Sports Turf Manager
FOR BETTER, SAFER SPORTS TURF. WINTER 2015. VOL. 28. NO. 4.

McLeod Athletic Park Synthetic Turf Field Replacement

Tab Buckner, Manager Parks Operations, Township of Langley, BC

In 2003 the first synthetic turf field in the Township of Langley was installed at McLeod Athletic Park. The synthetic turf replaced an existing natural turf sand-based field inside an eight lane track.

After the synthetic turf field was constructed, drainage issues on the field became problematic following heavy rainfall events. Even after minor rainfall there was ponding water on sections of the field. The Township of Langley is located 30 km east of the City of Vancouver in the rain forest of British Columbia. It was determined that the over compaction of the base gravels, infiltration rates of the synthetic turf below manufacturers specifications, and no perimeter trench drain between the field and the track were the causes of the field not draining at the 250 mm/hour specified in the original construction tender documents. To mitigate some of these drainage issues, an internal perimeter drain line was installed under the synthetic turf to intercept the track water runoff and a surfactant was applied twice a year to the synthetic turf to improve infiltration.

After the synthetic turf field was constructed, drainage issues on the field became problematic following heavy rainfall events.

The Township decided in 2012 that the synthetic turf field at McLeod Athletic Park would be replaced between March 18 and June 7, 2013. The reason this time period was selected was to minimize disruption to field users and have the project completed prior to provincial and national track events at the park in the months of June and July. Generally this type of work occurs in the summer when rainfall accumulation is very small and does not delay the project. For the project to be completed on time the Township was hoping for a dry spring… luckily it happened.

As previously mentioned, this field had a drainage issue. With the replacement of the synthetic turf eliminating one of the contributing factors, two still remained. In discussions with the consultants it was decided to scarify the existing base gravels to lessen compaction thereby improving their drainage. Second, was to build a crown on the field. Third, was to install a drainage pad under the synthetic turf to take advantage of the new crown on the field. Last, was to install

(continued on page 6)

Inside Features

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Please include the vital information of name, telephone number with area code, and time of calling.
The office may be reached at any time by faxing (519) 766-1704 or via e-mail.

President's Desk

BY TENNESSEE PROPEDO

I can't believe that 2015 is coming to an end. When the Right Honourable David Johnston, Governor General of Canada, declared that 2015 was to be the "Year of Sport" in Canada; celebrating the role sports play in our Canadian identity, he wasn't kidding. From the FIFA Women's World Cup, the Pan and Parapan American Games as well as all the national, provincial and local league games and championships it has been an extremely busy year for Canadian sports turf managers. My hat is tipped to all that were involved while Canada was being showcased on the world stage; nothing but praise was directed at our industry and the dedication and professionalism of all our members.

Highlights for me this year were attending the annual Western Canada Turfgrass (WCTA) conference in Victoria, BC where I had the opportunity to be introduced to BC's Minister of Environment, the Honourable Mary Polak. Incredible things happen when you can get the government to work with the industry and science community to reach a common sense/scientific approach in dealing with the pesticide issue. Great work by the executive of the WTCA for being on the forefront of these discussions. Other high points in 2015 included the annual Ontario Turfgrass Symposium in February with the great assortment of speakers, and the tremendous turnout at both the Atlantic and Ontario Field Days held in August and September respectively. These events provide not only our members, but also the sports turf industry as a whole, with awesome educational and networking opportunities. I would be remiss not to thank all of the sponsors for supporting these and all of our events because without your generosity these types of functions would not be possible. I was pleased to present this year, the Sports Turf Manager of the Year Award to Robert Heggie.

One of the low lights this year was not being able to bestow the Robert Sheard Scholarship Award. Unfortunately we received no applicants by the deadline. If you've taken the Turf Managers' Short Course or equivalent this year or had a turf student in your employ, please encourage them to apply for next year. The award is intended to assist students with the cost of tuition, books and related expenses.

Our new Member Referral Program continues until January 31. With your help, we can grow Sports Turf Canada and share the passion for better, safer sports turf.

Conference time is fast approaching; please try to attend one of the following:

- The Sports Turf Managers Association Conference & Exhibition January 19 to 22 in San Diego, California,
- The 25th annual Ontario Turfgrass Symposium will take place February 17 and 18 in Guelph ON,
- The 53rd Annual Western Canada Turfgrass Association Conference & Trade Show February 23 to 25 in Whistler BC, or
- The Atlantic Turfgrass Conference and Trade Show February 23 to 25 in Charlottetown PE. Sports Turf Canada is pleased to formally participate in this annual conference for the first time!

We have begun the process of seeking nominations for our Board of Directors to be approved at our Annual General Meeting on February 17 (deadline December 18, 2015). We are also currently accepting recommendations for our prestigious Sports Turf Manager of the Year award (deadline January 15) and applicants for the Robert W. Sheard Scholarship (deadline May 30).

Season Greetings and wishing everyone all the best in 2016!

Tennessee

Event Calendar

November 1 to January 31, 2016
New Member Referral Program
sportsturfcanada.com

December 18
Sports Turf Canada
Board of Directors
Nomination Deadline
sportsturfcanada.com

January 15
Sports Turf Canada Sports Turf Manager of the Year Award
Nomination Deadline
sportsturfcanada.com

January 19 to 22
Sports Turf Managers Association Conference & Exhibition
San Diego, CA
stma.org
Sports Turf Canada members can register at STMA member rates! Login to sportsturfcanada.com for the registration form.

February 1 to 26
University of Guelph Turf Managers' Short Course
Guelph, ON
turfmanagers.ca

February 17 and 18
Ontario Turfgrass Symposium
Time to Grow
University of Guelph
Guelph, ON
turfsymposium.ca

February 17
Sports Turf Canada Annual Members Meeting During the Ontario Turfgrass Symposium
University of Guelph
Guelph, ON
sportsturfcanada.com

February 23 to 25
Atlantic Turfgrass Research Foundation Conference & Tradeshow
Charlottetown, PEI
sportsturfcanada.com

February 23 to 25
Western Canada Turfgrass Association Conference and Trade Show
Whistler, BC
wcta-online.com

May 30
Sports Turf Canada Robert W. Sheard Scholarship Deadline
Whistler, BC
sportsturfcanada.com

New & Returning Members

BRITISH COLUMBIA

Colin Pawson
Delta School District #37
Delta, BC

ALBERTA

Christina Chudek
Blue Grass Sod & Nursery Ltd.
Rocky View County, AB

ONTARIO

Jane Elder
City of Brampton, ON

Brendan Jacobs
City of Hamilton, ON

David Tilden
Town of Oakville, ON

Tim Tripp
Neudorff North America
Guelph, ON

Sports Turf Manager

FOR BETTER, SAFER SPORTS TURF. WINTER 2015.

"In the midst of winter, I found that there was, within me, an invincible summer."
~ Albert Camus

SPORTS TURF™ CANADA

Inside this issue...

