



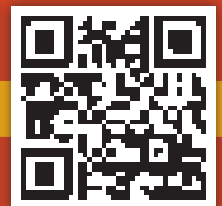
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**On the cover:** As public works departments across Canada head into "Construction Season," many public works departments are focusing on how to keep their employees safe. Learn more about what's being done in BC, starting on page 30.







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## Membership

All members of a CPWA chapter are members of the American Public Works Association (APWA). As a member, you share common goals, challenges, and solutions with other public works professionals throughout North America. To find out more on member benefits, go to [www.apwa.net](http://www.apwa.net) or [www.cpwa.net](http://www.cpwa.net).

# A Message from the Canadian Public Works Association

**T**his magazine is a great medium to reach our members and engage on important topics impacting public works. Thank you for providing the Canadian Public Works Association (CPWA) an opportunity to provide an update in this issue of *The ROADRUNNER*. Our Board has been moving forward with our national priorities:

- Emergency Management and Disaster Mitigation;
- Canada's Municipal Asset Management Programs;
- Sustainable and Climate Resilient Infrastructure;
- Green Infrastructure and Natural Assets;
- Direct Funding to Municipalities;
- Public Rights-of-Way Management;
- Universal, Affordable Access to Broadband and Cellular Services; and
- Autonomous and Connected Vehicle Municipal Infrastructure Policy.

With these key topics in mind, CPWA Board members have and will continue to meet in Ottawa with various ministries, Members of Parliament, and key associations to build relationships and support progress on these important priorities. At the end of February, I had the privilege of attending two days of interesting dialogue organized by Scott Grayson, Executive Director for CPWA, Anne Jackson, Staff Liaison for CPWA, and Alan Young, Principal with Tactix, which is the CPWA Government Relations and Public Affairs firm. Our agenda was full and we were able to meet with the following groups:

- Robert Haller, Canadian Water and Wastewater Association;
- Claire Seaborn, Office of the Minister of Infrastructure and Communities;
- Talor Bachrach, NDP MP, Infrastructure and Communities;

- Luc Berthold, PC MP, Infrastructure and Communities;
- Senior Team Members with the Public Safety Broadband Network (PSBN); and
- Tina Saryeddine, Canadian Association of Fire Chiefs.

It was great to see the response CPWA received with all these groups and individuals. Our discussions demonstrated many common bonds and consistencies with many of our priorities. It is clear our relationships are strong and that CPWA will be able to provide value and input with these groups and individuals moving forward.

These discussions also highlighted our need to reach out and access the knowledge base in our membership to support these initiatives and ongoing discussions. Our CPWA Board is tasked to continue to build our workplan around our priorities and establish ways to engage our membership. This will hopefully support our next round of meetings in Ottawa in late April and will continue through year.

As always, it is great to see the engagement of our members across the country. Please stay involved through your local chapter to help keep public works priorities top of mind and to help move these issues forward. Any method of support – ideas, lessons learned, examples, local priorities – is welcome. Please do not hesitate to reach out to me directly or through your local chapter and CPWA Board Member.

### Chris Hamel, P.Eng.

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# A Message from the Public Works Association of British Columbia

It has been an exciting time for the Public Works Association of British Columbia (PWABC). Our board and executive have been concentrating their efforts on education, events, and our joint annual conference with the BC Municipal Safety Association, to be held in Richmond, British Columbia September 20 to 22, 2020. We anticipate this conference to be our biggest yet!

As we transition from winter to spring to summer the ever-evolving dynamics of public works tends to keep everyone on their toes. As we all know, in a perfect world all our programs and strategic plans would go smoothly as anticipated. As always though, the true realities of failing or changing infrastructure, weather extremities, new initiatives, and new staff change over gives us challenges throughout the industry.

But with change, the true spirit of public works emerges. The mandate of all public works departments is to provide essential services, protect the environment, and to establish and maintain public safety. Emergencies happen – from an abnormal freshet, earthquakes, and broken water mains, to wildfires to environmental emergencies. Public works are prepared. With that in mind, we can all use assistance when in need. This is why connections are crucial in emergency circumstances.

I ask you to review your connections. Who are your connections in neighbouring communities? What resources do they have to assist you in an emergency? Could there be agreements put in place? The Public Works Association of British Columbia and the American Public Works Association can also assist.

This September, the PWABC and the BC Municipal Safety Association (MSA)

joint Conference and Tradeshow will provide a great place to connect with likeminded colleagues and industry professionals. The opportunity to build relationships is invaluable. It also provides the opportunity to engage with new technical papers; see and experience new industry trends, products, and equipment at the trade show; be brought up to date in safety standards; and celebrate public works and our industry.

Please connect with us:

- Our web page: <https://pwabc.ca>
- Instagram: pwabcupdates
- Facebook: PWABC
- Twitter: BC Public Works @PWABCupdates
- LinkedIn: Public Works Association of BC

Through these mediums you will find updates on educational offerings, emerging leader events, our annual conference, and industry events such as Women in Public Works.

You are not alone. Reach out to our association and colleagues when you're facing challenges or dealing with emergencies, if you need a sounding board, or when you have information to share. It's so important to make connections. As a collective we are stronger.

If you are not a member of the PWABC, now is a great time to enroll. The benefits are invaluable and the connections you will make will last a lifetime. Please contact us at [executivedirector@pwabc.ca](mailto:executivedirector@pwabc.ca) if you have any questions, ideas, challenges, or would like to reach out. We would be happy to hear from you.

**Scott D. Lamont**

President  
Public Works Association of BC

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You can learn more about the Public Works Association of British Columbia on their website: [www.pwabc.ca](http://www.pwabc.ca)



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# A Message from the Alberta Public Works Association

Please accept my sincere thank you to all the public works snow fighters who worked tirelessly throughout the days, nights, and weekends to keep our streets and roadways clean and safe for the residents of Alberta and visitors to our province.

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**H**appy 2020 everyone! As I look back on the winter we had, please accept my sincere thank you to all the public works snow fighters who worked tirelessly throughout the days, nights, and weekends to keep our streets and roadways clean and safe for the residents of Alberta and visitors to our province. It was a very busy winter yet, as usual, the upcoming summer construction season for 2020 looks like it will be even busier as we all gear up for warmer days and the public works activities that go along with it.

I have just returned from Regina, Saskatchewan, where I was honoured to have been invited to attend the Saskatchewan Chapter's 61<sup>st</sup> Annual Conference and PWville. It was a great event, hosted by Dale Petrun and his hard-working board. The sessions were interesting and well attended, the tradeshow was, as always, the hit of the week, and the Saskatchewan hospitality was second to none. I have also been to Cold Lake, Alberta, to present them with the Public Works Week Award for 2019, and to Brazeau County, Alberta, to present Lynden Fischer with Manager of the Year.

