lacy noted that this is not necessarily an annual occurrence; the application of replacement infill largely depends on the usage and maintenance of the field.

Another Member asked for clarification as what the company's (Tom Irwin Advisors) role is in the industry. Mr. Lacy stated that Tom Irwin Advisors is a sales and distribution company in the sports and golf industry. The core business was to sell and distribute grass seed and fertilizer. However, 10 years ago, the focus shifted as clients were looking for advice on the best playing surfaces. As such, the company changed its focus to an advisory role, in which case they assist clients with identifying the best playing surface/field/green space based on the site specific issues and budgets. Tom Irwin does not sell or distribute natural grass (sod) or synthetic turf, but they do assist with evaluating existing site specific conditions, testing soils, and then making recommendations on the surface type and maintenance based on the findings. Often times, they will be hired by a company in either industry to conduct testing and make recommendations. A reference was made to Robbin's Farm Park whereas Tom Irwin Advisors were hired by Weston and Sampson to analyze the soil at this site and provide them with recommendations based on the analysis. Mr. Lacy stated he could not speak to what happened after the recommendations were given, as Tom Irwin Advisors were not involved in that aspect of the project.

Another Member inquired about a project that Tom Irwin Advisors worked on in Sharon, MA that involved a moratorium on the installation of Artificial Turf. Mr. Lacy briefly discussed the project as conducting an evaluation of two fields in Sharon, MA to determine if the fields could be maintained as natural turf and keep up with the usage demands. Unfortunately, due to a high school construction project, the scope of work changed as the 2 fields would be needed for additional demands. As such, to address drainage issues and get the best use out of the 2 fields in their existing state, Tom Irwin advised the Town to install a linear sand injection system on both fields. In doing so, they injected grooves 8-10 inches apart across the fields that were 6 inches deep and ¾ wide and packed them with sand. This system acted as the initial transport of moisture, taking water down about 6-7 inches into the soil profile. While the field may not be in

great physical shape and they did not get to conduct the original study, the result is that both fields are at least structurally in better shape than they were prior to Tom Irwin's involvement.

Another Member asked a two part question: 1) whether or not Tom Irwin Advisors have ever encountered a municipality with a large enough budget or staffing capacity to meet the demands associated with the maintenance of either natural or synthetic turf surfaces; and 2) are they familiar with alternative infills. Mr. Lacy reported that it is very rarely that a municipality can afford the maintenance plan that he has discussed in his presentation, which is why his company takes this into account in their evaluation process. In response to alternative landfills, Mr. Lacy reported that Envirofill green sand is the safest infill product in terms of environmentally friendly, least toxic to children, and least abrasive; however, it requires the installation of a shock pad.

Another Committee Member inquired about the cost associated with the linear sand injection system. Mr. Lacy responded that for a full sized soccer field the cost would likely be between $15-20K.

The final question asked by the Committee was in regards to thoughts about other various infill materials such as cork and coconut husks. Mr. Lacy reported, in his opinion that the very best infill material was sand. Mr. Lacy stated that cork expands when exposed to moisture, crumb rubber is not healthy but synthesized rubber is slightly better. He also stated that in terms of heat, coating materials with lighter color helps to deflect heat slightly, but watering a field does not have a long lasting effect. Mr. Lacy stated that natural turf is much more consistent with temperatures; however, synthetic turf can cool down quickly when the sun is behind the clouds. Mr. Lacy also acknowledged that there have been advances in grass seed in which case some seed does not require as much watering as other seed.

IV. Discussion: Draft Working Group Reports

a. Environmental

This group is composed of Mike Gildesgame, Joseph Barr, and Claire Ricker.

The group briefly summarized their draft report and clarified questions asked by Committee members.

A Committee Member from the Safety group was glad to know that the environmental health group would be looking at the heat island effect that artificial turf fields might have on the environment, as the Health and Safety groups are looking closely at the effects heat might have on the individual users.

A Committee member from the Health group inquired about the types of mitigation measures, if any, that the group has identified within each of their topic areas. An example given was whether or not any mitigation measures used to decrease the heat island effect a parking lot may have on the environment could be applied to that of an artificial turf field. The group explained that they are still looking at mitigation measures for environmental concerns, but acknowledged that mitigation measures utilized for

shade in a parking lot vs. on/near an artificial turf surface would likely be different. For example, shade trees may not be possible to install on or in close proximity to artificial turf. Additionally, the group acknowledged that the color of the infill may also be considered a mitigation measure, but perhaps will not address all of the heat/environmental concerns. The group also spoke about the use of water treatment facilities that utilize water filtration systems to filter out chemicals such as PFAS; however, there is still concern about how the used filters are disposed.

A Committee member from the Health group inquired about whether or not the environmental group was aware of any filtration devices or other mitigation measures to prevent microplastics or other runoff material from artificial turf from migrating onto adjacent wetlands or other areas. The group acknowledged that MIT utilizes a filtration system and would look into the specifics as well as other possible mitigation measures.

A Committee Member from the Safety group acknowledged the Environmental groups heavy focus on the wetland areas and inquired about whether or not fields that are not in close proximity to wetland areas should be treated or considered differently as it pertains to artificial vs. natural turf fields. The Environmental group acknowledged the differences and agreed to look more into that.

A Committee Member from the Safety group inquired about what information the Environmental group has found in regards to the impact/effects that artificial turf has on wildlife, aside from the water runoff and impacts on aquatic life. The Environmental group acknowledged this topic as an area in which they planned to look into further and report back to the Committee. The Committee member referenced a study about bacteria levels being lower on artificial turf as opposed to natural turf, and wondered if this had anything to do with the fact that wildlife are not migrating/defecating on the synthetic turf. The Environmental group acknowledged this point and agreed to look further into it.

A Committee Member from the Safety group inquired about whether or not the current Town Wetland Protection Bylaw and State Wetland Protection Laws are written and take into consideration environmental concerns/protections associated with artificial turf surfaces or if changes are necessary. The Committee Member recalled that the Conservation Commission may have been looking at Bylaw changes last year, but it was not clear, what, if any changes were made, and/or if those changes take into consideration environmental protections associated with artificial turf installation. The Environmental group acknowledged this inquiry and agreed to look into what/if any Bylaw Changes have been made or are being proposed. The group also acknowledged that the State is currently reviewing language to consider artificial turf as an impermeable surface.

b. Safety
   This report was not discussed at this meeting.

c. Health

This report was not discussed at this meeting.

V. Discussion: Reports, Deliverables, Project Timeline

Jim DiTullio reminded the Committee that we would continue to review the draft working group reports at next week's meeting and that the written narrative reports are due on Friday March 1st.

VI. New Business

There was no new business to discuss.

VII. Adjourn

Motion to adjourn was made by Mike Gildesgame.

2nd by Marvin Lewiton.

Vote:

Mike Gildesgame, Yes
Leslie Mayer, Yes
Joseph Barr, Yes
Jill Krajewski, Absent
Natasha Waden, Yes
Marvin Lewiton, Yes
James DiTullio, Yes

Approved (6-0, with 1 Absent)