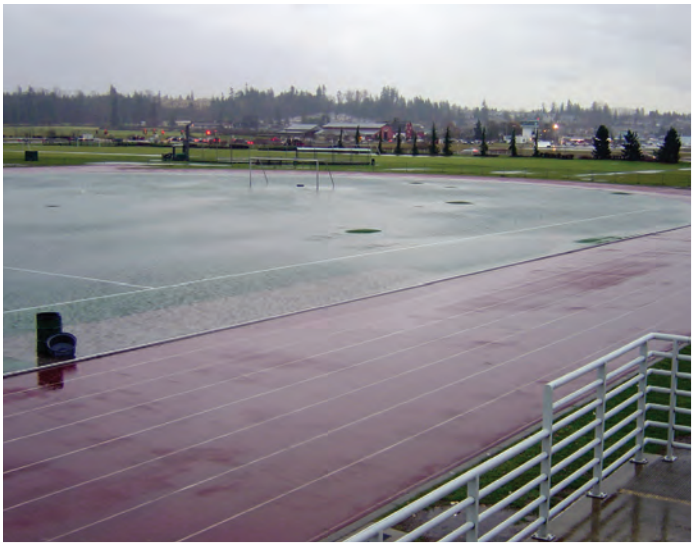
REGULAR COLUMNS, DEPARTMENTS & SMALL FEATURES

Deadline for Spring 2016 Sports Turf Manager: March 4

WHAT'S ONLINE
SportsTurfCanada.com

Login to the Members Only Section

- **Registration form for STC members for the Sports Turf Managers Association Annual Conference & Exhibition in January**
- **2016 Board of Directors Slate of Nominees and information for the STC Annual General Meeting as it becomes available**




a channel drain between the track and the edge of the field to pick up the water draining from the track and not allowing it to disperse onto the field.

An additional part of the project scope was to install a four foot high ball control fence in sections around the majority of the field to minimize conflict between field and track users.

On March 18, 2013 the contractor started removing the existing synthetic turf field by cutting it width-wise into 3 m sections, rolling it up with the fill still intact and placing the rolls on a tractor trailer unit. One hundred and ninety-two rolls of synthetic turf were transported to Orting, Washington for recycling. Recycling consisted of extracting the infill, rescreening it and reselling it as infill. The synthetic turf was sold to residential installation contractors in California and Arizona.

Next was the process of scarifying the gravel base with the synthetic turf removed and the installation of perimeter drain between the track and the edge of the synthetic turf. After scarification of the base gravels was completed, water was still ponding, especially in the southern portion of the field after rainfall. It was decided to camera the existing drainage system and it was determined that 520 m was compromised and needed to be replaced. It was also decided to add an additional 200 m of lateral drain lines in the southern portion of the field to increase the chances the base gravels would drain effectively.

Once all the civil works were completed on the field, the turf contractor installed the drainage pad in sections followed by the synthetic turf. When installing the drainage pad it is like putting a giant puzzle together. The synthetic turf is rolled out width-way across the field in sections and then those sections are sewn together. Field lines that were not sewn into the synthetic turf at the factory were inlayed into the field, including lettering, numbers and a logo. After the synthetic turf field was completed the Gmax was 73.7 and the HCI was 182.45. The field was tested again in June 2014: Gmax 81.9 and 192.8 HCI, and in June 2015: Gmax 90 and HCI 260 by an independent third party.

There have been significant rainfall events since the project was completed and the synthetic turf field has drained without any issues. •

MAINTENANCE BUDGET ANALYSIS

Jason Inwood, Manager of Operations, Town of Innisfil, ON

Finding the right balance between funding and service levels are not new challenges Sports Turf Managers are faced with annually. While each Sports Turf Manager addresses their fields' needs based on approved service levels, soil conditions, turf species, weather, etc. there continues to be pressure to scale back budgets, yet maintain high levels of service.

When presenting a budget, one should consider the "story" that goes along with the funding request. Simply asking for money does not always demonstrate the value being delivered to the end users when seeking approval from a municipal council or a board of directors. Sports Turf Managers should consider explaining the true "needs" to keep their fields to a specific standard and the costs associated with each of those needs.

Sports Turf Managers have tools available to them that can assist in doing the analytics and forecasting for their maintenance budgetary needs. Using the Template for Maintenance Cost Analysis available in Sports Turf Canada's Athletic Field Construction Manual formulates the data required to not only forecast a budget but to tell the "story". This allows you to quantify the tangible services being delivered in order to maintain fields at an appropriate level of service.

Using all or a combination of any of the tables in the Template for Maintenance Cost Analysis is a quick and easy means of forecasting your maintenance budget needs. Available from Sports Turf Canada in a simple Excel format, plugging in the values and quantities for your field(s), this spreadsheet will confirm your budget needs.

The tool is very helpful as Sports Turf Managers modify their service levels year to year and evaluate how those adjustments affect their budgets. The tool can be used field by field, or a larger grouping of fields. Having this in your toolbox assists with your financial projections and provides a defensible means of justifying the required funding and telling your story as it relates to your budgetary needs.

Excel Templates for Maintenance Cost Analysis (available from Sports Turf Canada)

Mowing Cost Analysis

	A	B	C	D	E	F	G	H	I
5	FIELD CATEGORY	NUMBER OF MOWINGS	HOURS PER MOWING	LABOUR COST $/HOUR	TOTAL LABOUR $/YEAR	MACHINE COST $/HOUR	TOTAL MACHINE $/YEAR	TOTAL MOWING COST $/YEAR	
6	1				=B6*C6*D6		=B6*C6*F6	=E6+G6	
7	2				=B7*C7*D7		=B7*C7*F7	=E7+G7	
8	3				=B8*C8*D8		=B8*C8*F8	=E8+G8	
9	4				=B9*C9*D9		=B9*C9*F9	=E9+G9	
10	5				=B10*C10*D10		=B10*C10*F10	=E10+G10	

Coring Cost Analysis

	A	B	C	D	E	F	G	H	I
14	FIELD CATEGORY	NUMBER OF CORINGS	HOURS PER CORING	LABOUR COST $/HOUR	TOTAL LABOUR $/YEAR	MACHINE COST $/HOUR	TOTAL MACHINE $/YEAR	TOTAL COST $/YEAR	
15	1				=B15*C15*D15		=B15*C15*F15	=E15+G15	
16	2				=B16*C16*D16		=B16*C16*F16	=E16+G16	
17	3				=B17*C17*D17		=B17*C17*F17	=E17+G17	
18	4				=B18*C18*D18		=B18*C18*F18	=E18+G18	
19	5				=B19*C19*D19		=B19*C19*F19	=E19+G19	