The Alberta Chapter is already in the midst of another very busy year. We kicked off the year with a very successful Public Works Administrative Professional's Workshop in Canmore, Alberta, in February. National Public Works Week is May 17 to 23 this year. Our Equipment Rodeo will be in Red Deer in September. Keep an eye on our website

(<http://alberta.cpwa.net>) to get your teams entered for this fun and educational couple of days. This year PWX will be in New Orleans, Louisiana, from August 30 to September 2, and I am sure it will be every bit as good as the previous ones. This year's theme for PWX and National Public Works Week is *The Rhythm of Public Works*. The Alberta Chapter's annual Conference and Tradeshow is slated for October 5 to 7, in Red Deer, Alberta.

Idea Group meetings are going well in all areas and attendance is increasing throughout. Check the website for the dates and locations for the next meeting in your area. Public Works Supervisor Institute dates and locations are also on the website.

On behalf of the Alberta Chapter, I would like to congratulate Patty Podoborzny on being appointed the next President of the Canadian Public Works Association. With Patty's passion and knowledge in public works, the Western Canada is well represented. I would also like to thank the dedicated group that sits on the Alberta Chapter's Board, as well as Executive Director Jeannette Austin, for all of the hard work in the past and into the future. Thank you to their employers, as well, who allow these people to contribute.

Again, it was a busy winter and we will all be busy this summer, so please be safe out there as we all make a difference in the lives of Albertans.

**Garry Webster**

President  
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The Alberta Chapter was founded in 1979 to enhance the services of the APWA to the Alberta public works community and to improve the quality of public works products and services to Canadian citizens.

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# A Message from the Saskatchewan Public Works Association

As each year seems to fly by more quickly, it is important to take time to reflect on the past one. With all the great events and continuous improvements that take place in public works, we would also like to reflect on a tragic incident where a City of Humboldt employee lost his life while on the job. We, as public works professionals, many times sacrifice our own family time to help ensure that our communities run smoothly but operating safely should always be on our minds to avoid making the greatest sacrifice of all. The SPWA posthumously honoured Ian Irwin at our February Conference in this respect.

Our 61<sup>st</sup> Annual Conference and PWville, titled *It Starts Here*, took place February 25 to 27, 2020 in Regina, Saskatchewan. Delegate numbers were down a bit this year but PWville was sold out – we even had two suppliers without a booth. Sessions on various topics included: project management, autonomous vehicles, lead water lines, snow storage, and many other great ones. This year, SPWA also held product showcase sessions in the tradeshow, giving suppliers an opportunity to showcase their products and services in short 15-minute sessions. Our social event was held at Baller's Rec. Room, where everyone was able to enjoy some time relaxing, socializing, and playing a few games. It was a fun time reliving our youth! SPWA also hosted an impressive tour of the City of Regina's Wastewater Facilities. We were very pleased to welcome to the conference Dan Hartman, Region IX Director, from Colorado; Slade Engstrom, APWA Technical Committee Chair from Kansas; and Garry Webster, Alberta Chapter President.

Our AGM took place during the conference. I would like to thank the outgoing Directors for all their time and effort over the past few years: Owen Green, Rosthern (Small-town); Ian Alarcon, Regina; and Rebecca

Gatto, from Xylem. Joining the SPWA Board is: Neeraj Saroj, Regina; Derek Hradecki, Emerald Park; Dennis Hunt, Saltcoats (Small-town); and Duncan Sutherland, from Paradox Access Solutions. Congratulations to all and welcome...we have an exciting year ahead of us! Thank you to all the Board members for their commitment of their valuable time and energy, to make our events a success.

We are working on the details for our National Public Works Week (NPWW) Workshop on May 21st in Moose Jaw, Saskatchewan, titled *Asset Management 201*. Work continues on the Golf Tournament and Backhoe Roadeo scheduled for June, and our Fall Workshop in September (location and date to be determined). Winning the Backhoe Roadeo would qualify you to compete at PWX (the APWA Conference held each year). 2020 PWX is in New Orleans, Louisiana.

Watch your email 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*).

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.

Remember that you can also follow us on Twitter at @SPWAchapter.

## Dale Petrun

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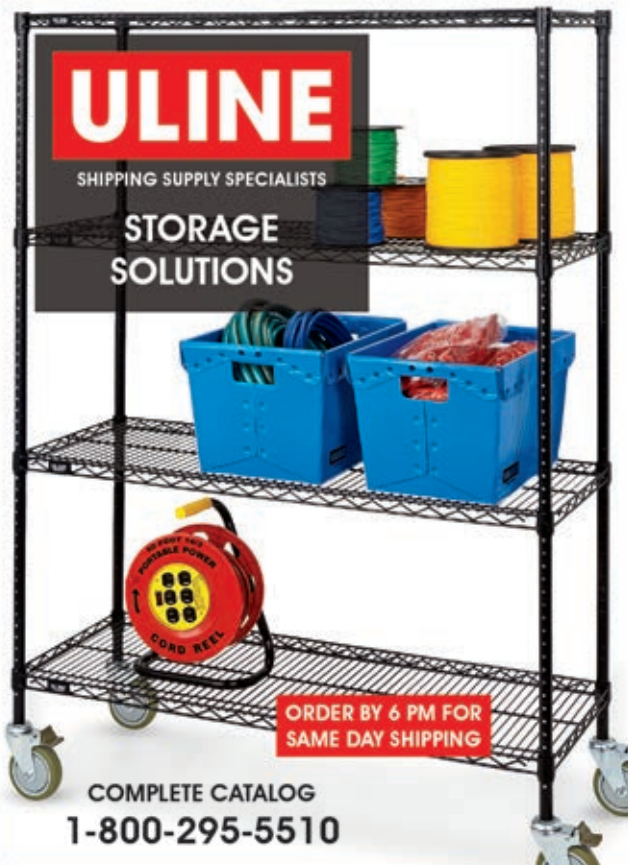
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# A Message from the Manitoba Public Works Association

**We are all very happy to see the province putting money forward like this and looking forward to seeing the increased capabilities of municipalities in this upcoming flood season.**

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**W**ell, spring is here and many of us in Manitoba are again preparing for flooding. We are not far away from our first real flood forecast and most of us will be expecting moderate to severe flooding. We are eagerly awaiting what kind of melting season spring brings to us and our neighbours to the south, to see how bad it may get.

The Province of Manitoba created a 2020 Flood Preparedness Program for municipalities across the province. Municipalities were encouraged to apply for a maximum of \$150,000 per municipality with a program total of \$3,000,000 – the deadline to apply was February 28, 2020. The money is to be used for flood fighting equipment and services to mitigate or become more resilient to flooding scenarios this year and for future floods to come. This type of money can go a long way for municipalities to increase their abilities to fight floods as they are coming and to also be able to upgrade services to be able to withstand flood waters. We are all very happy to see the province putting money forward like this and looking forward to seeing the increased capabilities of municipalities in this upcoming flood season.

The Manitoba Chapter is looking into some big things for the spring and summer

seasons. We will be hosting a Flood Seminar on May 21, 2020. This seminar will bring together professionals from across the province and will host sessions on what has just happened and what we can do to mitigate these types of failures again.

