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On the cover: First launched in 2005, The City of Coquitlam's interactive, web-based map gives Coquitlam residents and staff access to information about municipal services and features. Here, a city worker uses a map geared specifically to his department to complete daily tasks. Go to page 30 for details. Photo courtesy of Ersi Canada (www.ersi.ca).



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A Message from the Public Works Association of British Columbia

I hope everyone had a safe, healthy and happy summer season with family and friends. As the fall season is upon us, the Public Works Association of British Columbia (PWABC) will continue to offer a diverse range of courses related to the public works profession, such as snow and ice training, emergency management and construction management. We also have a number of networking events planned. Information on course offerings, events and educational programs are available on our website at www.pwabc.ca.

We have hosted several events for emerging leaders in the public works industry and they have been highly successful. Connecting with emerging leaders and young professionals will enhance our goal to promote the public works profession to other organizations and communities abroad. In keeping with our goal to provide quality education, resources and professional development courses will be developed to retain young professionals in the public works profession. I look forward to connecting with emerging leaders in our industry in the future.

Our 84th PWABC Annual Technical Conference & Trade Show, September 18 to 21, 2016, is hosted by the Sun Peaks Mountain Resort Municipality. This annual event is dedicated to further educate public works professionals on topics related to their areas of interest and to provide the opportunity for suppliers to showcase new and innovative products and technologies. A special thank you to the Sun Peaks Mountain Resort conference committee, volunteers, and our Executive Director, Jeannette Austin, and her team, for organizing this annual event. Please mark our 85th PWABC Annual Technical Conference & Trade Show on

In keeping with our goal to provide quality education, resources and professional development courses will be developed to retain young professionals in the public works profession.

your calendar: September 17-20, 2017. It will be held in the City of Penticton.

I want to take this opportunity to thank our sponsors and suppliers for their ongoing support and to our valued members for making our organization a success. I encourage members to participate in events and activities so that we can showcase our profession in our communities. This will help our fellow citizens understand the important role we have in their communities as public works professionals.

We look forward to another successful year and hope to meet you at our upcoming events. Also, let us know what you think about your PWABC Chapter by contacting us by email, Facebook or Twitter. If you have any suggestions for courses related to the public works profession, please feel free to contact myself or any member of the PWABC board.

Together we can build on our successes and make the Public Works Association of BC a great resource for all our members.

Deryk Lee

President

Public Works Association of British Columbia



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A Message from the Alberta Public Works Association

I was lucky to be in attendance at the 2016 PWX, held in Minneapolis, Minnesota, to receive this award along with other board members from the APWA Alberta Chapter.

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First and foremost, I want to thank everyone from across the province who helped out in Fort McMurray during the wild fires this past May. It makes me very proud to be President of this amazing chapter.

We started out this spring with very dry conditions that brought the wild fires. Next we faced heavy rain, which caused flooding in parts of the province. The weather has been very active this spring and early summer.

I, myself, changed jobs and employers in early May; I returned to working for The Town of Okotoks as Transportation Supervisor. This is where I started my public works career and it's great to be back—it feels like home.

The Alberta Public Works Association has been busy; we are the winners of *The Membership Achievement Award* contest for 2016, which finished on June 30, 2016. This award is presented by the American Public Works Association and honours chapters showing the largest net increase in membership, compared to other chapters in their division. Our Alberta Chapter is the winner in the category for chapters that have 301 to 500 members. I was lucky to be in attendance at the 2016 PWX, held in Minneapolis, Minnesota, to receive this award along with other board members from the APWA Alberta Chapter.

It was also a great honour to have one

of our Chapter's Projects of the Year win a national award. Congratulations to the South Red Deer Wastewater System project. The project is being honoured with the American Public Works Association's Project of the Year award in the Small Cities/Rural Communities – Environment Category. This award honours agencies representing cities and communities with a population of 75,000 less and was established to promote excellence in demonstrating creativity, ingenuity and efficiency in the delivery of public works projects that have a profound impact on the community.

This September is the 19th Annual Equipment Rodeo (where this issue of *The Roadrunner* will be released). We are excited to unveil a new equipment Rodeo logo at this event!

Please join us October 3 to 5, 2016 for our Excellence in Public Works Conference in Red Deer. I'm looking forward to it, as always.

Once again, I would like to extend a huge thank you to my Board of Directors and Jeannette Austin, our Executive Director, for all their time and commitment to make the Alberta Public Works Association the success it is today and into the future.

Peter McDowell

President
Alberta Public Works Association



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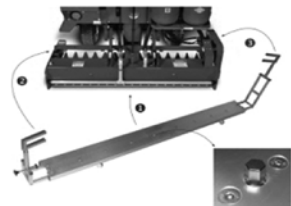
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Since I last had the chance to write you, the Saskatchewan Public Works Association has hosted a couple of educational/networking events, plus there are a few other items of note that I would like to share.

First, thank you to all the delegates (and presenters) who participated in the National Public Works Week (NPWW) Workshop on May 18, 2016. The workshop provided information on the updated changes to Canada's Railway Grade Crossing Regulations and was a very informative event (see the pictures on page 18). The presentations' information is posted on our SPWA website.

The annual SPWA Equipment Expo & Golf Tournament was also a great success. It was held in the City of Warman on July 15, 2016. Thank you to all the suppliers who brought equipment and/or demonstrated their services. The line-up was phenomenal and we are proud to have been able to cover all the disciplines of public works equipment in one spot! The golfing was a great way to connect with other public works personnel and suppliers, and fun was had by all (more pictures are available on page 19).

Next, I want to introduce Andrew Hickey, Manager of Utilities for the RM of Sherwood, to our SPWA Board. Andrew has accepted our newly created RM Director position. We want to thank him for agreeing to offer his experience, input and time to provide educational and contact prospects for our members, delegates and suppliers.

Lastly, through to next spring, the SPWA is providing additional training, education, and networking events including:

- The SPWA fall Landfill and Recycling Workshop & YP/Industry Networking Night is being planned for October 20, 2016, at Mosaic Place in Moose Jaw. The workshop will provide presentations regarding updated Landfill Regulations, the SK Waste Reduction Council, regionalized waste disposal, Multi-Material Stewardship Western, and the Town of Moosomin's efforts in becoming compliant. That evening, we are bringing together new and experienced professionals for an evening of games, food, prizes and a few drinks at Dooly's.
- Work is also already well underway on our 58th Annual Conference and PWville, themed *A Climate of Change*, scheduled for February 28 to March 2, 2017 in Saskatoon. The conference brings together communities, suppliers, educators, consultants and others to share their knowledge and skills at this event. We are planning education/technical sessions that cover the many disciplines of public works. Networking is also an important component built into the conference. The Call for Papers, sponsorship and registrations are already available on our website. New will be a day specifically targeting the needs of a community's administration.