Vertidrain Cost Analysis

	A	B	C	D	E	F	G	H	I
23	FIELD CATEGORY	NUMBER OF CORINGS	HOURS PER CORING	LABOUR COST $/HOUR	TOTAL LABOUR $/YEAR	MACHINE COST $/HOUR	TOTAL MACHINE $/YEAR	TOTAL COST $/YEAR	
24	1				=B24*C24*D24		=B24*C24*F24	=E24+G24	
25	2				=B25*C25*D25		=B25*C25*F25	=E25+G25	
26	3				=B26*C26*D26		=B26*C26*F26	=E26+G26	
27	4				=B27*C27*D27		=B27*C27*F27	=E27+G27	
28	5				=B28*C28*D28		=B28*C28*F28	=E28+G28	

Tyne Aerification Cost Analysis

	A	B	C	D	E	F	G	H	I
32	FIELD CATEGORY	NUMBER OF CORINGS	HOURS PER CORING	LABOUR COST $/HOUR	TOTAL LABOUR $/YEAR	MACHINE COST $/HOUR	TOTAL MACHINE $/YEAR	TOTAL CORING COST $/YEAR	
33	1				=B33*C33*D33		=B33*C33*F33	=E33+G33	
34	2				=B34*C34*D34		=B34*C34*F34	=E34+G34	
35	3				=B35*C35*D35		=B35*C35*F35	=E35+G35	
36	4				=B36*C36*D36		=B36*C36*F36	=E36+G36	
37	5				=B37*C37*D37		=B37*C37*F37	=E37+G37	

Fertilization Cost Analysis

	A	B	C	D	E	F	G	H	I
41	FIELD CATEGORY	NUMBER OF APPLICATIONS	HOURS PER APPLICATION	LABOUR COST $/HOUR	TOTAL LABOUR $/YEAR	MACHINE COST $/HOUR	TOTAL MACHINE $/YEAR	APPLICATION COST $/YEAR	
42	1				=B42*C42*D42		=B42*C42*F42	=E42+G42	
43	2				=B43*C43*D43		=B43*C43*F43	=E43+G43	
44	3				=B44*C44*D44		=B44*C44*F44	=E44+G44	
45	4				=B45*C45*D45		=B45*C45*F45	=E45+G45	
46	5				=B46*C46*D46		=B46*C46*F46	=E46+G46	

	A	B	C	D	E	F	G	H	I
49	FIELD CATEGORY	NITROGEN RATE kg N/100M^2	COST $/kg N	FIELD AREA M^2/FIELD	MATERIAL COST $/YEAR		TOTAL FERTILIZATION COST $/YEAR		
50	1				=B50*C50*D50/100		=H42+E50		
51	2				=B51*C51*D51/100		=H43+E51		
52	3				=B52*C52*D52/100		=H44+E52		
53	4				=B53*C53*D53/100		=H45+E53		
54	5				=B54*C54*D54/100		=H46+E54		

Overseeding Cost Analysis

	A	B	C	D	E	F	G	H	I
58	FIELD CATEGORY	NUMBER OF APPLICATIONS	HOURS PER APPLICATION	LABOUR COST $/HOUR	TOTAL LABOUR $/YEAR	MACHINE COST $/HOUR	TOTAL MACHINE $/YEAR	APPLICATION COST $/YEAR	
59	1				=B59*2*C59*D59		=B59*C59*F5	=E59+G59	
60	2				=B60*2*C60*D60		=B60*C60*F60	=E60+G60	
61	3				=B61*2*C61*D61		=B61*C61*F61	=E61+G61	
62	4				=B62*2*C62*D62		=B62*C62*F62	=E62+G62	
63	5				=B63*2*C63*D63		=B63*C63*F63	=E63+G63	

	A	B	C	D	E	F	G	H	I
66	FIELD CATEGORY	SEED RATE kg SEED/100M^2	COST $/kg SEED	FIELD AREA M^2/FIELD	MATERIAL COST $/YEAR		TOTAL OVERSEEDING COST $/YEAR		
67	1				=B67*C67*D67/100		=E59+G59+E67		
68	2				=B68*C68*D68/100		=E60+G60+E68		
69	3				=B69*C69*D69/100		=E61+G61+E69		
70	4				=B70*C70*D70/100		=E62+G62+E70		
71	5				=B71*C71*D71/100		=E63+G63+E71		

Irrigation Cost Analysis

	A	B	C	D	E	F	G	H	I
75	FIELD CATEGORY	FIELD AREA M^2/FIELD	VOLUME M^3/MM PRECIP	APPLICATION MM/WEEK	WEEKS/SEASON	TOTAL VOL. M^3/YEAR	COST WATER $/$M^3$	MAINTENANCE & REPAIR	TOTAL COST $/FIELD
76	1		=B76/1000			=C76*D76*E76			=F76*G76+H76
77	2		=B77/1000			=C77*D77*E77			=F77*G77+H77
78	3		=B78/1000			=C78*D78*E78			=F78*G78+H78
79	4		=B79/1000			=C79*D79*E79			=F79*G79
80	5		=B80/1000			=C80*D80*E80			=F80*G80

Hydro Cost Analysis

	A	B	C	D	E	F	G	H	I
84	FIELD CATEGORY	PERMITTED DAYS/YEAR	AVG. HRS/DAY OF LIGHT USE	LIGHT HOURS /YEAR	KILOWATTS/HR	COST HYDRO $/kWh	TOTAL HYDRO COST		
85	1			=B85*C85			=D85*E85*F85		
86	2			=B86*C86			=D86*E86*F86		
87	3			=B87*C87			=D87*E87*F87		
88	4			=B88*C88			=D88*E88*F88		
89	5			=B89*C89			=D89*E89*F89		

Summary of Yearly Maintenance Costs

	A	B	C	D	E	F	G	H	I
94	FIELD CATEGORY	MOWING	AERIFICATION	FERTILIZATION	OVERSEEDING	IRRIGATION	HYDRO	TOTAL COST $/FIELD/YEAR	TOTAL COST $/FIELD/PERMITTED HOUR
95	1	=H6	=H15+H24+H33	=G50	=G67	=I76	=G85	=SUM(B95:G95)	=H95/450
96	2	=H7	=H16+H25+H34	=G51	=G68	=I77	=G86	=SUM(B96:G96)	=H96/550
97	3	=H8	=H17+H26+H35	=G52	=G69	=I78	=G87	=SUM(B97:G97)	=H97/700
98	4	=H9	=H18+H27+H36	=G53	=670	=I79	=G88	=SUM(B98:G98)	=H98/450
99	5	=H10	=H19+H28+H37	=G54	=671	=I80	=G89	=SUM(B99:G99)	=H99/450

Removal, Recovery, Reuse and Recycling of Synthetic Turf and its System Components

Synthetic Turf End of Life

What happens with synthetic turf once it reaches the end of its useful life? What options are available to avoid the landfill? One of the challenges the synthetic turf industry is working on is determining how best to manage the removal and disposition of synthetic turf once it has reached the end of its useful life, or "End of Life" (EOL).