Our Annual CPWA golf tournament will be May 28, 2020. This event is always a great opportunity to get out with our peers and spend a beautiful day outside networking and meeting new people. Bridges Golf Course will be hosting us again this year. To register or if you have questions, please contact myself or Steve Blayney.

Internally this year we are looking to develop some social media presence as we explore platforms like LinkedIn, Twitter, Instagram, and Facebook. We are hoping to find more ways to reach out to our membership and gain engagement on hot topics, seminars, lunch and learns, and many more exciting things that are always going on in Manitoba.

I look forward to another great year as the president of the Manitoba Chapter and can not wait to get some of these great events and seminars moving. We are excited to share our passion with our members and other public works professionals across Manitoba.

### Chad Buhlin

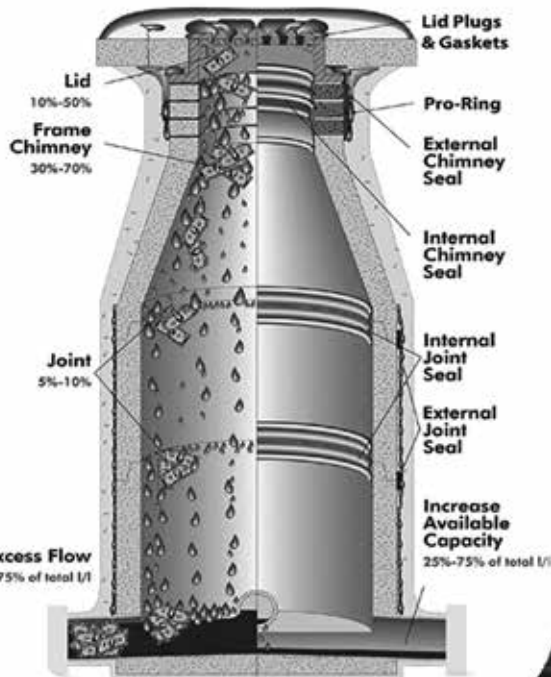
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**Did you know** that Manitoba is the longest serving of the Canadian chapters and has been providing a forum for practitioners since 1955! We actively support our membership, the public and policy makers to collaborate and maintain healthy communities throughout the province.

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# A Message from the Alberta Municipal Supervisors Association

**AMSA's mission is to unite our members towards individual development, improved service to their municipality and the public and to improve the members' knowledge related to their role in public works operations. Our association provides a forum for exchange, both online and in person at conventions, and the development of innovative ideas, as well as offers various professional development opportunities.**

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**The Alberta Municipal Supervisors Association is a group of public works leaders from across the province, representing 70+ rural and small urban municipalities.**

I hope your winter season was a productive one, as you undoubtedly planned for your municipality's spring and summer 2020 programs.

As road ban season begins, spring road maintenance takes hold and crews will also be busy readying themselves for the short Alberta construction season.

In 2020, AMSA celebrates its 40<sup>th</sup> anniversary; the organization incorporated on May 15, 1980. This is a significant milestone for our humble association and a great testament to the strong leadership of past and present executive members. We definitely look forward to celebrating our 40 years with you at an upcoming convention!

The Alberta provincial budget was released in late February and municipalities are still in a state of uncertainty related to funding as the province's *Local Government Fiscal Framework Act* shifts grant funding from the Municipal Sustainability Initiative (MSI) to the Local Government Fiscal Framework (LGFF) in 2022. The good news is that the *LGFF Act* also includes a legislated commitment of \$2.5 billion in capital funding for the last three years of the MSI program. Alberta also expects to receive \$244 million in federal funding under the Gas Tax Fund (GTF).

AMSA is hosting its spring convention March 17 to 18, 2020, in Edmonton,

Alberta, with another great roster of speakers. The keynote speaker for day one of the convention is Cassie Campbell, who will be there to speak about team building and leadership. The ever-popular bearpit sessions are intended to share management strategies and best practices – all which benefit the seasoned public works professional or newcomers to the field. As we mentioned a time or two before, AMSA's conventions are geared specifically to serve members so if you have any suggestions for topics or presenters, send your feedback to AMSA's executive director at [cheggart@amsapw.ca](mailto:cheggart@amsapw.ca).

We hope to see many of you at the March convention. I also look forward to the continued growth of our membership due, in part, to the executive's hard work to bring quality professional development opportunities – an effort that benefits members and municipalities across the province. It's my hope that we continue to build on our successes into the next phase of our association's story as we implement the strategic action plan for the next five years. Cheers to another successful 40 years as an association!

**Shaune Kovitch**

President

Alberta Municipal Supervisors Association





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# A Legal Primer on BIM Projects

By Sonia Sahota, LLP, P.Eng, Civic Legal LLP

**B**uilding Information Modelling, or “BIM”, is an innovative process and technology utilizing computer modelling software that allows a digital representation to be created of the physical and functional characteristics of building elements. The model, if done accurately, forms a reliable basis upon which decisions may be made by the owner, designer, builder, and end-users alike during design development and construction of the project, as well as the operations and maintenance phase of the structure. In this article, we explore the impacts from the use of BIM in construction on familiar contractual arrangements and what public owners may want to consider from a legal perspective before engaging in a BIM project.

As further context, a “true” BIM project comprises a model representing a digital twin of the physical structure, complete with information such as the structure’s geometry, material properties, aesthetics, and thermal and acoustic properties. The more accurate and detailed the information that is inputted to create the model, the more useful and functional the outputs that may be generated. A BIM model could, for instance, be used

for: 3D visualization purposes and clash detection at the design stage; developing budgets for preconstruction; sequencing during construction; and automation during operations.

The more extensive that BIM utilization is desired for a project, the more collaborative the relationships that will be required amongst the owner/end-user, designers, and builders to develop a reliable model from which decisions may be made.

BIM’s call for collaboration is seemingly at odds with the prevailing use by owners of more traditional and linear project delivery formats, such as design-build-bid, design-build, and construction-management. For example, in a typical design-bid-build model, the roles of the parties involved are “silos”, wherein owners establish the requirements, design consultants prepare the design, and builders construct based on the design. Inherent in such an approach is the discernable start and end to each party’s rights, roles, responsibilities, and liabilities.

Decades of using these approaches has allowed legal practitioners to ensure that contracts allocate risks appropriately amongst the various parties, based on each party’s discernible role. Collaborative approaches, on the

other hand, contemplate a more integrated approach where these roles may not be as clearly separated. The use of integrated project delivery,<sup>1</sup> for example, is relatively new and is not commonly understood or applied within the municipal sector, nor in the construction industry generally.

The deployment of BIM within a contractual model that contemplates “silos” roles may create unintended risks. Parties considering a BIM project should approach the use of such contracts cautiously. The legal realities arising from BIM use are not well understood or tested. For example, a contractor’s provision of input into the BIM model may be considered design services yet the contractor likely will not have professional liability insurance to cover design errors, nor will the contractor’s general liability insurance likely extend to cover such errors. Other potential issues may include uncertainty as to:

- Ownership of design;
- Ownership of the BIM model;
- Access rights to the BIM model;
- Copyright and intellectual property rights;
- Priority of BIM protocols within the hierarchy of contract documents;
- Liability for loss of data;



- Warranties and indemnities provided with delivery of design data; and
- Limitations on a party's use and reliance of data.