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The SPWA would like to thank the following gracious sponsors of the 2016 SPWA Golf Tournament who made it such a great success:

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Also, thank you to all those who provided prizes to the participants.



Introducing Andrew Hickey - RM Director for SPWA

Andrew has over eight years of experience in water and wastewater treatment and is the new Manager of Utilities with the RM of Sherwood. He is certified Class 4 WT, Class 3 WD, Class 3 WWC, and Class 2 in WWT. Additionally, Andrew has a Water and Wastewater Certificate from SIAST. He is a certified AWWA Cross Connection Control Specialist with extensive experience in water/wastewater operation and maintenance. Andrew is an Associated Member of Saskatchewan Applied Science Technologists & Technicians (SASTT). He is eager to assist the SPWA Board with education, networking, and promotion of PW throughout the province, particularly to the Rural Municipalities.

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Topics planned include, risk management, water(s) upset protocol, measuring the total value of your public works investment, and succession planning.

Watch your email and mailbox for more information on these events. (**Remember that the discounted rate members receive at our combined yearly events pays for the annual cost of membership with SPWA.*)

Please visit our updated website! It is very user friendly, contains information on all our events, and is designed as a virtual *one-stop shop* for public works. Visit us on Twitter @SPWAchapter as well.

As you can see, the SPWA is endeavouring to bring our members, and others in the public works profession, greater value in educational and networking opportunities. We will also continue to promote professionalism in the public works field, advocate the essential role that public works plays in the quality of life, and promote it as a career choice for the working force of the future.

Visit our chapter website at <http://saskatchewan.cpwa.net>, or contact our Chapter Administrator, for more information and details about our upcoming SPWA events or how to become an SPWA member.

Andrew Stevenson

President

Saskatchewan Public Works Association

THANK YOU TO OUR 2016 SPWA EQUIPMENT EXPO SPONSORS

The SPWA would like to thank the following suppliers for providing the fabulous equipment line-up for our delegates at our Annual SPWA Equipment Expo:

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As my year as Chapter president progresses, I will take the opportunity to highlight activities of the Manitoba Chapter of the Canadian Public Works Association (CPWA) / American Public Works Association (APWA).

Railway crossing seminar

This was held on May 11, 2016, in Portage la Prairie and brought over 50 participants together to learn more about the changes

A Message from the Canadian Public Works Association, Manitoba Chapter

required to crossing information by Transport Canada.

Bruce Kavanagh of Transport Canada and Mark Reimer of MORR Transportation Consulting provided a wealth of information of what the changes are, when they have to be completed and how to conduct a proper assessment of a rail crossing location. By the end of the day, participants had a much better understanding of what is required by the new crossing requirements. I think I could even get it done after listening to Bruce and Mark!

I would like to thank Bruce and Mark, as well as Steve Blayney, for all the hard work in facilitating this seminar, which was the first of a number that were held across western Canada. In addition, due to the demand for information about this topic, APWA is planning a Click, Listen and Learn session in the near future. Watch your email or check the APWA website for more information.

Golf tournament

After two postponements due to rain, our Chapter Golf Tournament was held on May 26, 2016, at Bridges Golf Course. We had a smaller than usual turnout, but that is to be expected with a constantly moving date! However, it was an excellent day! There were 48 golfers; all received prizes and we raised approximately \$500.00 towards our Red River Scholarship Fund. Thanks to all our 28 sponsors, in particular for the donation of the Tragically Hip tickets! Thanks again to Steve Blayney, Ron Watson, Kas Zurek and Joel Martens for all their work to bring this event together.

Habitat for Humanity build

The CPWA Manitoba work day was July 13, 2016, and we had a rainy day, but the overcast skies made for comfortable working conditions. A number of CPWA MB Chapter members participated in a Habitat build (and one spouse, thanks Doreen). Many thanks to Garry Pekrul for organizing the build and to the folks who showed up!

Fall Fling

This is a social event usually held in June, known as the Spring Fling, that gives Chapter members and invited guests a chance to socialize. With all the other activities going on, it was decided to move it to the fall when things are less hectic (we hope). So, watch for a social event this fall or you can always check the chapter website at <http://manitoba.cpwa.net/> for more updates on events.

MB Chapter Awards Program

We will be sending out information on our 2016 Chapter project awards program. I encourage public works agencies, small and large, as well as consultants, to take part in this program of recognition. We look forward to giving awards to some great projects!

Upcoming Mid Canada Snow Conference & Trade Show in Winnipeg this October!

We are very excited that our Chapter will be hosting the 2016 Mid Canada Snow Conference and Trade Show at the Victoria Inn in Winnipeg from October 12-13, 2016. This is the fourth Snow Conference hosted by the Manitoba Chapter since 2008. Please see a longer story on the Snow Conference on page 24.

In closing

I hope you will have the opportunity to join us this year at many of these exciting events!

Finally, I would like to thank Ron Watson for his service on the CPWA Manitoba Board of Directors. This is my final message as president of the Manitoba Chapter; thanks to all the Board members for their support and efforts and to the members of our Chapter I have met throughout the last year.

Bill Grabowecy

President
Manitoba Chapter, CPWA

Manitoba Chapter, CPWA, Executive

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Hello everyone! I hope this summer saw everyone healthy and happy, and that the wet weather experienced throughout most of the province didn't significantly

A Message from the Alberta Municipal Supervisors Association

impact your municipality's construction projects.

Before I begin, I would like to mention and commend the Regional Municipality of Wood Buffalo, both their administration and first responders, in their efforts to deal with the largest disaster ever experienced by a municipality in Alberta. I can't even imagine the amount of work undertaken to date by the RM in the Fort McMurray area, which will continue for many years to come. On behalf of the Alberta Municipal Supervisors Association (AMSA), we wish our municipal counterparts in the RM of Wood Buffalo the best as the recovery efforts continue.

With the anticipated fall proclamation of *Bill 21: Modernized Municipal Government Act* and the MGA consultations taking place over the summer months, members have undoubtedly been busy reviewing new regulations and any changes impacting public works operations.