As with any recovery and recycle effort, the diversity of component materials represents a technical and economic challenge. Synthetic turf includes a variety of polymers such as polyethylene, polypropylene, nylon, styrene butadiene rubber and polyurethane. Natural materials such as silica sand and calcium carbonate are also present. These materials must be separated in order to be recycled and the variety presents a unique challenge not seen in other recycled materials such as plastic bottles, carpet or plastic bags.

With this challenge there is an assortment of technologies and processes being developed to reduce landfill dependence. These include processes for removing and separating to the extent possible turf components into materials that can be recycled or reused. They also include development of new materials for turf construction that are more environmentally friendly.

This article addresses the issues with removal, reclamation and recycling of synthetic turf. The industry is working hard to identify the best and most economical approaches to remove and process synthetic turf materials that have reached their end of life. When it is time to make the decision to reclaim or to landfill, what is involved? What are the options for reclaiming and recycling synthetic turf installations?

Converting Synthetic Turf to a Recyclable Material

The graphic on the next page is a simplified view of the decisions required and the options available for synthetic turf removal. It shows the steps required to convert the synthetic turf materials into a form that is useful for recycling. Unfortunately, converting synthetic turf to a recyclable material that is useable cannot be done at the point of removal. Material must be shipped to different processing locations. The cost of shipping is one of the biggest challenges associated with synthetic turf reclamation.

Once the decision has been made to reclaim the synthetic turf, the materials must be separated. Infill must be removed from the turf. Further separation may be required to separate sand and debris from the infill.

After the synthetic turf has been separated from the infill it can be broken down into materials suitable for post-consumer recycle content in the plastics industry. This can be accomplished in much the same way that carpet is reclaimed and recycled today. The industry is working to identify the most economical way to process turf plastics.

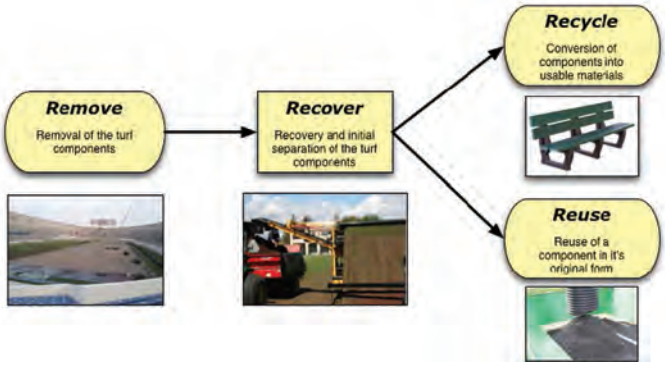
Synthetic Turf

Profile

A typical synthetic turf sports field is about 80,000 square feet (7,432 m^2). It comprises about 400,000 lbs. (181,000 kg) of infill and 40,000 lbs. (18,100 kg) of turf, or the equivalent of 15 to 20 30-yard (23 m^3) dumpsters. Almost all fields installed in the U.S. include a silica sand/tire crumb rubber or all crumb rubber infill, each of which accounts for 2-3 lbs./sq. ft. (10-15 kg/m^2) weight of the synthetic turf system. Therefore, 1,000 deconstructed fields represent 80 million square feet (7.4 million m^2) of turf weighing

Synthetic Turf COUNCIL

Keeping Synthetic Turf Out of the Landfill



Note: Other turf components such as infill and the underlayment pad may also need to be removed, reclaimed and recycled or reused.

40 million pounds (18 million kg), and 400 million pounds (180 million kg) of infill, including 250 million pounds (113 million kg) of crumb rubber, and 150 million pounds (68 million kg) of silica sand.*

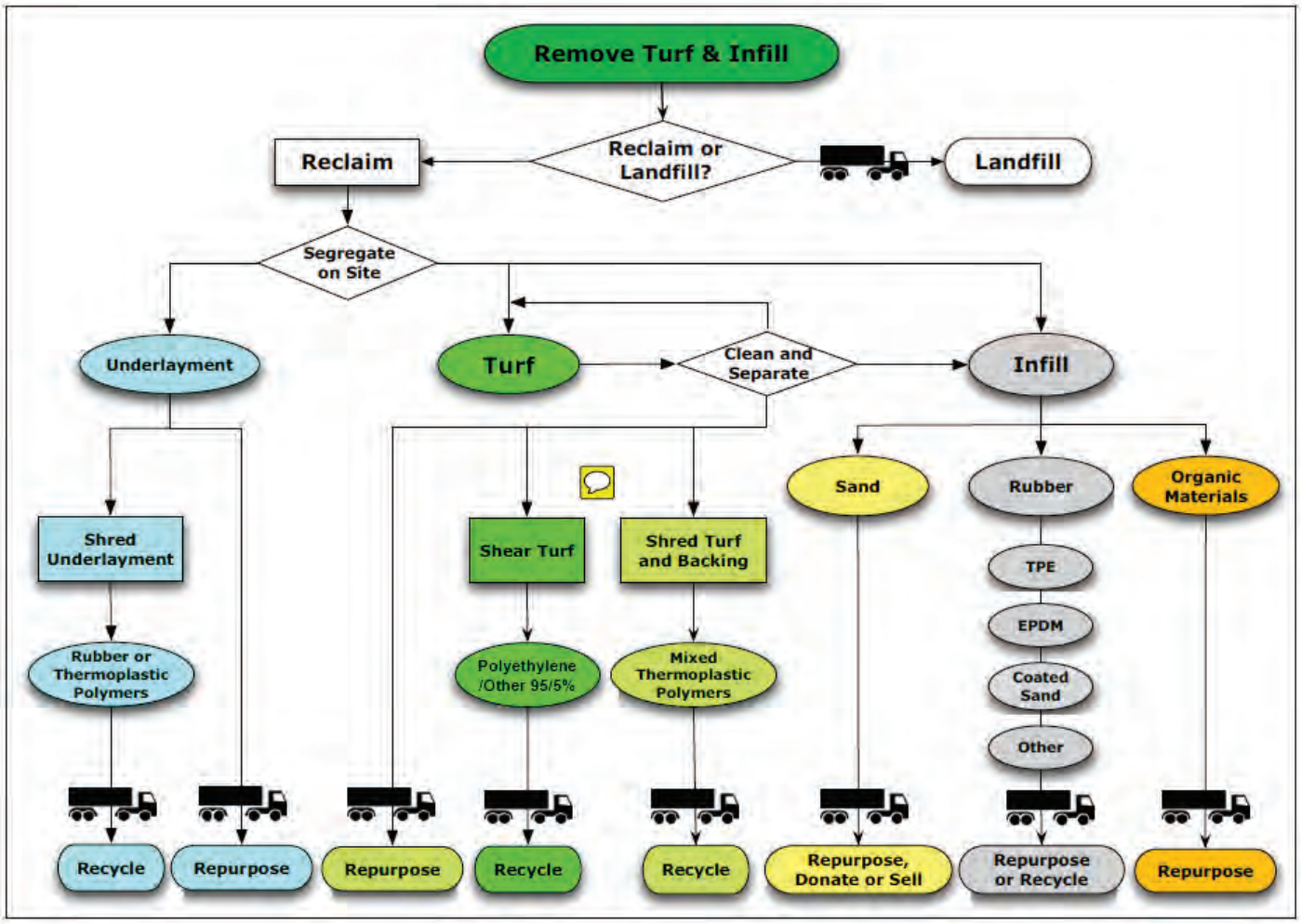
The first infilled (or so-called 3rd Generation) synthetic turf sports field was installed in the U.S. in 1997. At the end of 2012, there were over 8,000 synthetic turf sports fields in use. Depending on its usage, exposure to intense sunlight, maintenance, and other factors, a synthetic turf sports field will last up to about 10 years before reaching the end of its useful life. It is estimated that by 2017, over 1,000 synthetic turf sports fields will be deconstructed annually: 365 in 2013; 571 in 2014; 768 in 2015; 941 in 2016 and 1,012 in 2017.*