The overarching concern is the potential for unforeseen risks that may arise within a BIM project where the traditional legal boundaries between the parties have been disrupted.

A case in the United Kingdom from 2017<sup>2</sup> is a good example to illustrate this point. In *Trant Engineering v Mott MacDonald*, Trant was hired by the government as the general contractor for a power project. Trant, in turn, hired Mott as the project designer and BIM coordinator. A payment and contractual dispute arose between the parties and Mott suspended its services and revoked Trant's access to the common data environment within which the BIM model existed.

The lack of access to essential project information would have proved fatal for the project and so Trant was successful in obtaining a court injunction requiring Mott to provide access to the BIM data so that the project could proceed. Mott's conduct as the external "gatekeeper" of the BIM model gave rise to the issue of continued control and access by the owner to the model, and serves as just one example of the novel concerns that may arise.

The first and foremost consideration if using BIM should be to establish a set of guiding rules and principles amongst the project proponents that set out the *who, what, when, where* and *how* regarding use, control, ownership, responsibilities, and liabilities (to name a few). These BIM protocols will establish clarity as to the logistical and legal environment in which project participants will be operating. The scope of such protocols will depend largely on the purpose for which BIM is utilized on a project. For example, BIM used for visualization purposes may not generate the same extent of legal concerns, such as ownership and design liability issues, that may arise in the case of a "true" BIM project that utilizes the tool for everything from design analysis, computation and optimization, to clash detection, coordination, scheduling, and sequencing.

The cautionary tale of this article is that the use of BIM may give rise to unexpected and unfamiliar scenarios and potentially reallocate the risk profile amongst project participants. The routine use of traditional contractual arrangements should be thoughtfully considered to ensure that risks have been properly reallocated. This is especially true in using standard form contracts, such as those prepared by the Canadian Construction Documents Committee (CCDC), the American Institute of Architects (AIA), or the Master Municipal Construction Document Association (MMCD), which contemplate the "siloe" relationships between the project participants.<sup>3</sup>

At the time of writing this article, supplementary provisions, or "protocols", for a BIM contract are provided by the Institute for BIM in Canada for use with the CCDC 2 – 2008 *Stipulated Price Contract*<sup>4</sup> and by the AIA for use with AIA agreement.<sup>5</sup> These standard protocols may offer a good starting point but should be fully considered to determine their suitability for a particular project scenario. The writer is not aware of any protocols that have been issued by the MMCD. ▀

*This article is intended for the general information of organizations in British*

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

*Sonia Sabota is a solicitor and current managing partner 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](http://www.civiclegal.ca) for contact and additional information.*

## References

1. Integrated Project Delivery is a project delivery approach that integrates parties, process and practices in a collaborative manner through all phases of design and construction.
2. *Trant Engineering Limited v Mott MacDonald Ltd* [2017] EWHC 2061 (TCC).
3. The CCDC has recently published the CCDC 30 – 2018 Integrated Project Delivery Contract which contemplates a collaborate approach.
4. Document IBC 100-2014 published by the Institute for BIM in Canada.
5. Document E203-2013 published by the American Institute of Architects.

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## Upcoming Events

### Click, Listen & Learn Webinar (APWA website)

*Government Facility Security Programs & Technology*  
April 16, 2020

### Click, Listen & Learn Webinar (APWA website)

*Talking Top Tech: Cybersecurity for Critical Infrastructure*  
May 7, 2020

### National Public Works Week

*The Rhythm of Public Works*  
May 17-23, 2020

### Saskatchewan Chapter – Asset Management 201 Workshop

Moose Jaw, SK  
May 21, 2020

### Manitoba Chapter – Flood Seminar

Winnipeg, MB  
May 21, 2020

### Manitoba Chapter – Annual Golf Tournament

*Bridges Golf Course*  
May 28, 2020

### Click, Listen & Learn Webinar (APWA website)

*Talking Top Tech: Waste to Resource Technology Edition*  
June 11, 2020

### Click, Listen & Learn Webinar (APWA website)

*Reading Construction Plans*  
June 25, 2020

### Click, Listen & Learn Webinar (APWA website)

*Incorporating Social Equity into Decision Making*  
July 9, 2020

### Click, Listen & Learn Webinar (APWA website)

*Free Emergency Management Training for PW Professionals*  
July 30, 2020

### Click, Listen & Learn Webinar (APWA website)

*Talking Top Tech: 3D Technologies Edition*  
August 6, 2020

### PWX – Public Works Expo

New Orleans, LA  
August 30-September 2, 2020

### Click, Listen & Learn Webinar (APWA website)

*Talking Top Tech: Technology for Field Crews Edition*  
September 24, 2020

### The 3<sup>rd</sup> Annual Joint PWABC/BC Municipal Safety Association Conference & Trade Show

Richmond, BC  
September 20-23, 2020

### The Alberta Chapter's 2020 Excellence in Public Works Conference and Tradeshow

Red Deer, AB  
October 5-7, 2020



### See You in Richmond!

Mark your calendars for the 3<sup>rd</sup> Annual Joint PWABC/BC Municipal Safety Association Conference & Trade Show – “Where innovation and collaboration meet.”. The three-day event, which features two key note plenaries, attracts 600+ delegates, exhibitors, speakers, and guests, will be held in Richmond, British Columbia, September 20-23, 2020.

Learn more at [www.pwabc.ca](http://www.pwabc.ca).



### See You in Red Deer!

The Alberta Chapter's 2020 Excellence in Public Works Conference and Trade show is scheduled for October 5-7, 2020, in Red Deer, Alberta. If you're interested in sponsorship, speaking, or exhibiting, contact the association at [admin@publicworks.ca](mailto:admin@publicworks.ca). The presentations from the 2019 event are online and available for download at <http://alberta.cpwa.net>.



**SPWA CHAPTER: 2019 AWARDS**

Handed out in Regina, Saskatchewan, February 25, 2020

**PUBLIC WORKS PERSON OF THE YEAR - SPWA**

**Winner:** Jesse Watamanuk, Environmental Services Supervisor, City of Moose Jaw

This award recognizes the outstanding service to the profession, the public, and the SPWA by an individual who truly exemplifies the public works official.

**CONTRACTOR OF THE YEAR - SPWA**

**Winner:** Anderson Pump House, North Battleford/Prince Albert

The contractor of the year award was established to promote excellence in public works construction and maintenance by recognizing outstanding service, and the key role the contractor plays in meeting the objectives of public works projects and programs.

**MERITORIOUS SERVICE AWARD - SPWA**

**Winner:** Prestige Environmental

The intent of the meritorious service award is to acknowledge that the private sector and academic institutions play a key role in providing public works facilities and services. The award is based on a pattern of professional activities that have resulted in the enhancement of the quality, efficiency, and cost-effectiveness of services provided by public agencies.