AMSA started 2016 off on a high note, with over 120 attendees at the spring convention and by kicking off another initiative noted in the association's strategic plan—the addition of member training and development. In partnership with the Alberta Association of Municipal Districts and Counties (AAMDC), AMSA is proud to now host professional training opportunities for members, in conjunction with its conventions.

This spring we hosted a full-day course on public sector procurement and this fall, we will be launching a customized program through the University of Alberta to host the Certificate in Municipal Management and Leadership (CMML) program. This six module CMML program will be held prior to the spring and fall conventions over a three-year period, allowing municipalities to maximize their use of professional development budgets. AMSA will also continue to offer additional one-day training opportunities at the spring conventions.

I'm also excited about the great agenda lined up for the fall convention, which takes place November 15 to 17, in Edmonton, at the Shaw Conference Centre. Along with AMSA's Annual General Meeting, attendees will get to discuss the use of drones by public works departments, what to do if you encounter dinosaur bones during a construction project, and several communities will be profiled in an effort to share best practices. We will also present AMSA's annual peer recognition award, long service acknowledgment, and hear about new products, technologies and services offered by our suppliers and sponsors. The fall convention also includes AMSA's Annual General Meeting and executive members' elections. Be sure to register early.

To wrap up, I do look forward to seeing AMSA members again at the next convention, which is approaching quickly. In the meantime, I wish you all of our municipal colleagues a safe and productive fall.

Bill Cade

AMSA President

Public Works Supervisor, Lacombe County

Credit: Shaw Conference Centre

Attend the AMSA Fall Convention

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Protecting Public Works, Come Hell or High Water

By Rina Thakar and Sonia Sahota, P.Eng, Civic Legal LLP

What do earthquakes, forest fires and labour strikes have in common? These are just some of the major types of events that can interrupt the usual workings within a community. As the recent forest fires in Fort McMurray have shown, the devastation from a natural disaster can be swift and widespread. It is a reminder of the importance of preparing for disasters, not only from a life and safety perspective, but also from the

perspective of understanding the legal obligations and liabilities involved under existing contracts—whether these be for new construction or ongoing operational activities.

Though often neglected and relegated to the “boilerplate” provisions at the end of a contract, the *force majeure* clause is a key tool in managing the risks that arise as a result of unforeseen and uncontrollable disastrous events.

Force majeure clauses operate on the opposite side of the so-called “Hell or High



Water” clauses, which require performance of contractual obligations no matter what. A *force majeure* clause usually entitles a party to terminate or suspend performance of its obligations under the contract, upon the



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occurrence of a specified event or events beyond their control, without being liable for breach of contract. The *force majeure* event must make performance impossible, and not merely inconvenient or an economic hardship.

Force majeure clauses generally contain two distinct components. The first component involves setting out what types of circumstances will be considered to be a *force majeure* event. Natural disasters or "Acts of God," such as floods, fires, earthquakes and hurricanes are typically included, as well as wars, riots, hostilities, strikes, lockouts and other forms of labour disruptions, changes in law or other types of governmental action impeding performance.

The second component deals with the parties' rights and obligations if a *force majeure* event occurs. Such rights and obligations typically include granting time extensions, requirements to notify the other party, obligations to try and overcome the event, timing for re-commencing or terminating performance, and other consequences, such as liability for costs or damages.

Accordingly, *force majeure* clauses should carefully define the risk allocation between parties to a contract, and depending on the type of project, should be considered and tailored to the unique circumstances underlying each contract.

With more extreme weather and natural disaster events occurring, local governments should consider including a legal and liability management plan in their overall disaster management plans. Preparation of such a plan could involve an inventory and careful review of all significant contracts, to determine what steps will need to be taken and when, in case there is an event of *force majeure*, to manage risks in the best possible manner.

Where a review of existing contracts reveals missing *force majeure* clauses, consider seeking amendments to have the clause added in. Where a contract does contain a *force majeure* clause, consider if it would adequately deal with any special risks or needs applicable to your community. Where contracts are currently under negotiation, confirm with your legal counsel that the important *force majeure* clause is carefully incorporated.

Taking the right steps now will provide reassurance that, in the event of a disaster, local governments and their counter-parties will be ready to properly manage the legal risks that may arise, and will not be faced with a situation requiring performance "come hell or high water."

This article is intended for the general information of local governments. If your

organization has specific issues or concerns relating to the matters discussed in this article, please consult a legal advisor.

Rina Thakar and Sonia Sahota are partners at Civic Legal LLP, a British Columbia law firm with expertise in municipal law, land development, construction, procurement and complicated contract matters. Visit www.civiclegal.ca for contact and additional information.



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Upcoming Events

APWA's 19th Annual Equipment Rodeo
September 15-16, 2016

PWABC Annual Technical Conference
September 18-21, 2016
Sun Peaks, BC

SPWA Fall Landfill and Recycling Workshop & YP/Industry Networking Night
October 20, 2016
Moose Jaw, SK

APWA's 12th Excellence in Public Works Conference
October 3-5, 2016
Red Deer, AB

Mid Canada Snow Conference & Trade Show
October 12-13, 2016
Winnipeg, MB

PWABC Winter Maintenance Supervisor Certificate
October 24, 2016 - Victoria, BC
October 25, 2016 - Richmond, BC

AMSA Fall Convention
November 15-17, 2016
Edmonton, AB

APWA - Introduction to Construction Inspection
December 7, 2016
Edmonton, AB

APWA - Construction Management
December 8-9, 2016
Edmonton, AB

SPWA's 58th Annual Conference and PWville – *A Climate for Change*
February 28-March 2, 2017
Saskatoon, SK

AMSA Spring Convention, 2017
March 21-22, 2017
Edmonton, AB

Railway Crossing Workshop

In May 2016, the SPWA hosted an informative workshop on changes to Canada's Railway Grade Crossing Regulations. Presentations are posted to the SPWA website.



Have you visited AMSA's website?

It's a great place to read the latest industry news, check job postings, and register for events.

Visit www.amsapw.ca for all this information sharing!



Landfill & Recycling Workshop and YP/Industry Networking Night

The SPWA Fall '**Landfill & Recycling Workshop and YP/Industry Networking Night**' is taking place on **October 20, 2016**, at **Mosaic Place** (and Dooly's) in **Moose Jaw**.

The workshop will provide presentations on the updated Landfill Regulations, Sask. Waste Reduction Council, regionalized waste disposal, Multi-Material Stewardship Western, and the Town of Moosomin's efforts to become compliant.