During the past 10 years, synthetic turf has also become a popular option for residential and municipal landscape, roof gardens, pet parks, playgrounds, airport median strips, and other landscape and recreation uses. High quality synthetic turf used for landscape and recreation purposes can last years longer than synthetic turf sports fields because of the reduced usage.

Removal

The industry has developed special equipment to remove synthetic turf sports fields by cutting it, picking it up, rolling it into easily transportable bundles, and, in some cases, removing most of the infill. Synthetic turf for landscape and recreation use is not so easily removed and bundled because it is often irregularly shaped. Once the synthetic turf is removed and the component materials

End of Life – Synthetic Turf Material Flow Overview



End of Life – Synthetic Turf Material Flow Overview

	Removal Options	Reuse Options	Recycle Options*	Waste to Energy Options
Synthetic Turf				
Polyethylene	✓	✓	✓	**
Polypropylene	✓	✓	✓	**
Nylon	✓	✓	**	**
Infill				
Crumb Rubber	✓	✓	✓	✓
EPDM	✓	✓	✓	
TPE	✓	✓	✓	✓
Organic Infill	✓	✓		
Silica Sand	✓	✓		
Coated Silica Sand	✓	✓		
Coated Crumb Rubber	✓	✓		
Shock Pad Underlayments				
PVC/NBR foam	✓	✓	✓	✓
Polypropylene Composite	✓	✓	✓	
Polyurethane	✓	✓	✓	✓
Post Consumer Tire Rubber	✓		✓	
Elastic Layer Underlayments				
Post-Consumer Tire Rubber	✓	✓		**
Combination Drainage/Shock Pad Underlayments				
Expanded Polypropylene	✓	✓	✓	**
Cross-linked Polyethylene	✓	✓	✓	**
Drainage Mats and Strip Drains				
Polystyrene	✓			
Polypropylene	✓	✓	✓	**
TPO	✓		✓	

* Recycle options as declined here are commercially viable. No claims are made regarding logistical viability. Recycle options will vary by product, geographic location, and market.

** Technically feasible but not commercially practiced.

are reclaimed, cost will be a prevailing factor in the decision of how to dispose of it. To consider available reuse and recycling options, the proximity of the synthetic turf to the removal, reuse, recycling or power generation site will be important in order to minimize and make affordable the transportation costs. In fact, when compared to the $30-60,000 cost of landfilling an 80,000 square foot (7,200 m^2) sports field, it is unlikely that the cost of transporting the synthetic turf and/or infill farther than 200 miles (322 km) will be considered feasible. Therefore, it will be important to investigate all of the reuse, recycling, and power generation options in the region. As the industry develops new technologies and options for the recovery of the synthetic turf, the economics will improve.

Reuse and Recycling, Energy Recovery, and Extended Life Cycle

Here are some of the uses to which old synthetic turf can be reused:

- Baseball: Batting cages, in front of dugouts, bullpens, indoor practice and hitting facilities
- Golf: Driving ranges, lining for sand traps for erosion control, tee lines, driving mats
- Sports fields: grass field sidelines, running track protective strips, band practice field, indoor general use practice and play fields
- Landscape and Recreation: Play areas, small landscape areas, highway erosion control, dog runs, pet parks, equestrian stables, airports

Once the synthetic turf has been separated and processed it is useable for recycling. Synthetic turf is produced from several polymers. Even perfectly clean turf contains a mix of LLDPE (linear low density polyethylene), PP (polypropylene) and a coating of either polyurethane, hot melt polyole-fin, or latex. Linear low density polyethylene is used to produce the majority of turf fibres, the largest component of turf. Nylon and polypropylene are also used, but to a much smaller degree. Polypropylene is typically used for the backing material, but backing is a smaller component than turf fibre. These materials can be melted together but may form a polymer mix with distinct phases. Heterogeneous polymer alloys can potentially be used as recycle content in some processes, but will have mechanical properties that are different and likely inferior to virgin or recycled polymers from single components.

Here are some of the ways used synthetic turf can be recycled:

Conversion to Energy

- Energy can be recovered from synthetic turf by incineration, pyrolysis or gasification.
- The calorific value (CV) of polyethylene is 40-45 MJ/kg.

Synthetic Lumber

- Boards
- Railroad ties
- Posts

Molded Parts

- Injection molded parts
- Compression molded products

Crumb Rubber Infill

Profile

Crumb Rubber is derived from scrap auto and truck tires that are ground up and recycled. Two types of tire crumb rubber infill exist: ambient and cryogenic. Together these make up the most widely used infill in the synthetic sports field and landscape market.

Reuse and Recycling, Energy Recovery, and Extended Life Cycle

Here is a list of viable reuse and recycling options for crumb rubber, sand, or the combination. In some cases, the extracted infill may be used As Is (AI) with minimal cleaning. In other cases, cleaning and separating (CS) the sand and crumb rubber may be required. It may be necessary to screen tire crumb rubber prior to reuse to remove unwanted fine particulates, e.g., fibre, metal, very small rubber particulate, or screen for a particular use, such as incorporation into asphalt.

