

# BOARD MEETING MINUTES--REVISED

February 25, 2019

## Call to Order

The Study Session of the Shoreline Board of Directors was called to order at 5:30 p.m. in the Darlene Sherrick Room (D105) at the Shoreline Center by President Mike Jacobs on February 25, 2019.

## Roll Call

Present: Mike Jacobs, President; David Wilson, Vice President; Heather Fralick, Member; Dick Nicholson, Member; Dick Potter, Member; and Saagar Mehta, Shorewood Student Representative.

Absent: Soumya Keefe, Shorecrest Student Representative.

## Update on Synthetic Turf Infill Options

*Presenters:*

*Eric Gold, D.A. Hogan, Consultant*

*Don Dalziel, Director of Athletics*

*Dan Stevens, Manager of Capital Projects*

*Jim Price, Project Manager*

*Marla Miller, Deputy Superintendent*

Ms. Miller began the meeting with introductions of the presenters, followed by an overview of the topics that would be discussed. The intent of this meeting was to provide answers to questions the board members might have and also for staff to get an idea of what direction the Board would like the District to take.

Mr. Stevens reviewed upcoming field projects and anticipated dates of construction. Elementary field projects include: Echo Lake (Summer 2019), North City (Summer 2020), Aldercrest Campus (2020), and Brookside (Summer 2020). Secondary field projects include: Einstein Middle School (2020-2021 - maintenance operation similar to what was done at Shorecrest) and Kellogg Middle School (2020-2021 - complete replacement in different spot on the site).

Ms. Miller reported that this particular discussion was centered on infill options and pads rather than the ground preparation and layers beneath the turf and water run-off.

Mr. Gold reviewed the following chart of infill options and their respective advantages and challenges, based on his firm's experiences both regionally and nationally. He noted that there still are no substantial changes in what is known about the EPA's study on the human health effects of SBR crumb rubber. The previous significant gaps in information have been identified and are under investigation. At this time, it is not known when that process will be complete. Mr. Gold reported that his firm provides information so that clients can make the most informed decisions that work for them.

<b>Type of Infill</b>	<b>Advantages</b>	<b>Challenges</b>
SBR Crumb Rubber	<ul style="list-style-type: none"><li>• Cost (least expensive)</li><li>• Most researched</li><li>• Most used</li><li>• District experience</li></ul>	<ul style="list-style-type: none"><li>• Perceived health risks by some</li></ul>
Coated SLB Crumb Rubber	<ul style="list-style-type: none"><li>• Cost compared to cork</li><li>• Similar playability</li><li>• Similar maintenance</li></ul>	<ul style="list-style-type: none"><li>• Lack of data on coating durability</li><li>• Some QC concerns</li><li>• Still perceived as crumb rubber for those concerned</li></ul>

Type of Infill	Advantages	Challenges
Granular Cork (available in various densities/sizes)	<ul style="list-style-type: none"> <li>• Organic</li> <li>• Similar playability</li> <li>• Similar maintenance</li> <li>• Perception of safer alternative</li> </ul>	<ul style="list-style-type: none"> <li>• Cost</li> <li>• Possible supply issues</li> <li>• Initial drainage</li> <li>• Can be abrasive</li> <li>• Freezes</li> <li>• Limited user data</li> </ul>
Other: <ul style="list-style-type: none"> <li>• TPE (Thermoplastic Elastomer)</li> <li>• EPDM (Ethylene-Propylene-Diene Rubber)</li> </ul>	<ul style="list-style-type: none"> <li>• Alternatives to crumb rubber and cork</li> </ul>	<ul style="list-style-type: none"> <li>• Cost</li> <li>• Limited user data</li> </ul>

For the SBR crumb rubber product, Mr. Gold reported that his firm requires recycled tires of North American origin. However, they are learning from the processors that the origin of any given tire or batch of tires has become more and more difficult to regulate. Almost every synthetic turf field installed from approximately 1998 up until 2010-2012 has a crumb rubber infill.

Coated SBR crumb rubber is exactly the same as the material rendered from used tires but is processed in a way that encapsulates each individual granule of crumb rubber in order to prohibit any exposure to skin contact, dust, water runoff, and any of the compounds that are in the SBR crumb rubber itself. This is one of the few alternatives that carries with it the same natural resiliency that allows this product to be specified without a supplemental pad.

The majority of D.A. Hogan’s clients that have moved away from crumb rubber have turned to granular cork. Cork requires a supplemental pad at some considerable cost—approximately \$1.75 to \$2.00 per square foot in additional costs. The pad goes underneath the synthetic turf and provides resiliency and protection against head impact similar to the way the crumb rubber does. The cork itself does have some resiliency, but it is variable both in terms of the density of the material during installation as well as in the durability of the 8 to 12-year life span of the field. At this point in time, there isn’t any long-term durability data to review as cork installations have only occurred over the last three or four years.

The City of Shoreline has used cork in two fields at Twin Ponds Park and at Fields A and B in the Shoreline Park just adjacent to Shoreline Center.