That evening, we are bringing together new and experience professionals for an evening of games, food, prizes, and a few beverages.

We hope to see you there...

October 20, 2016 – Moose Jaw, SK

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Registration information to follow
Sponsorship Opportunities available



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Snapshots from the SPWA Equipment Expo & Golf Tournament in July! Expo Excitement!



Golf Time Fun!



Saskatchewan Public Works Association



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Leadership Development: The City of Port Moody's Journey

Leadership development is important in the City of Port Moody because it addresses priority areas identified in the Council's Strategic Plan and Departmental Business Plans. Specifically identified was the need to provide a focused approach to leadership development. Furthermore, leadership development is of key importance in the changing world of parks and public works. The goal is to build leaders who are:

- More confident, resilient and adaptable with skills to meet any situation that arises;
- Good at promoting teamwork and building a positive organizational culture; and
- Skilled in leading group interactions, giving feedback and having conversations that involve difficult topics.

The Leadership Development Program was developed by Dave Kidd, Director of Parks and Public Works, and Stephanie Innes, Consultant (www.ManageToEngage.com), based on input from



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participants who identified skill deficient areas and needs. Having the supervisors involved from the beginning of the process and giving them the opportunity to provide feedback on the course content was integral to the success of the program.

The needs identified by the Supervisory Leadership Team who participated in the program included: supervisory and leadership skills, clear direction and priorities, building strong teams that learn from one another, follow through and accountability, fostering and developing employees, and adapting to change/transition.

Each training session was conducted as an intact team and included all of the superintendents, supervisors and the director of the department. One of main benefits of conducting the training as an intact team was peer accountability and the ability to learn from each other. The program also included one on one coaching, team building sessions and staff education sessions.

The program kicked off with the city manager talking about how leadership

development relates to the city's key priorities, values and organizational needs. This session was followed with sessions focused on communications and team norms, supervisory skills and one on one coaching.

The supervisory skills portion of the training addressed the following:

- Supervisor and superintendent roles.
- Emotional intelligence.
- Strengths finder activities.
- Asking for feedback.
- Q/A with HR and the union.
- Supervising within the union, challenges and opportunities.
- Building trust.
- Leading change.
- Fostering employee engagement and development.

To support the retention of the new skills learned, refresher courses were provided six months after the first session, superintendents modelled the expected behavior, coaching was provided as needed, and team building sessions were held with superintendents and their teams.

Pre- and post-program assessments were conducted and metrics reported out to the group. The metrics showed that upon completion of the Leadership Development Program supervisors were far more confident that they had the skills needed to excel as a leader.

Customized leadership development also benefited the department through increased productivity, employee satisfaction/retention, an increase in employee engagement, and the implementation of an effective leadership style for other employees to learn from. The goal of the program was met and the organizational culture is far more positive, and the leaders are more confident, resilient and skilled at leading their employees and work areas.

In summary, what made this program a success was the customized approach that included all levels of the department as an intact team, the training incorporated the organizational values and business outcomes, development activities were well integrated with day-to-day operations, content was immediately applicable, and an external consultant guided the process. ▀

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Increasing Water Standards and Capacity in a Growing City

By Krystyna Kotowski,
City of Saskatoon

Safe drinking water is a priority for everyone. In Saskatoon, Saskatchewan, we're proud to have some of the highest-quality drinking water in all of Canada. In 2015, Saskatoon Water provided water services to more than 72,000 residential and commercial water meters. Over the last five years, the average number of active water service connections increased by 10.8 per cent.

Investing in what matters

Each year we survey our residents to find out what matters most to them. For the past two years, residents told us the quality of their drinking water is the most important service we provide, and it is also the service they are most satisfied with.

As our city continues to grow, we've navigated the challenges of maintaining quality drinking water while also increasing our capacity for safe water delivery to our residents. Through our growth plan we identified the importance of properly funding an asset management program, which includes capital investments for upgrades and proactive maintenance to prolong the life of the \$3.4 billion water distribution system for reliable service during high demand periods of water usage.

Increasing capacity for the future

Now, for a little history. In 1906, the year that Saskatoon became a city, a combined power and water treatment plant was built at Avenue H and 11th Street. This original plant is still in service today, although it has been upgraded in many ways over the years and no longer houses the power operations.

In 2015, the Water Treatment Plant saw its most significant upgrade in more than 50 years, including reservoir expansions and new pumphouses at the Avenue H and 42nd Street facilities. An ultraviolet disinfection system was added at the new four-storey-tall Avenue H facility. Although our stringent drinking water processes already complied with water quality regulations, this additional measure further ensures safe, high-quality drinking water.

The total cost of the Water Reservoir Storage Expansion Project was \$77 million, with the Government of Canada contributing \$12 million, the Government of Saskatchewan contributing \$7 million and the City of Saskatoon contributing \$58 million.



Leading the way with ultraviolet treatment

In addition to increasing capacity and building a more reliable, robust and safer water system, the City of Saskatoon became one of the first cities in Canada to add an ultraviolet (UV) treatment process to make sure we can stay ahead of water treatment requirements.

The ultraviolet disinfection facility enables water to be pumped past a series of UV lamps to neutralize organisms missed by other disinfection processes. Although we already have one of the most diligent and stringent safe drinking water processes, this additional feature further ensures that our water quality will exceed the expectations of our community.

To further ensure water safety, our Water Treatment Plant laboratory is accredited and routinely audited by the Canadian Association for Laboratory Accreditation to ensure standards are always maintained. Approximately 30,000 water quality tests are conducted every year to ensure Saskatoon's drinking water is clean and safe for residents.

Extra capacity added at Acadia Drive Reservoir

Although separate from the city-wide expansion project, an upgrade by Saskatoon Water to the Acadia Drive Reservoir and Pumphouse will increase the overall clean water storage capacity for the City of Saskatoon to 113.2 million Litres.

This facility upgrade allows our city to continue to provide outstanding water service to the expanding areas of Saskatoon.

Storing water for future needs

As a leader in providing reliable and safe water, we wanted to make sure that we

continue to grow sustainably to meet anticipated demands, while exceeding industry regulations and standards for water quality and delivery. The increase to our water holding capacity at our water reservoirs allows us to handle demand when it exceeds our plant output. Through a combination of increased reservoir capacity and strict water testing standards, the City of Saskatoon is ensuring that our water is safe and available to residents twenty-four hours a day, seven days a week.