**PROFESSIONAL MANAGER OF THE YEAR AWARD - ADMINISTRATIVE MANAGEMENT - APWA**

**Winner:** Darrin Stephanson, Manager of Utilities, City of Moose Jaw

This award seeks to recognize outstanding achievement in the area of administration within the public works department and to inspire excellence and dedication in the public sector by recognizing the outstanding career service achievements of administrative professionals.

**TONY MARCECA MEMORIAL SCHOLARSHIP - SPWA**

**Winner:** Tegan Schafer

Established in 1992, the Tony Marceca Scholarship (funded in the memory of Tony Marceca) is awarded annually to a son or daughter of an SPWA member. This scholarship is an "entrance level" scholarship. The recipient is chosen by the chapter awards committee and is presented with a certificate and cheque at the annual conference.

**AWARD OF MERIT - SPWA**

**Winner:** Ian Irwin (posthumously)

The intent of the APWA award of merit is to recognize the dedicated service of public works or related agency personnel at the operational level who perform their responsibilities in an exceptionally efficient and courteous manner. Nominees must have been employed by a public works related agency or agencies for a period of not less than five years.

**HARRY S. SWEARINGEN AWARD - APWA**

**Winner:** Dale Petrun, City of Saskatoon

This award was established in 1958 to perpetuate the memory of Harry Seller Swearingen (1900-1957), who worked untiringly on behalf of APWA and its purposes. This award recognizes outstanding individual achievement in support of the association's strategic plan, goals, and objectives, as well as outstanding service to APWA as a public or private sector member at the chapter level.

**GERRY WHEELER MEMORIAL AWARD - SPWA**

**Winner:** Rebecca Gatto, Xylem

This award recognizes an individual who has made a most valuable contribution to the SPWA. The award was established by Neptune Meters Ltd. and is in memory of Gerry Wheeler, who was an employee of Neptune Meters as well as a long-time member of the SPWA.

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## 61<sup>st</sup> Annual Conference and PWville: Conference Overview

The Saskatchewan Public Works Association held its 61<sup>st</sup> Annual Conference and PWville (tradeshow) in Regina, February 25-27, 2020. Over 100 delegates took part in the many technical, education, and social events.

PWville was completely sold out; there were even two suppliers without a booth. A new event was the Supplier Showcase, which took place in the tradeshow. Vendors were given the stage for a 15-minute presentation on a service or product. The Candy Station was also a very "sweet" hit!

Some of the other highlights of the conference were the many fabulous speakers and presentations, the inaugural Water Roundtable, the City of Regina Wastewater Treatment Plant tour, and Keynote Speaker, Hall of Famer and former Roughrider CEO, Jim Hopson.

We are already working on the details for next year in Saskatoon. See you there!



## National Public Works Week - May 17 - 23, 2020

As part of **National Public Works Week** (NPWW), on May 21, 2020, the Saskatchewan Public Works Association (SPWA) is hosting a workshop titled **Asset Management 201**, in Moose Jaw, SK.

**You learned the basics of Asset Management, now gain more detailed technical awareness by learning about:**

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**National Public Works Week** is observed each year during the third full week of May. Through NPWW, and other efforts, SPWA seeks to raise the public's **awareness of public works issues** and to increase the confidence in public works employees who are **dedicated to improving the quality of life** for present and future generations.

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(306) 232-9300

[spwa@sasktel.net](mailto:spwa@sasktel.net)

<http://saskatchewan.cpwa.net/>







*Hall of Famer Jim Hopson was the keynote speaker.*



*More than 100 attendees gathered in the main room to hear presentations on great topics.*



*New this year was a Water Roundtable.*

*Attendees toured the City of Regina's Wastewater Treatment Plant.*

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# Create Successful Orientations for Temporary Workers

By Michael Blanchard, BIS Training Solutions

**N**owadays most industries require workers to complete safety orientations, worksite orientations, or general company orientations before they can begin work. This is true for full time employees and for temporary workers like seasonal employees, summer student positions, and interns. There are many types of orientations for new and temporary employees ranging from online to in person. If you are interested in making a fantastic orientation that gets your employees off on the right foot, then follow the simple tips below.

## Remote access

As phones, tablets, and internet access become more ubiquitous and powerful, companies can benefit by taking things like new and seasonal worker orientations online. With online and remote access to orientations you can have seasonal workers and summer interns complete orientations before they even arrive at the office or worksite. This means the first day can be more productive and less of their temporary time with your company will be spent getting

them up to speed on general orientation details.

In many cases, online materials can also be made more engaging and can be completed at the employee's own speed and when it works best for them. You can also make edits to materials without needing to re-print orientation booklets or handouts for every new hire, which reduces your company's administrative load and ecological impact.

## Self-registration

This tip pairs well with the earlier advice about taking orientations online. You can make orientations easier for temporary workers by allowing online self-registration. This means workers could register for orientations without having to call in or book it in person with a human resources professional, which will reduce the time and administration cost associated with the orientations.

## Update leadership messages

Including messages from the leadership team, managers, all-star employees, or the CEO can be a great way to get temporary

and seasonal employees up to speed on company culture, expectations, and job responsibilities. Creating a cohesive company culture can be one of the best indicators of future success for an organization and ensuring all hires, whether full time or temporary, are onboard and aware of the culture and company direction is critical.

Many organizations will include a written article from the CEO in orientation packages, but video or audio clips are often more engaging and can make the new hire feel more connected with the company right out of the gate even if they will only be with the organization for a short while.

It is also important to keep these leadership messages fully up to date as strategy or leadership positions change. Creating online orientations are also an easy way to make updates to content quickly and easily rather than having to reprint and bind orientation documents and waste outdated material.

## Simple and clear

The goal of your training and company orientations is to provide clear



guidance to new hires that provides them with the required knowledge while being accessible to everyone who will be participating in the orientation regardless of age, culture, and background.

For most of your content, simple slides and photos will suffice. Do not feel like you need costly videos to produce high-quality training. It is critical that you avoid industry specific acronyms and too much jargon; this is a good tip for your business in general but especially critical when dealing with employees who will be with your company for a short period. Acronyms are often confusing, and it can take far too long to remember a long list of acronyms and abbreviations. If you have a student or intern position, then that person is also likely not used to the industry specific abbreviations and they might spend their entire time with your company trying to keep them all straight. Sure, it might take a bit longer to type out full words and sentences, but retention and clarity will be much higher.

In addition, to aid retention and make the material easier to digest you should separate it into topics and be clear on what the employee should learn in each section. Laying the orientation into a clear structure will help all new workers better grasp the material and understand the company and their specific worksite or role.

### Integrate digital forms into the orientation

Normally paperwork is a huge part of orientation packages, and forms for taxes, direct deposits, etc. can add up and create a ton of clutter and administration work for your human resource team. Luckily, digital form technology is coming a long way and online orientations can also include digital forms that make the paperwork part of onboarding easy for employees to complete and easy for Human Resources to organize. This can include digital signatures, complex government forms, and much more.