Field/landscape Applications

- Reuse as infill on new synthetic turf sports field or landscape installations (AI) (CS)
- Natural turf soil amendments to improve wear tolerance and prolong playability of natural turf sports fields (AI) (CS)
- ADA-compliant playground surfacing (AI) (CS)

Road and Rail Applications

- Acoustic barriers (CS) (AI)
- Road base (CS)
- Portable traffic control devices (CS)
- Ripple strips and speed bumps (CS)
- Rail crossings, sleepers and buffers (CS)
- Asphalt

Construction & Industrial

- Industrial flooring (CS)
- Acoustic barriers (CS) (AI)
- Sprayed up roofing, insulation and adhesive sealants (CS)
- Mounting pads and shock absorbers (CS)
- Airfield runways (CS)
- Carpet underlay (CS)
- Children's playground surfacing (CS) (AI) (AIWP)

Marine

- Wharf buffers (CS) (AI)
- Floating docks (CS) (AI)
- Non slip flooring (CS) (AI)

Sporting

- Equestrian surfaces and workout areas (CS) (AI)

Landscaping

- Watering systems, rubber hosing & low pressure irrigation drip hoses (CS)
- Infill for Synthetic/Artificial Landscape Turf (CS) (AI)

Natural Turf Soil Amendment (to improve wear tolerance and prolong playability)

- Athletic Fields (AI) (CS)
- School Campus Areas (AI)
- Soil Compacted Walkway or Pathway Areas (AI)

Energy Recovery

- Energy can be recovered from crumb rubber infill by incineration, pyrolysis or gasification.
- The calorific value (CV) of tire rubber is 27.5 MJ/kg (14,000-16,000 BTU).

Infills Other Than Crumb Rubber

EPDM and TPE

EPDM (Ethylene Propylene Diene Monomer) and TPE (Thermo Plastic Elastomer) are polymeric elastomers with high resistance to abrasion and wear and will not change under high temperatures. Products are available in a variety of colours, and have proven durability in all types of climates. Excellent elasticity properties and resistance to atmospheric and chemical agents provide stable, high performance infill products.

Both EPDM and TPE infills are reusable as infill and recyclable into infill or other products. Energy can also be recovered from TPE where the calorific value (CV) can be up to 25-30 MJ/kg.

Organic Infill

Several organic infill materials are available in the North American market, all utilizing different organic components, such as natural cork and/or ground fibres from the outside shell of the coconut. These products can be utilized in professional sports applications as well as for landscaping. At the end of its life cycle, organic infill can be recycled directly into the environment.

Pure Silica Sand

Pure Silica Sand is one of the original infill materials utilized in synthetic turf systems. This product is a natural infill that is non-toxic, chemically stable and fracture resistant. Silica sand infills are typically tan, off-tan or white in colour and, depending upon plant location, may be round or sub-round in particle shape. Silica sand can be used in conjunction with many other infills on the market to provide a safe and realistic playing surface. It can be coated with different materials used as a standalone product, or used in combination with traditional crumb rubber infill systems.

Pure Silica Sand can be reused as infill on new synthetic turf sports fields or landscape installations. It can also be used in natural turf soil amendments to improve wear tolerance and prolong playability.

Coated Silica Sand

Coated Silica Sand consists of coated, high-purity silica sand with either a soft or rigid coating specifically engineered for synthetic turf. These coatings are either elastomeric or acrylic in nature and form a bond with the sand grain sealing it to provide excellent performance and durability over the life of a field. Coated sand is available in various sizes and colours to meet different needs.

In North America, the material can be returned to select manufacturers to be cleaned and recoated. The product can also be used as top-dressing on natural turf fields.

Select products can be recycled into new coated sand infill.

Coated Crumb Rubber

Ambient or cryogenic crumb rubber can be coated with colourants, sealers, or anti-microbial substances, if desired, to provide specific benefits.

Select products can be recovered, sanitized, and recoated for reuse as infill for synthetic turf sports systems, and can be recycled into rubberized asphalt or molded products.

Underlayments, Including Shock Pads, E-Layers, Integrated Drainage Systems, Drainage Mats and Strip Drains

Shock Pads

Shock attenuation pads offer an added level of protection and consistent playability to the playing surface and are designed to contribute to a safe g-max level throughout a synthetic turf field's

life. Roll out or panel systems are available and can be permeable or impermeable. Some can replace all or portions of the stone base and provide both shock attenuation and drainage, while others are used in combination with a traditional stone and drainage base. Pads can be placed directly over asphalt or cement stabilized surfaces.

Various materials that are used include PVC/NBR (polyvinylchloride/nitrile butyl rubber) foam, polypropylene composite, polyurethane and post-consumer tire rubber.

Some shock pads last more than one turf lifecycle. Select pads can also be reused for other uses such as golf mats and farm animal mats.

Some pads are made from recycled materials, while others are made from virgin materials and may be recyclable. Certain manufacturers will accept recovered product for recycling. Energy recovery may also be an option.

Elastic Layers or E-Layers

Elastic layers (E-layers) are poured in-place (in situ). They are permeable and are typically comprised of rubber granulate with a polyurethane binder. E-layers can vary in thickness and do not have seams.

Materials include post-consumer tire rubber used in combination with a polyurethane binder.

Although E-layers are not able to be recycled at this time, they can be reused, or repaired and reused.

Integrated Drainage and Shock Pad Underlayment

Drainage pad underlayments are designed to replace the stone base and act as both a base support and drainage system for turf. Roll out or panel systems are utilized.

Materials used for the various product offerings include expanded polypropylene or cross-linked polyethylene.

Drainage pads can be used for multiple turf life cycles.

The product can be recycled and incorporated into a new drainage pad or other products. Crosslinked polyethylene can be a fuel source and has a caloric value of 45 MJ/kg.

Drainage Mats and Strip Drains

Drainage mats and strip drains are designed to act as both a base support and a single-sided drainage system for turf.

Materials used for the different products include polystyrene, polypropylene and TPO (thermoplastic olefin). Polypropylene products can be reused and recycled.

Reuse and Recycling Successes

Synthetic Turf Council member companies are working hard to develop reuse and recycling options for synthetic turf fields that have reached the end of their useful life. Several member companies will accept recovered synthetic turf. They provide assistance with removal and will clean and warehouse turf that is suitable for reuse. Assistance with transportation may also be available. Reuse options include arena football, tee mats, sand trap liners, landscape liner material, golf products and door mats.

Member companies are also developing removal technologies to make removal and recovery both quick and economical. Separation of infill from turf is particularly important to provide suitable materials for recycling processes.

Companies are developing processes to collect and separate materials so that turf can be processed into post-consumer recycle content products. Turf received in rolls can be processed into plastic pellets that are suitable for injection molding, rotational molding and profile extrusion. Products produced include carpet and turf backing, resilient flooring and infill.

Waste to energy is another viable option. Processes have been developed to utilize reclaimed turf as fuel to provide energy for manufacturing operations.

For information about Synthetic Turf Council member companies providing reclamation, reuse, and recycling services, refer to the Online Buyers' Guide & Member Directory on the website, www.syntheticturfcouncil.org.

Looking Ahead

The uses for reclaimed turf are as vast as the new technologies being developed to allow for higher end uses than ever thought possible before. The members of the Synthetic Turf Council plan to lead in this effort to develop better and more environmentally friendly options for the second life of synthetic turf surfaces.