Over the next decade, as demand approaches plant capacity, construction of a new water treatment plant can be deferred by reducing the peaking caused by irrigation during periods of hot, dry weather. The ratio can also be significantly reduced through peak demand management initiatives such as implementing watering schedules.

Krystyna Kotowski, M.Sc., P.Eng., is Senior Project Management Engineer with the City of Saskatoon. She has over 26 years of diversified engineering experience, including managing the development and implementation of large, multi-faceted water and wastewater projects.

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Go to <http://manitoba.cpwa.net> for more info!

Let it Snow!

Mid Canada Snow Conference is Coming to Winnipeg

By Bill Grabowecky, Canadian Public Works Association, Manitoba Chapter

The Manitoba Chapter of the Canadian Public Works Association (CPWA) is hosting the 2016 Mid Canada Snow Conference and Trade Show at the Victoria Inn in Winnipeg from October 12-13, 2016. This is the fourth Snow Conference hosted by the Manitoba Chapter since 2008 and is held in partnership with Manitoba Infrastructure and the

City of Winnipeg. We expect participants from Manitoba, Western Canada, Northwest Ontario, and the northern tier States.

At this year's event, over 200 winter snow and ice control personnel from the private and public sector, including public works professionals from streets, roads and transportation departments from neighbouring provinces and states, will have an opportunity to network, discuss and learn

about the latest and greatest winter maintenance best practices.

From across the region, attendees will benefit from lessons learned during past snow storms and blizzards, and will be exposed to the latest in snow clearing tools, trucks, heavy equipment and winter maintenance techniques and strategies.

"Snow conference delegates will tap into valuable snow clearing and winter road



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maintenance experiences,” says conference co-chair, Jean-Luc Lambert, from the City of Winnipeg’s Public Works Department. “They’ll also benefit from extensive information about snow related topics during various learning sessions.”

Scott Cathcart, conference co-chair, from Manitoba Infrastructure, says, “This is a great opportunity for smaller communities and rural municipalities to obtain practical knowledge on the latest snow clearing and ice control methods.”

The event’s keynote speaker will be David Phillips, Senior Climatologist at Environment and Climate Change Canada. David has been employed with Environment Canada’s weather service for over 45 years and his work activities relate to the study of the climate of Canada and to promote awareness and understanding of meteorology. We are sure David will bring a unique perspective to our keynote session. See the sidebar for more information on David’s unique credentials.

The Trade Show exhibitors will be displaying the latest in equipment, materials and technologies for the snow fighter of the 21st century. We expect a full trade show floor with everything from salt to heavy equipment. Make sure you take in each vendor and have your “passport” stamped as there will be a prize draw,

but you must have visited each vendor and have your entry stamped to qualify.

There will also be a snow operator’s rodeo for participants to test their skill at operating a truck plow in a number of tests of skill. Watch as equipment operators navigate their way around the demanding course, performing a number of skill testing task! If you wish to participate in the rodeo, register early as there is a limit on the number of participants.

CPWA Manitoba is looking forward to joining fellow snow fighters from provincial and municipal governments, private snow contractors, equipment manufacturers, consultants and suppliers this October.

We hope to see you in Winnipeg this October! **D**

Bill Grabowecky is the President of the Manitoba Chapter, Canadian Public Works Association.



Get to know David Phillips

He has published several books, papers and reports on the climate of Canada, including two best-sellers: *The Day Niagara Falls Ran Dry* and *Blame It on the Weather*. He is the originator and author of the *Canadian Weather Trivia Calendar*, the most popular calendar sold in Canada, now in its 29th year. David frequently appears on national radio and television as a commentator on weather and climate matters. He has been awarded the Commemorative Medal for the 125th Anniversary of the Confederation of Canada, the Queen Elizabeth Golden and Diamond Jubilee Medals and has twice received the Public Service Merit Award.

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Stony Plain Heritage Pavilion Near Completion



The Town of Stony Plain's 25,000 square foot Heritage Pavilion Revitalization Project is nearly complete. The three-phase initiative, which started in 2009, is in the final phase of construction.

Phase III of the Revitalization Project started in July last year. This phase, contracted by Filmore Construction Management Inc., adds a Special Event Centre to the existing Pavilion.

The Pavilion is a year-round facility that fuels the local economy. Several

internal and external events are hosted at the venue, including the Farmers' Days Rodeo and Exhibition, Aboriginal Days Celebration, and Family Fest.

"Completion of Heritage Pavilion is a major milestone for the community," says Stony Plain Mayor, William Choy. "So far, the park and pavilion have strengthened our culture, community and economy."

As the largest hosting event venue in the region, this 21,000 square foot pavilion continues to attract organizations interested in hosting events, trade shows and festivals in the Tri-Municipal region.

"Last summer, Canada's Wild Outdoor Expo was held at Heritage Pavilion," says Karl Hill, General Manager of Community and Protective Services. "The event brought hundreds of visitors to Stony Plain, providing us with the opportunity to showcase our strong business economy and cultural community."

The new two-story Special Event Centre has the capability of hosting 500 people. With informal and formal spaces, the venue is suitable for weddings, concerts and meetings. The extended space will permit three events to run simultaneously.

Town Council has high hopes for the new Special Event Centre.

"We're expecting the new event centre to increase interest in Stony Plain," says Councillor Hansen. "We'd like to see the venue rented by companies and families outside the Tri-Municipal Area, including Edmonton, St. Albert and Sherwood Park."

The Revitalization Project is expected to finish this fall.

The Town of Stony Plain is committed to providing for residents and stakeholders now and in the future. Phase III of Heritage Park compliments their philosophy of supportive infrastructure, complete streets and capital renewal. ▀

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Water for the Future

By Geoff Tiffin, County of Newell

The County of Newell is a vibrant rural municipality in southeastern Alberta. It is located 180 kilometres east of the City of Calgary, 100 kilometres west of the City of Medicine Hat and has a land area of 5,905 square kilometres. According to the 2011 census, the County is home to 6,786 residents and one of the largest beef processing plants in Canada. Other major industries in the County include agriculture, oil and gas, and tourism.

The City of Brooks, the Town of Bassano, and The Villages of Duchess and Rosemary, are all independent municipalities located within the boundaries of the County of Newell. The County has 10 hamlets under its jurisdiction. In 2007, these Municipalities formed a Partnership Committee to expand the existing Brooks Water Treatment Plant to accommodate the supply of potable water to all urban and rural residents located within the County's boundaries.