There appears to be some migration, possibly due to a static electricity issue, after installation of cork, which is more significant than with crumb rubber. Typically, with the first heavy rain after installation of crumb rubber, there is a short-lived break-in period whereby there is an appearance of standing water but the crumb rubber never moves anywhere; normal foot traffic on the turf disturbs the particles, breaks the surface tension and allows the water to drain off. However, cork is somewhat more tenacious and is different, in part, because it floats. In a significant enough rain event or if there is some freezing in the weather profile, in about 8 out of 10 cork installations, some migration of the infill material has been encountered early on in the first winter season. This has been small scale and not enough to create any performance issues. Additionally, it can be somewhat abrasive. It is available in various densities and sizes. When bidding this product competitively to two or three or more vendors, each vendor tends to have their own supply pre-contracted. Cork is generally harvested in Portugal, manufactured and processed by a number of different international firms, and then shipped to the US in various grades by a few brokers. Approximately 100,000 pounds of cork is needed for an 80,000 square foot field. In the case of the Shoreline Fields A and B, there was a problem with getting enough cork, which resulted in the project sitting idly for a period of about 2-1/2 months while they waited for an alternative supply.

When that supply arrived it was of an inferior quality and had to be rejected. Some of the density ranges are considerably more abrasive than the standard crumb rubber options.

TPE (thermoplastic elastomer) is basically food and medical grade plastic. It's made into small pellets and they perform the same function as any other infill material; however, they are generally very inert, very stable, but are not resilient and require a supplemental pad. This is the most costly of all of the options discussed. The Evergreen School in Shoreline is currently installing a field with the TPE option. Mr. Gold reported that he had recently been told (although not verified) that King County would no longer be requiring water quality on athletic fields that use TPE infill.

EPDM (ethylene-propylene-diene rubber) is a virgin rubber product that is used in construction of rubberized track surfacing. It is also very costly but does not require a supplemental pad. EPDM is considered a twin brother to crumb rubber. They are identical and very difficult to differentiate unless the EPDM is of a lower grade and is characterized by air bubbles and is more foamy.

Another option, not listed on the presentation, is an organic, coconut-based product, which might include some cork, coconut husk, rice hulls or a variety of different organic materials. This product has some negative characteristics, e.g. excessive water retention (like a sponge) and on the flip side, the product needs water during the summer so it doesn't get dusty. Because it is light and wet, it also tends to be sticky and it tracks off.

Ms. Miller reported that in the three weeks since this presentation material was originally put together (board meeting was postponed for two weeks), the costs have increased and the differential between crumb rubber and other options is now greater.

The current model in the District for fields involves procurement of the synthetic turf (FieldTurf or Hellas) through KCDA and then a separate bid for the field preparation. The updated 2019 KCDA prices for synthetic turf have increased considerably and were just received on the previous Friday. The prices listed in the presentation were based primarily on publicly competitive open bid projects so they do not necessarily reflect purchasing cooperative procurement (KCDA) of the actual synthetic turf.

Ms. Miller asked for the Board's guidance in determining the direction for the Echo Lake field project. Mr. Gold provided a suggestion of how the project might be framed which would start with bidding the field site work (base and storm drainage) as the base bid without any surfacing. Then there could be a series of alternate bid items with the various infill options. The District could then make an informed decision based on that information.

Mr. Nicholson asked what the warranty would be on a cork field. Mr. Gold responded that it would be the same as the crumb rubber—eight years. Although, one of the District's fields, Shorecrest, has a 10-year warranty, which was provided voluntarily by the manufacturer. It is a FieldTurf field with a monofilament proprietary fiber that has a longer service life. Typically, there is a higher cost for that fiber application.

Mr. Nicholson also asked what the warranty would be on the paint coating on the crumb rubber. It's a single source, independently insured warranty. The infill material—the fiber, the craftsmanship, etc. is not warrantied separately. All of the individual components are part and parcel of the overall warranty. Regardless of the specifications used, it would be covered by the single warranty whose liability is carried by the single vendor. If the coating rubbed off, the turf installer would assume the responsibility.

Based on the 2018 costs that were available at the time this presentation was prepared, the estimated cost comparison for the Echo Lake Elementary turf field **infill only** (60,000 sq. ft. field) is as follows:

SBR crumb rubber	\$31,500
Coated SBR crumb rubber	\$94,500
Granular cork	\$196,500
TPE/EPDM	\$240,000

Mr. Nicholson asked for clarification on the abrasiveness of cork. Mr. Dalziel shared what he has been told by coaches and athletes who have participated on both cork and crumb rubber fields. Cork gets stacked a bit higher in certain situations so it's more full and there's less fiber at the top so if the pile height is higher possibly due to the type of turf used, more abrasiveness is created. He shared that his son is more "marked up" after playing soccer (as a goalkeeper) on cork than he is on crumb rubber.