About the Synthetic Turf Council

Based in Atlanta, the Synthetic Turf Council was founded in 2003 to promote the industry and to assist buyers and end users with the selection, use and maintenance of synthetic turf systems in sports field, golf, municipal parks, airports, landscape and residential applications. The organization is also a resource for current, credible, and independent research on the safety and environmental impact of synthetic turf. Membership includes builders, landscape architects, testing labs, maintenance providers, manufacturers, suppliers, installation contractors, infill material suppliers and other specialty service companies. For more information, visit www.syntheticturfcouncil.org.

* Source: Turf Reclamation Services, LLC

Industry Conferences: On Point and On Track

Conferences are the hot topic at Sports Turf Canada this time of year. With committees meeting and program development underway for both the Ontario Turfgrass Symposium and the Atlantic Turfgrass Conference, and observing similar processes happening for both the Western Canada Turfgrass Association and Sports Turf Managers Association (STMA) conferences, one might ask the question, "Are conferences still valuable in today's economic and technologic environments?"

Some online research unearthed an interesting article by April Taylor which, while addressing more the responsibility and deliverables associations must meet for a successful conference, answered our question with an emphatic "Yes."

Consider this, where else will you hear about cutting edge research, learn about current management practices and techniques, and have the opportunity to discuss it all with researchers, industry professionals and colleagues? Where else can you celebrate your peers and their successes with the presentation of awards, elevating your profession and your industry? Where else can you meet with a selection of varied industry suppliers and talk about their products and services? Where else can you immerse yourself in all things turf? At your industry association conference and there are many to choose from.

There is little doubt that economics play a crucial role in the decision to attend an industry conference but making a case for it is possible and the STMA has developed a methodology for doing just that. It involves educating yourself on the conference and exhibition, knowing the cost and developing an action plan. And the impact of technology? April Taylor says it well, "Ultimately, the intimacy and personalization of meeting face-to-face, one-on-one, group-to group, and at conferences, large and small, will continue to be a bankable and dependable exercise."

We hope to see you out at one of these sports turf industry events.

See page 4 of this issue for 2016 upcoming Events and Conferences, or visit sportsturfcanada.com for the most up-to-date information.

References: Taylor, April. Association Conferences: Are They Still Worthwhile. http://www.csae.com/resources/articles-tools.

CONFERENCE UPDATE

Atlantic Golf Superintendents Association and Sports Turf Canada Join Forces for Regional Conference

FEBRUARY 23-25, 2016
CHARLOTTETOWN, PEI

The Atlantic Turfgrass Conference and Trade Show, administered by the AGSA on behalf of the Atlantic Turfgrass Research Foundation (ATRF), is the region's premier event for turf managers in the golf course, sports field, lawn care, and sod industry. Through this partnership, Sports Turf Canada will be able to offer enhanced programming with more specialized education and professional development for sports turf managers.

For more information regarding sponsor, exhibitor, and program details as they become available, visit agsa.ca or sportsturfcanada.com.

About ATRF

The Atlantic Turfgrass Research Foundation Inc., established in 1995, is a non-profit organization dedicated to the advancement of the turfgrass industry in Atlantic Canada.

About AGSA

Established in 1967, the Atlantic Golf Superintendents Association promotes the exchange of scientific and practical knowledge related to the care of golf courses. The AGSA recognizes and promotes the value of learning and teaching through the sponsorship of conferences, meetings and exhibitions for the benefit of members of the Association and the turfgrass industry.

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- AND MANY, MANY MORE...

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- The promotion of quality, safe sports turf across Canada
- A commitment to constantly improving our association to serve our members and our partners
- Environmental stewardship – we value sports turf and its impact on the environment
- A commitment to sports turf through ongoing educational opportunities, resources and the support of research
- Regular communication through ***Sports Turf Manager*** magazine, enews and website

328 Victoria Road South, Guelph, Ontario N1L 0H2 | 519-763-9431 info@sportsturfcanada.com **SportsTurfCanada.com**

How to Convince Your Employer to Send You to Your Industry Conference

STMA Staff

It's time to begin planning your trip to your annual sports turf industry conference. How can you convince your employer to send you? Continuing education and industry connections are crucial to your success and the success of your sports facility. Here are some suggestions to help your employer understand how your attendance can add value to the overall operation of the facility.

Educate yourself on the Conference and Exhibition

- Provide an overview of the size and scope of the conference. It may be helpful to give your employer a copy of the conference brochure.
- Pinpoint specific sessions you plan to attend and tie their relevance to your sports facility.
- Highlight the trade show hours you plan to attend.
- Cite the suppliers and equipment manufacturers you plan to meet.
- Discuss the networking opportunities you will have with peers who share challenges similar to the ones you have.
- If applicable, detail the CEUs you will receive.
- Explain how innovations in products, new research, and cutting edge management techniques continually change, and why it is important to stay abreast of those changes.
- Reinforce how the success of your sports fields ultimately depends upon the continued professional development of you and other staff.

Know the Cost

- Make a case for efficient and effective use of your facility's training dollars. By attending your industry conference you will be exposed to the most relevant education and technology available in one place, making it the most effective use of training dollars.
- If applicable, show how the conference registration fee includes your meals.
- Research drive times and air fares. You may be able to beat the cost of airfare while spending a reasonable amount of time in the car.