The project scope began with plans for the installation of 175 kilometres of regional transmission main that would supply water to the urban centres as well as County hamlets. These municipalities and hamlets decommissioned their existing water treatment plants

and converted them into clear well storage sites where water from the regional transmission lines would be delivered and distributed to residents in each community. The first contract for transmission main installation was awarded in November of 2008, and by March 23, 2010, the first line to the former Village of Tilley was operational, thus ending a boil water advisory that had been in effect for more than three years.

During the construction of the transmission mains, County Council started working on plans to tap into these water supply lines and install small diameter high density polyethylene distribution mains to service rural properties in the County. To service all homes and businesses, it was planned that roughly 1,200 kilometres of pipeline would need to be installed. To make the project more efficient it was decided that the project in its entirety would be split up into 11 contracts with smaller scopes of work. By doing this, there was an ability to have multiple contractors working on projects in different areas of the County simultaneously, which would expedite the completion of the project.

The first County of Newell Water Project Contract was awarded in September 2011 to K-Line Maintenance and construction. As the County of Newell is a vigorous farming

community, contractors were restricted from working in cultivated lands until after fall harvest. All lines were to be installed on private lands via blanket easements for no compensation to reduce overall project costs. While this did cause some delays, residents were generally happy to work with the County for the benefit of receiving potable water to their rural property. Many options for water delivery were considered, however, the one that was selected in the end was to deliver 300 gallons per day to each service location via a trickle system. This means each landowner must provide a storage medium (cistern, holding tanks, etc.) for the water to be delivered to. From here, landowners would be responsible to pressurize the water for their domestic use.

The first County of Newell water user was activated on January 21, 2013. To date, ten of the 11 projects have been commissioned, with the final project to go online in the summer of 2016. At full build out, the County will have installed 1,173 kilometres of pipeline to service 1,577 locations. Through the project, the County has also serviced Dinosaur Provincial Park, Kinbrook Island Provincial Park, three private campgrounds and two Hutterite Colonies. ▀

Geoff Tiffin is the Manager of Engineering for the County of Newell.

To service all homes and businesses, it was planned that roughly 1,200 kilometres of pipeline would need to be installed.



The RM of Sherwood's Inland Drive Reconstruction Project

By Rod Benroth, RM of Sherwood



Before.



After.

In May 2016, Phase III of the Inland Drive Reconstruction Project was completed in the RM of Sherwood. This was the final phase of the project, which was undertaken by the municipality in 2011. The total project cost was \$6.3 million for the reconstruction of 5.6 kilometres of a “heavy haul” paved roadway

around the City of Regina. This was a huge undertaking for the municipality, especially when the RM's total property tax revenues are less than \$4 million per year.

This 5.6 kilometre stretch of roadway is a dedicated over-dimension route for all over-dimension loads that are bypassing the City of Regina to the north from Highway #46, to

Highway #6, and/or Highway #11. Originally, this ‘D’ route consisted of an 8.0 metre wide gravel road, which was virtually impassible during wet weather. Many over-dimension loads would become stuck in the middle of the roadway, leaving motorists unable to pass and trucking companies having to get towed through the route. The RM was constantly grading and applying course granular base material, on a weekly basis, to accommodate the current traffic volumes. During dry weather, accidents occurred from reduced visibility caused by blowing dust, in which rear-end collisions occurred while maintenance was being performed.

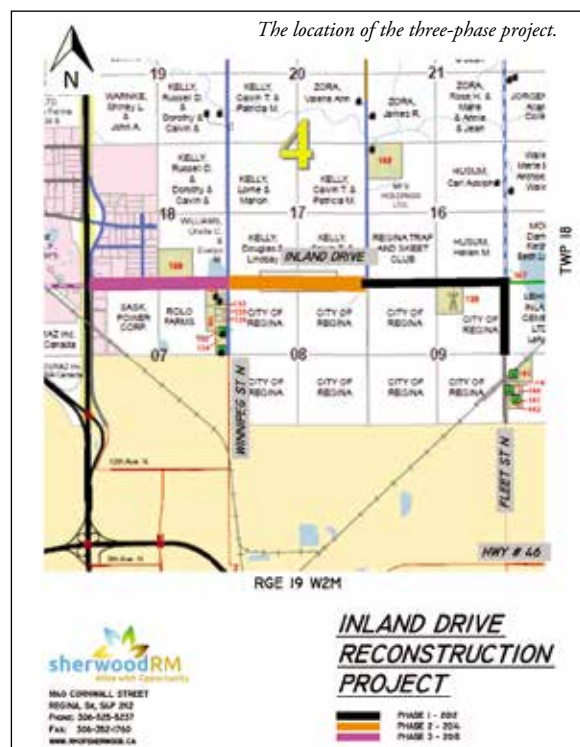
The last traffic count conducted on Inland Drive, by the Ministry of Highways &

Infrastructure (MHI) in 2008, saw 990 vehicles per day (VPD) with 29.9 per cent of that being truck traffic. The RM conducted a visual traffic count of all vehicles, from 6 AM to 6 PM, to determine the type and quantity of traffic along this corridor, as the MHI count seemed inaccurate. The resulting count was approximately 1,280 VPD with 25 per cent being truck traffic over just 12 hours of the day.

In 2011, AECOM originally tendered this project under the Municipal Roads for the Economy Program (MREP), as Heavy Haul double seal coat surface design. It was felt with those volumes though, that the roadway needed to be an asphalt paved surface. This over-dimension road was a connection between provincial highways and an arterial roadway to connect the city with the Sherwood Industrial Park, located northeast of Regina and adjacent to the Evraz Steel Mill.

The big question in the fall of 2011 was how the RM could accomplish this, or realistically pay this capital works project, when the current revenue streams would only allow for roughly \$750,000 per year to be put towards it. The original tender to reconstruct this roadway without surfacing was \$3.9 million, so it was decided to split the reconstruction project into three phases to fit within the budget for capital expenditures. The plan would also allow us to re-route traffic, at each mile, to minimize the detour around (or within) the city limits. The RM contacted adjacent land owners to widen the right of way from 20 to 42 metres. The city agreed to sell 14 acres of their land for \$1, as the over-dimension route benefitted them by diverting loads which were too high, wide or heavy, outside city limits.

The first phase of construction was 2.4 kilometres, which was tendered and completed in the fall of 2012. The project started at the east end, along Fleet Street, as this section of the roadway was in the worst shape. Construction was skipped in 2013 due to capital commitments for purchase of equipment for the Public



Works Department. In 2014, Phase 2 was completed, which was 1.5 kilometres along Inland Drive and ended at Winnipeg Street. Phases 1 and 2 were constructed by Pasqua Paving Ltd. of Regina.