### Verify participation

The newest digital technology allows you to verify the identity and engagement of your training participants. Virtual proctoring ensures the orientation is completed by

the actual participant with fewer incidents of the participant just playing videos or subbing in a relative or friend.

Thorough orientations are critical to the successful on-boarding of your new seasonal and temporary hires, as well as their safety and success. Putting that training online makes the process more effective. By following these six steps, your orientations will be more successful and more efficient. ▀

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# Project of the Year Award Goes to **North Red Deer Regional Wastewater System**

*Construction underway on the North Red Deer Regional Wastewater System.  
All photos in this spread courtesy of Stantec.*



*ABOVE: Equipment like this provides a modern wastewater solution for 25,000 residents living in central Alberta.*

*LEFT: Well deserved recognition to team members involved in this successful project!*

In October 2019, the North Red Deer Regional Wastewater Services Commission (NRDRWWSC) announced that the North Red Deer Regional Wastewater System received the American Public Works Association (APWA) Alberta Chapter's Project of the Year Award, for Projects over \$10 Million, at the 2019 APWA Excellence in Public Works Conference and Tradeshow, held in Red Deer from October 7 to 9, 2019.

Commissioned in April 2018, the transmission system pumps wastewater to the state-of-the-art regional treatment plant in Red Deer. The project consists of a



28-kilometre pipeline, one odour management facility, and two major lift stations.

"The APWA Alberta Chapter was pleased to present the project of the year award to the North Red Deer Regional Wastewater Services Commission. It is always great to see commissions like this work collaboratively together to tackle a big project like this. Congratulations," says Peter McDowell, Past President, American Public Works Association Alberta Chapter.

The APWA Public Works Project of the Year Award was established to promote excellence in the management and administration of public works projects by recognizing the alliance between the managing agency, the consultant/architect/engineer, and the contractor who, working together, complete public works projects.

"I was pleased to accept this award on behalf of the North Red Deer Regional Wastewater Services Commission," says Ken Wigmore, NRDRWSC Chair. "Completed on time and on budget, the wastewater transmission system is a great, forward-thinking project that ensures our members have access to safe, reliable, and effective wastewater treatment services for the foreseeable future."

Designed by Stantec, the North Red Deer Regional Wastewater System promises a cleaner future for communities in central Alberta. The project incorporates innovative approaches and leading-edge technologies to provide a modern wastewater solution for 25,000 residents living in central Alberta and protect the sensitive watershed that supplies drinking water for 150,000 Albertans.

"The north leg of the central Alberta Regional Wastewater System is a project that has made a significant impact on the communities it serves, with enhanced wastewater treatment and improved water quality," says Todd Simenson, Vice President, Stantec. "Stantec is proud to have worked alongside our partners and the local municipalities that have championed this celebrated project. While the recognition from our peers is something we are all proud of – at the end of the day,

the safe, reliable system that will serve residents for the next 25+ years is an achievement we truly cherish."

"The North Red Deer Regional Wastewater system highlights the importance of strong relationships between municipal neighbours and shows what can be accomplished when all levels of government work together," says Lacombe County Reeve Paula Law. "This line makes life better for residents and

businesses in central Alberta, and we are honoured for our role on this APWA Project of the Year."

The City of Red Deer Wastewater Treatment Plant also received extensive upgrades in order to accept wastewater from the North Red Deer Regional Wastewater System. The upgrades significantly increased the capacity of the plant, as it now services a population of over 150,000 people. **D**

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# Slow Down!

## My Mommy/Daddy Works Here



*The Cone Zone campaign aims to reduce the number of deaths and injuries to roadside workers.*



*Slow down! The Cone Zone campaign is designed to increase awareness about the variety of roadside workers and their vulnerability on roadside construction sites.*

By Trina Pollard, WorkSafeBC

**W**e all deserve to go home safely at the end of our work shift. Yet, each year in B.C., many of the people who work along B.C.'s roads and highways are vulnerable to serious and even fatal injuries.

Between 2009 and 2018, 13 roadside workers were killed and another 213 injured and missed time from work as a result of being hit by a motor vehicle. Many of these tragic incidents were preventable. Often, all that stands between these workers and vehicles weighing more than a thousand kilos are small orange cones. Each cone stands for someone's father, mother, son, daughter, friend, or colleague.

To raise awareness about the vulnerability of roadside workers, the Work Zone

Safety Alliance – a joint provincial initiative supported by more than 20 organizations committed to improving the safety of roadside workers – runs the Cone Zone campaign from May to August each year.

The campaign, which marks its 10<sup>th</sup> year in 2020, aims to reduce the number of deaths and injuries to roadside workers by increasing awareness of their vulnerability and encouraging drivers to practice safe driving behaviours while in roadside work zones. Research shows that when motorists are thinking about the vulnerability of roadside workers, it is a key motivator in getting them to slow down and pay attention.

The Cone Zone campaign is also designed to increase awareness about the variety of roadside workers, which includes workers involved in road construction and

maintenance as well as landscapers, municipal workers, tow truck operators, truck drivers, security guards, utility workers, bus drivers, and emergency and law enforcement personnel. The campaign coincides with the increased summer traffic as more drivers take to the roads and an increase in roadside work throughout the province in the spring and summer. As construction activity increases during this period, drivers are reminded of the need to slow down when driving through a work zone and to pay attention to instructions from temporary road signs, traffic control devices, and traffic control persons.

In addition, under the *Slow Down, Move Over* legislation, when passing a vehicle with flashing red, blue, or amber lights, drivers are required to reduce their speed to 70 km/h when the posted speed limit is 80 km/h and higher, and to 40 km/h in all other zones, and then, if safe to do so, move over to an open lane.

It is important to remember that employers have a legal responsibility to ensure the health and safety of their workers and contractors along B.C.'s roads and highways, including that their workers



understand the hazards related to working at the roadside, and to provide their workers with training, supervision, equipment, and the proper resources to help keep them safe. Employers should ensure that they follow the province's new *Traffic Management Manual* for work on provincial roads and highways, which took effect in January 2020.

The manual outlines fundamental principles and guidelines for traffic management and traffic control. The goal is to protect workers and facilitate the movement of motorists and other road users through work zones on Ministry of Transportation and Infrastructure roads and highways.

In addition, *Occupational Health and Safety Regulation Part 18* covers traffic control. WorkSafeBC is proposing amendments to Part 18 that would align the traffic control regulations with the latest edition of the *Traffic Management Manual*. Consultation is ongoing and stakeholder feedback is being considered and analyzed. The next step will be taking the proposed amendments to a public hearing.

The manual and regulations include standards for designing, applying, positioning, installing, maintaining, and inspecting various types of temporary traffic control devices through work zones. Employers need to understand that they are required to conduct a risk assessment of the work zone and that the proper control measures are implemented following the hierarchy of controls – elimination, substitution, engineered, administrative, and personal protective equipment.