Mr. Dalziel shared that in looking at a cork infill field, the type of turf that would typically be specified for that would be a slit film, which is designed to fall over the top to keep the cork in place. All the other fields that have been installed at the secondary schools have all been a dura spine, single blade, monofilament designed to look like grass and stand up straight. Ridgecrest has the slit film, a less expensive product and designed to fall over. The high schools have a higher grade turf, which from a competitive and playability perspective, looks more and plays more like natural grass.

Ms. Fralick asked what comparisons had been noted between Ridgecrest and the other fields. Mr. Dalziel responded that the District has 10 full-size, baseball, football, soccer, softball fields that are all crumb rubber. There are two elementary school fields where about half of the fields are crumb rubber. Highland Terrace, Lake Forest Park and Syre were the first generation of re-created fields and they only have cut-outs of crumb rubber. He has not heard any negative feedback from the Ridgecrest community about the field and its playability. Local youth groups clamor to rent the Ridgecrest field and it's a very highly used elementary field. He has not heard any negativity from the community, coaches or district teams regarding any of the other fields.

Mr. Nicholson asked about the experiences with the cork fields installed in 2016 at Anacortes and Lakewood (to the north). Mr. Gold reported they have had no negative feedback but Anacortes did have the initial migration issue (mentioned earlier) but once it cleared up there have been no issues and have received great reviews.

Ms. Miller shared that some owners have gone with one product for elementary fields and another for their middle and high school fields. This arrangement could also be an option for Shoreline.

Ms. Fralick asked about the environmental impact of the various products, specifically in regard to Brookside and its proximity to streams/water supply. Ms. Miller and Mr. Stevens met with City of Lake Forest Park officials who would be permitting the Brookside project. Originally, they were more interested in natural turf fields because of the stream but their environmental manager had since changed his position to a preference for a synthetic field, which would eliminate the need for pesticides and chemicals. Mr. Gold added that "a properly maintained grass field that is being watered and fertilized and treated in order to remain vigorous and continuously growing to the extent that it can recover from wear and tear requires way more chemical inputs than the effluent that any of these alternatives are going to generate."

In answer to another question from Ms. Fralick regarding whether or not there is any periodic monitoring of water quality near fields, Mr. Gold stated that there is not but rather it is built into the field installation.

Mr. Nicholson asked if there were any additional wear and tear impacts from playing football on the cork fields. Mr. Gold indicated that time will tell. However, manufacturers perform extensive testing on the products prior to bidding on projects. Most products have no problem exceeding 40,000 cycles (equivalent to 1200 hours per year for eight years) to 60,000 cycles of testing. In this region, it is primarily football and soccer that are played on the cork fields; however, cork is also being used for softball pitching circles and baseball batter boxes.

Ms. Miller explained the process the District is considering. As estimates were prepared for the Echo Lake Elementary field project, cork, the higher cost infill, was used, but staff will request alternate proposals for different infills and then modify the final cost proposal accordingly. A recommendation will be brought back to the Board for their consideration. However, staff doesn't want to ask for information for options that the Board has no interest in so Ms. Miller asked for some direction from the Board.

The Board recommended asking for quotes on the following: SBR crumb rubber, coated crumb rubber and cork. Ms. Fralick expressed **very strong reservations about crumb rubber given student allergies and health sensitivities but felt we should do our due diligence in terms of comparing the monetary costs moving forward with these three options.** Mr. Potter asked if there was a problem with dust on the cork fields. Mr. Gold responded that there have been issues, and that over the past 2 or 3 years, D.A. Hogan has refined its specification parameters accordingly. This is primarily an issue of on-site quality control during construction. Once installation is complete, dust hasn't been a problem.

Ms. Fralick asked if heat was a problem **with SBR crumb rubber.** It can be but it is much less of a problem in this area where the climate is more temperate than other parts of the country.

Mr. Wilson expressed some concerns about the future supply of cork. Mr. Potter asked if the District selected the SBR crumb rubber and then the EPA came back with negative reports, how hard would it be to vacuum it out and reinstall something better. Mr. Gold responded that it would depend largely on the age of the installation and the type of fiber. It has been done but it isn't something to be undertaken on a field that is a few years old.

Mr. Potter asked what the pad used in cork installations was made of and the response was SBR crumb rubber. The crumb rubber is completely blended into a homogenous matrix with polyurethane so it is not unlike the coated crumb rubber in that it is completely encapsulated. It is flooded with polyurethane so there is no chance of exposure. The pad is paved in place and it is somewhat like asphalt in that the SBR is the aggregate and the polyurethane is the asphalt binder. It is pervious (more so than the turf itself) and it drains about 100 inches per hour.

Mr. Potter asked how it is determined that the coating on the crumb rubber is failing; primarily it is the change in color to black.

Mr. Gold concluded by saying that when you line up all these products along with their individual components, experts in the industry know far more about crumb rubber than anything else, cork included.

Adjournment: 6:53 p.m.

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Mike Jacobs, School Board President

Attest: March 18, 2019

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Rebecca L. Miner, Secretary to Board of Directors