The third phase of construction was the last mile of the project, from Winnipeg Street to Highway #6, which is located within an existing industrial subdivision. The 2013 MHI traffic count showed a 2X traffic increase, so it was decided to initiate design changes required to accommodate these conditions. The posted speed limit was lowered along this roadway to 50 km/hr, and included a center median turning lane, to accommodate left turns into existing developed

lots on the north side of the roadway. In the previous two phases, individual lot access driveways were not allowed, with only one subdivision street access point. ASL Paving Ltd. was the successful bidder on this last phase of the project but, due to a delay in relocating the existing underground utilities, they were unable to complete the project in the fall of 2015.

Two developers subdivided 200 acres along Inland Drive in 2011 and, during the subdivision process, the RM was able to collect \$1.9 million from "off-site servicing costs" within the servicing agreements. The total MREP funding for the three separate phases was \$2.2 million, with the RM of Sherwood

contributing that amount over three years, and only roughly \$900,000 required on a short-term loan to pay for the last phase.

It is anticipated that, with future growth along this industrial corridor, more roadway improvements may be required, such as dedicated turning lanes and possible signalized intersections. ▮

Rod Benroth has over 30 years of experience working on municipal and transportation related projects. He attended SIAST for Surveying and Civil Technology and has worked for a few consultants, as well as in the construction industry. Rod is the current Director of Public Works & Infrastructure for the RM of Sherwood.

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Getting Focused:

New Web Mapping Approach Points City of Coquitlam Towards Greater Productivity

A Coquitlam city worker uses the city's new targeted web mapping apps.



Adopting a one-map-fits-all approach to publishing web maps has been a standard practice for municipalities and government agencies for many years. This approach involves publishing data gathered from various municipal departments as layers in a single online map and encouraging users to view the information they need by selecting boxes from a menu.

The City of Coquitlam was an early adopter of this multi-purpose approach to online mapping. Over the years, they have created several public-facing and internal web maps using this classic method with some success. QtheMap—the City's interactive, web-based map that gives Coquitlam residents access to information about municipal services and features—is a good example. First launched in

2005, the app has been a fixture on the city's website for years and remains a popular self-serve information tool for citizens.

But advancements in ArcGIS technology, feedback from end users and recurring challenges encouraged the city to re-evaluate its one-map-fits-all approach to building web maps for internal staff.

"Over time, we found there were a lot of challenges trying to make one web map work for everyone," said Sean Watson, Business Systems Analyst, City of Coquitlam. "For example, one department wanted a symbol to look one way and another would want it to look another way.

Also, from a technical standpoint, we experienced challenges dealing with older, plug-in based technology, which was restricted on certain devices and not accessible across all platforms."

"We wanted to get away from providing people with a general map with lots of tools that you had to learn how to use," added James Andrusiw, Application Services Manager, City of Coquitlam. "This meant creating focused applications for a group's specific task and giving them only the tools they need to do their job."

This new approach was inspired by Watson's attendance at the 2014 Esri User Conference in San Diego, California, where he learned how ArcGIS Online and Portal for ArcGIS could help bridge the needs of various departments in the City.

"After seeing the new HTML and JavaScript environment and recognizing that the new platform does an excellent job of integrating all of the server and web services, we knew adopting Esri's new web GIS technology was going to be a quick win for us," said Watson.

The city's GIS and IT staff collaborated to devise a strategy to configure and deploy a suite of focused apps for different groups. The project team's first step was to work closely with the city's Privacy Officer to complete a standard privacy impact assessment for the technology.

"We had to make sure we were following policies that satisfied the requirements of the municipality and province," said Watson. "Once we demonstrated that we weren't sharing or storing any personally identifiable data in the cloud, we got the green light to proceed."

Next, the project team conducted thorough needs assessments with three departments—Engineering and Public Works; Planning and Development; and Parks, Recreation & Culture Services—to ensure the apps suited their needs.

"Communication was key to the success of our app rollout," said Mike Esovoloff, Mapping and Drafting Supervisor, City of Coquitlam. "We had some initial meetings with users to give them an overview of some of the apps and their capabilities, and then we asked them to tell us which apps they wanted and the functionality they needed."

"At the beginning, we found it challenging to get detailed requirements by showing things in presentations and asking questions," added Watson. "So we changed things up and Mike spent a lot of time leading and guiding groups with demos and soliciting feedback based on the prototypes. This approach took more time and effort, but it ultimately resulted in much better apps that fit user needs."

Esovoloff agreed: "When we handed users something that they could use, the light really clicked on for many of them."

Because the project team leveraged out-of-the-box tools and templates to configure these



Coquitlam's Engineering & Public Works Field Map keeps office and field staff connected with real-time updates related to infrastructure assets.

apps, they managed to deliver user requests efficiently.

“Our focus was very much on a simplified, quick deployment that eliminated customization,” said Andrusiw. “Whether it was participating in the Community Maps of Canada Program or using Web AppBuilder for ArcGIS, we were confident that ArcGIS could help us achieve this goal. Ultimately, we just want to implement and use what’s being offered as part of our ELA (Enterprise License Agreement) so that we can get these apps out quickly to staff.”

The outcome of this collaborative, agile approach to planning, creating and launching apps is a suite of web-based tools that has improved efficiency and productivity for city staff.

One of the first web app’s the city released, the Public Works Field Map, is saving valuable time for staff and streamlining their ability to keep information up-to-date. Created to displace printed maps and map books used by staff in the field, the web app runs on tablets and is configured to display only information that’s relevant to a user. The web app pulls information from the city’s centralized geodatabase, allowing field staff to retrieve utility and asset information, as-built drawings and files from the document management system. Field staff can also update information on the map to supply live feedback across the organization.

Another mobile GIS solution, the Pipe Inspection Video & Report App, has integrated several systems to give utilities staff a tool for investigating underground pipe conditions. Prior to the app’s creation, utilities staff had to search through a variety of databases using multiple software products to gather information before visiting a work site. Now, field and office staff can retrieve up-to-date videos and reports in the field or office by simply selecting a location on a web map.

“The app allows us to quickly review and assess pipe condition information prior to responding to an emergency or a routine call, resulting in shorter response times,” said Eugene Motha, Engineering Technologist, City of Coquitlam. “We have a clearer idea of what to expect at the scene, which enables us to develop a response plan before arriving.”