Technology, such as automatic flagging assistance devices (AFADs), will help take workers out of the direct line of the hazard, and crash attenuators will help protect those workers who must be on the road while vehicles are passing by the work zone. Proper supervision is needed to ensure that work zone layout, set up, and operation is occurring and that workers receive adequate training on both traffic control and job/site specific training.

Another factor for employers to consider is that work zones often have multiple employers and crews on site. Therefore, communication between all parties is essential to ensure safe coordination of activities.

Taking a few minutes to communicate to all parties on site at the start of each workday can help alleviate confusion and reduce the risk to all workers.

For their part, roadside workers can play an important role in helping to ensure worksite safety. They should follow safe work procedures, adhere to set-up and take-down regulations, and wear appropriate high-visibility clothing. In addition, workers should know how to identify hazards and

assess risks, and immediately report unsafe work conditions to their supervisor.

To learn more, the campaign's website, [www.conezonebc.com](http://www.conezonebc.com), contains additional resources for employers, workers and drivers. WorkSafeBC's website also has resources: [www.worksafebc.com](http://www.worksafebc.com).

*Trina Pollard is WorkSafeBC's manager, Transportation & Occupational Road Safety, Prevention Services Division.*



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# Teamwork Helps the Water Work

By David J. Tratch,  
M.Sc., P.Eng., WaterMark  
Consulting Ltd.



*Construction of a high yielding water supply well for City of North Battleford.*



*Withdrawal of pump showing iron precipitation within well casing.*



*Discolouration of water during well servicing indicating removal of solids from screen section.*

**T**he City of North Battleford operates a series of 14 water supply wells, constructed into the North Battleford Aquifer, adjacent the North Saskatchewan River. Continuous operation of these wells has historically been challenging for city personnel as a result of aggressive well deterioration due to biofouling and over-pumping. Regular replacement of water supply wells was required as the wells deteriorated beyond repair.

WaterMark Consulting Ltd. has been successfully assisting the city in the management of their water supply well field since 2009. This relationship has bore an expanded, higher yielding groundwater source water supply as the City of North Battleford strives to be more efficient into the future. WaterMark Consulting was hired when the city was struggling to decide if they should continue using the groundwater well supply or change to an alternate water source.

The company completed a geologic and hydrogeologic characterization that evaluated the yield potential from the North Battleford Aquifer and identified issues with historic well design and operations. The study concluded that the aquifer had significant potential for water supply but changes in well design and operation were required to extend their life. The source of biofouling was linked to an elevated carbon content within the aquifer, in the form of buried trees and charcoal, that is believed to be the unending source of microbes causing the issue. Left unchecked, the biofouling would render a well useless within a year.

Over the past decade, WaterMark Consulting Ltd. has been involved in the establishment of 11 new water supply wells. Through this same time period, the well field had only required disabling of two water supply wells,



one of which was old and beyond its life expectancy. In addition to expanding the physical infrastructure, a key element in the effective operation of the well field is the expansion of the flow and pressure controls.

WaterMark Consulting Ltd. assisted the city in balancing the flow from all 14 wells operating simultaneously. This is particularly impressive knowing that, without strict flow and level controls, any of the wells could be over-pumped in this complex well field environment and, with any well being taken off-line, the demand and stress on the remaining wells would only increase. Historically, this well deterioration cycle would result in an unending sequence of over-pumping and subsequent deterioration. With the establishment of upgraded monitoring and controls, the health of the well field can be evaluated in real time and planning for well servicing can be optimized.

Historically, well servicing was completed on an annual basis and was completed on all wells irrespective of need. This over-servicing was very expensive and likely contributed to the reduced lifespan of the historic water supply wells. With the current monitoring program, hydraulic deterioration can be identified early, offering a window of opportunity to address the biofouling before the effects become semi-permanent. Improved identification and scheduling methodology addresses the wells in need at the proper time as some wells have been identified to need regular servicing, while others have operated for several years without requiring attention.

The well servicing effort is an optimized method of alternating physical and chemical treatments. Physical agitation of the water supply well screens, sand pack, and surrounding formation sand is required to break up any biochemical encrustation, allowing for an efficient chemical treatment process. Chemical treatment involves use of an acid treatment that is suitable for domestic water supply wells. The acid treatment is intended to digest any biochemical buildup in the vicinity of the well, which improves the void space for groundwater entry, reduces biologic activity, and limits opportunity for regrowth. A final physical agitation effort is invested to redevelop the screens and formation.

WaterMark Consulting Ltd. and the City of North Battleford are a positive example of how a thorough and interactive ongoing relationship between an engineering company and municipal partner has produced immeasurable benefit. The city water supply network has advanced from a point of frustration for all parties involved, to a stable and efficient operating utility. This utility requires ongoing monitoring and maintenance, but all investment is

focused on wells in need and the well servicing efforts produce an enduring well field. ▀

*David J. Tratch, M.Sc., P.Eng., is principal engineer at WaterMark Consulting Ltd. and has been responsible for the construction and licensing, evaluation, and rehabilitation of hundreds of water supply wells across Saskatchewan. In addition to hydrogeologic investigations, he is also involved in geo-environmental investigations for the municipal, industrial, and agribusiness industries.*

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*A small piece of the 80 kilometres of cast iron water mains being replaced.*

# The **Ins** and **Outs** of Undertaking a Major Infrastructure Replacement Plan

By Craig Hemingway, City of Moose Jaw

In 2015, Moose Jaw City Council voted to launch the Cast Iron Water Main Replacement Project. Pegged to be completed over 20 years, at a cost of \$117 million, it was the largest infrastructure commitment in Moose Jaw's history.

It was a significant step forward by the council of the day and was based on six principles:

1. Moose Jaw's cast iron water main replacement had been ignored for many decades.
2. Moose Jaw was behind most other communities in Saskatchewan – by nearly 20 years – in addressing and funding cast iron water main replacements.
3. The City of Moose Jaw needed to urgently address the replacement backlog and failing cast iron system to ensure that the city's water distribution is healthy and sustainable for future generations.
4. The City of Moose Jaw had 80 kilometres of cast iron water mains, some up to 110 years old. Over time and without appropriate action, the problem of cast iron water main pipe corrosion and deterioration increased and threatened the water safety and security of our community.
5. Cast iron water mains typically averaged roughly 100 breaks per year in Moose Jaw, with the City of Moose Jaw spending

about \$2 million annually on cast iron repairs alone.

6. Cast iron is the highest priority for infrastructure repairs and replacement in Moose Jaw's immediate future.

## Major challenges

**Funding.** Anytime you're planning to add over \$5 million per year to your budget, sourcing those funds without over-burdening taxpayers and reducing other programs and services is a challenge.

Year one of the program was accomplished in part by implementing a Local Improvement Program model, where the city covered 70 per cent of the costs and affected property owners were responsible for the other 30 per cent. However, after year 1 was complete the LIP funding model was overturned in a referendum as part of the 2016 Municipal Election. That meant re-adjusting the scope of the project in future years and intensifying the search for additional federal and provincial resources.