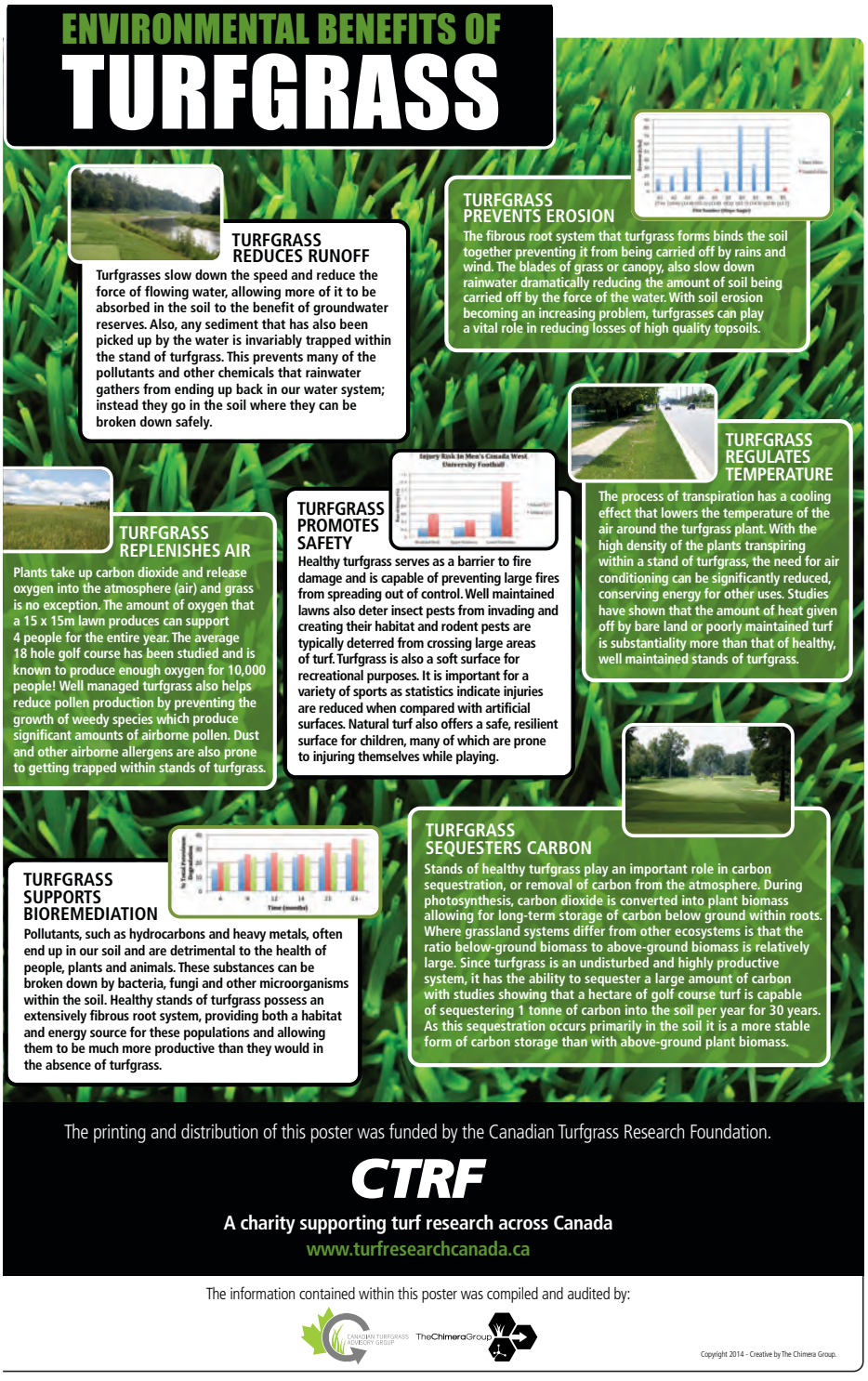
Have an Action Plan

- Develop a plan for how operations will continue in your absence. Make sure you are accessible by phone or by email to address any concerns that might arise in your absence.
- Promise to prepare and present a report on the information you learned and how you plan to put it into practice at your facility.
- Demonstrate how you will share the technical information learned with other staff for their continuing educational development.

www.stma.org

ENVIRONMENTAL BENEFITS OF TURFGRASS

The Canadian Turfgrass Research Foundation (CTRF)'s recent call for proposals included a request for any communication items surrounding and related to the positive contributions of turfgrass.



With this in mind, The Chimera Group and the Canadian Turfgrass Advisory Group (CTAG) formulated a plan to produce a poster that could be displayed in public areas by sport turf managers, lawn care operators, sod farmers and golf courses highlighting "The Environmental Benefits of Turfgrass". By displaying the poster in municipal sport complexes, locker rooms, clubhouses, pro shops, businesses and other public domains, the mission was to engage and educate turfgrass invested parties and the general public in the advantages of turfgrass that are too often dismissed or overlooked and provide a pointed education piece on all the benefits turfgrass provides to our communities. The groups concluded seven key benefits would be included and each of these benefits would incorporate a summary highlight drawn from research done on turf by academia and vetted by CTAG. Those seven key highlights are;

- Turfgrass reduces runoff
- Turfgrass prevents erosion
- Turfgrass replenishes air
- Turfgrass promotes safety
- Turfgrass regulates temperature
- Turfgrass supports bioremediation
- Turfgrass sequesters carbon

Copies of the poster are now available through the CTRF, CTAG, and Sport Turf Canada (pick up only). For more information on CTAG, visit www.canadianturfgrass.ca. For more information on CTRF, visit www.turfresearchcanada.ca

NEWS

DLF Pickseed announces the retirement of Larry White, Professional Turf Salesman

After 25 years of service to Pickseed and the seed industry, Larry White will be retiring effective October 31, 2015.

Paul Stevens, Professional Turf Manager stated, “Larry played an important role at Pickseed throughout his career, particularly in the success of the Pickseed brand. The Company wishes him continued success in his retirement plans”.

Craig McCutcheon, Professional Turf Salesman has been working with Larry over the past 9 months and will now serve as your Pickseed sales contact for South Western Ontario and the western corridor of the GTA. Craig is based in Kitchener and brings 24 years of experience from the turf industry, most recently working with Direct Solutions as a Technical Sales Representative. Craig’s experience also includes the sales and support of seed products along with participation in various related seed industry educational programs.

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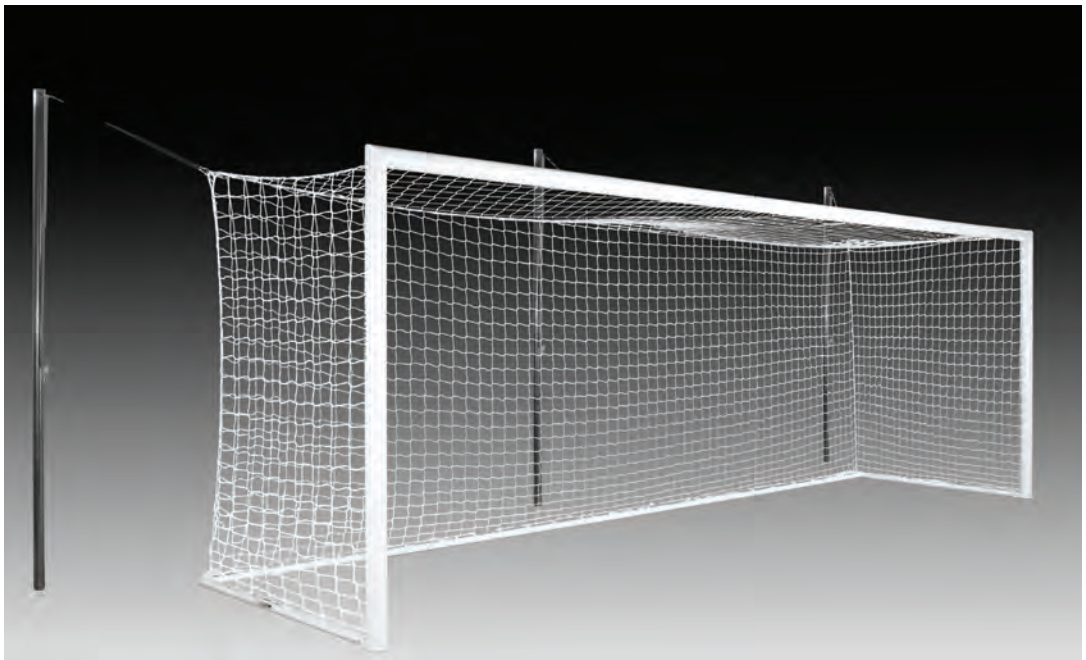

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CANADA

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