The Five Year Capital Plan App has eliminated the use of five or six different paper maps, as well as information buried in the city’s

document management system, giving senior staff in engineering and public works an interactive, map-based interface for infrastructure planning in specific neighbourhoods. The app allows planners to compare current projects and planned projects with the tap of a screen, expediting the planning process and enriching insights by placing information in a location-based context.

The City of Coquitlam plans to continue to embrace cloud-based GIS technology, with



future plans to adopt Collector for ArcGIS and Survey 123 for ArcGIS, to enhance field data collection. Also in the works is an open data site leveraging ArcGIS technology and working with the city’s communications department to begin using story maps as a medium for engaging area residents. ▮

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GETTING TO GREEN: Accelerating Vegetation Regrowth after Maintenance & Construction

By Adam Dibble, Profile Products

Restoring vegetation after maintenance and construction work, from roadsides and utility rights-of-way to new building projects, requires replenishing the nutrients in the top layer of dirt that has been disturbed by heavy equipment. The traditional solution has been to import new topsoil to serve as a growing medium, but this strategy has significant drawbacks, including high costs. Newer alternatives offer a faster, more effective and less expensive way to repopulate scarred sites with groundcover, grasses, and even wildflowers and low shrubs.

Consider the case of a 2.7-acre site that had been completely denuded after an abandoned development effort. When soil testing indicated the site was almost devoid of organic matter and other conditions necessary to successfully establish vegetation, the contractor turned to a suite of soil additive and erosion control products, including Profile Products' ProGanics Biotic Soil Media—a new topsoil alternative designed for hydraulic application.

The decision replaced nearly 100 truckloads of topsoil with just two tankloads of ProGanics sprayed from a single 3,000-gallon-capacity hydroseeder. That slashed material costs by 40 per cent, reduced application time from five days to one, pruned crew size for this part of the project to just three people and dramatically trimmed labour costs.

Most importantly, the site went from a brown wasteland without a blade of grass to a carpet of green in three weeks and was almost

fully restored within two months after application. A year later, the grass looks as lush as newly applied sod, thanks to a proprietary formulation that promotes nutrient cycling to build the soil for sustainable vegetation.

Similar results have been achieved on sites of all sizes and grades, ranging from steep-sloped public land damaged during concrete installation of a new hiking trail to a large power plant property near a major airport in the United States.

Topsoil disadvantages

Topsoil theoretically has sufficient organic matter and microorganisms to promote plant establishment, sustainable growth and strong root structure, but it varies in quality from batch to batch and region to region. Any given shipment may not have the optimal pH, nutrient levels or other properties to effectively grow new grass or support other landscaping efforts. That can lead to delayed site restoration, complaints from the community, the need for extra work like fertilizing and re-seeding, and a lot of headaches for public works departments.

Topsoil is also time-consuming and labour-intensive to apply, and can be up to 70 per cent more expensive than other options, even without factoring in labour costs. A single acre of land requiring four inches of topsoil will need 36 truckloads of dirt, based on 15-cubic-yard dump trucks, plus 10 to 30 hours to apply depending on the method and crew efficiency.

At a cost of CDN\$400 to \$650 per 15-cubic-yard truckload for material alone, it's a significant investment that may or not pay off, particularly on sites with highly depleted soils, steep terrain, or other conditions that present special challenges for vegetation germination and growth.

Replacement options

For years, compost has been the primary alternative to using topsoil for site revegetation. The shortcoming again is inconsistency. Although it can be rich in nutrients, the texture, quality and content of compost can vary based on the specific food and leaf waste, geographic location and composting technology used. Compost also typically needs to be mixed with soil, sand, grit, bark chips, vermiculite, perlite, or clay granules to produce the loam required for effective nutrient and water retention.

Another option involves replacing imported topsoil with commercial peat-based "biotic soil amendment" products manufactured from a mix of organic ingredients. This strategy offers both advantages and disadvantages.

On the one hand, while the peat composition itself can be variable, these products eliminate most of the consistency problems associated with both topsoil and compost. They can also be applied rapidly in a hydraulic spray from large hydroseeding trucks.

On the other, peat needs to be harvested from fragile wetlands that can take decades

to recover from disturbance and that are already threatened by agricultural and urban development despite their importance for water quality, flood control and wildlife habitat. These and other environmental concerns, including the potential impact of carbon release from peat bogs on climate change, prompted the British government to ban the landscaping-related use of peat moss in stages from 2015 through 2030.

Newest alternative

A newer, more sustainable and better-performing alternative is ProGanics, the engineered topsoil replacement utilized on the 2.7-acre project described earlier. The product not only completely avoids the use of peat but also produces twice the vegetation cover and three times the biomass (living organisms) of the best-performing biotic soil amendment product. This, in turn, accelerates the regrowth process and maximizes the likelihood of success.

ProGanics utilizes a combination of recycled and renewable bark and wood

fibers along with a proprietary blend of biopolymers, biochar, seaweed extract, humic acid, fungi and other soil-building components.

It consistently provides a 6.0 pH, 90 per cent organic matter, 800 per cent water-holding capacity, and other properties ideal for creating a healthy growth environment with the high moisture retention required for fast germination and resistance to low rainfall levels. The bark and wood fibers are also phytosanitized to eliminate weed seeds and pathogens that inhibit growth.

Mixing quickly into a dark brown slurry that is hydraulically applied simultaneously with seed, it can cut application time by more than 50 per cent while also reducing the 36-truckloads-per-acre topsoil requirement cited earlier to just two tankloads sprayed from a single 3,000-gallon-capacity hydro-seeder equipped with the proper pump.

The bottom line

Machinery from mowing equipment to bulldozers can take a heavy toll on the aesthetic

appearance of public works projects. Turning a maintenance or construction site from brown to green requires improving growing conditions in the soil profile. Choosing the right soil-enhancing solution can not only promote fast, healthy growth but also avoid extra work and associated costs. For any public works department dealing with tight budgets (and who isn't?), that is a major bonus. ▮

Adam Dibble is a Certified Erosion Sediment and Storm Water Inspector (CESSWI) and the erosion control brand manager for Profile Products (www.profileproducts.com), a global environmental solutions provider specializing in soil modification, erosion and sediment control, vegetation establishment and daily cover.

Calculate the cost savings

Cost savings over topsoil or compost for specific projects can be calculated at www.profilevs.com/solutionpage/proganics-calculator.

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