Another significant challenge arose in year two of the program (2017), as construction delays at a high-traffic business corridor site resulted in unfinished work sitting through the winter. The city eventually removed the contractor and completed the remaining



*Moose Jaw Mayor, Fraser Tolmie, tours the work in progress.*

connections and paving in 2018, all while Phase 3 work was occurring on schedule at other locations.

## Lessons learned

**Pre-qualify contractors!** Not all water line replacement projects are the same, so the city began a pre-qualification process for contractors for year three (2018) of the project. It was a significant step to ensure that the successful bidder had the necessary experience to navigate a project of this magnitude.

**Include all specification requirements and miscellaneous items in the tender, for example, vactoring, disposal costs of material, pipe etc.** This removes unexpected/



unaccounted for costs and allows for a smoother project delivery.

**Monitor contractor and progress efficiently.** From recording daily activities and practicing constant communication, in the end it is the city's job to ensure a successful project. Surprise revelations regarding project complications can cause issues on multiple fronts (budget, timelines, community confidence, etc.).

**Finally, when you are addressing underground infrastructure that in some cases is 110 years old, expect the unexpected.**

### Communication

Since year one in 2016, the city has followed a few basic communications practices:

- Send letters to affected property owners in early spring informing them of their inclusion in the project.
- Include information pamphlets explaining the project and what to expect.
- Host two open house information sessions for affected property owners, with project managers and representatives

from city engineering in attendance to explain the process and answer questions.

In year three, further emphasis was placed on project communication to business owners, with those added practices becoming a component of the city's communications policy. Key points include:

- Business owners shall be hand-delivered notices regarding the pending project a minimum of one month from the expected construction start date.
- Once a construction date has been finalized, updated notices shall be delivered a minimum of one week prior.
- Business owners shall be provided with contact information for the project manager and communications manager to address ongoing questions or concerns.
- The project manager and contractor work with businesses to accommodate deliveries.
- Where construction impacts access to area businesses, communications messaging shall indicate that, "businesses remain open" throughout the project and, where



applicable, maps be produced showing how customers may access the respective business(es) during construction.

- Weekly updates shall be posted to the city website/social media accounts/local media regarding changes to traffic accommodation plans, project timelines, etc.

With the city just months away from beginning year five, we look forward to enhanced execution of the project using the valuable lessons learned in the first four years. ▀

*Craig Hemingway is the Communications Manager for the City of Moose Jaw. Written with the expertise of Staci Dobrescu and Bevan Harlton.*



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# Preparing Wet Pavement for Work



*This truck-mounted Road Dryer quickly dries asphalt and concrete pavement, allowing crews to pave or apply surface treatments or striping after just one pass.*

By Todd Toole, Road Dryer, LLC

**E**ver since the inception of paved roadways, contractors have been hindered by Mother Nature. There is not a single paving or pavement maintenance operation in history, public or private, that has not been hampered by wet, cold, or snowy roads – putting crews behind on projects, causing logistical frustrations, and either costing taxpayers money or affecting a contractor's profits.

Generally, in order to pave or stripe, a crew needs a moisture-free pavement surface at a temperature of 4.5°C (40°F) or higher to work. How many hours – or even days – of productivity are lost each year to damp pavement? When public works crews are scheduled for projects and the weather does not cooperate, what is the impact of that lost time on the department? Scheduled equipment is often shared amongst crews in a transportation department or public works district, making plans difficult to switch on the fly.

If you follow a chronicle of road-drying endeavours, innovative paving professionals have tried to solve moisture problems by using existing technologies that were

**If you blow hot air on any wet surface, it will dry quickly. With this in mind, Road Dryer, LLC designed a machine that has no other purpose than drying a pavement surface before paving or striping.**

actually designed for completely different applications. Traditional attempts at drying pavement for construction or maintenance work have typically involved the use of jet engine dryers, infrared heat, or portable blowers, combined with brooms and manual squeegees. Each of these methods has its own limitations and safety concerns, including the use of jet fuel, noise, melting pavement, danger from thrown rocks or other objects, and slow results. Because of this, traffic is often fully restricted from traveling on roads or streets where drying work is taking place.

The real solution is a machine designed specifically for the road-drying application; one which uses the basic engineering principles universally proven to enhance evaporative drying – convection and heat. If you blow hot air on any wet surface, it will dry

quickly. With this in mind, Road Dryer, LLC designed a machine that has no other purpose than drying a pavement surface before paving or striping.

The company's RD-1200XT pavement-drying unit alleviates traditional concerns as it swiftly and safely dries asphalt and concrete pavement, allowing crews to pave or apply surface treatments or striping after just one pass. The unit, which blows heated air up to 200°C (400°F) directly downward through multiple nozzles, eliminates the risk of "flying objects," and allows traffic to flow in nearby lanes – reducing congestion caused by traffic restrictions. The Road Dryer unit preconditions the incoming air to remove moisture prior to heating and directing the heated air to the road, allowing faster drying time. The unit will not harm



asphalt, as the flow of drying air does not exceed 200°C.

Available as a simple-to-operate trailer- or truck-mounted unit, the RD-1200XT can be adjusted for 2.4 metres to 3.7 metres (eight to 12 feet) drying widths. Because it dries pavement on demand, it provides flexibility for agencies and contractors to meet timetables by minimizing delays from weather- and project-related wet conditions.

Weather is not the only cause of wet pavement. Milling processes also use water to cool grinder teeth, leaving the road surface wet and unsuitable for paving until dry. The Road Dryer unit can follow

behind a milling machine and immediately dry the pavement for resurfacing. Because the pavement is typically ready for paving or surfacing within an hour, it allows for increased throughput by several road miles per shift. For striping operations, hydro-blasting leaves the road surface wet, and it must be dried before new paint may be sprayed. With a Road Dryer unit following the hydro-blaster to dry the surface, a paint sprayer may be run immediately behind the Road Dryer, to paint or repaint lines.

Road Dryer, LLC, brings innovative technology to the paving industry, providing government agencies and contractors with

efficient, safe, and time-saving options. The ability to dry paving surfaces on demand provides unprecedented flexibility in meeting budgets and timetables by minimizing delays caused by wet conditions or processes. With a growing dealer network across North America and around the world, Road Dryer provides equipment sales and leasing into Canada and beyond. The company can even provide onsite training for crews. ▮

*For more information, contact Road Dryer at (864) 272-2988, email [info@roaddryer.com](mailto:info@roaddryer.com), or visit [www.roaddryer.com](http://www.roaddryer.com). Todd Toole is Operations Manager of Road Dryer, LLC.*

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# Fabric Structures for Salt Storage

It is critical to ensure you receive the most efficient and reliable fabric structure possible when considering a structure for the storage of salt and sand.

By Allan Ball, M.A.S.C., P.ENG, Calhoun Super Structure

**T**he advent of universally available satellite and street level imagery has allowed more detailed and accurate reviews of salt storage building sites. The site topography can be quickly reviewed to aid in determining snow exposure as well as identify other considerations, such as wind channeling. Reputable fabric structure companies will work with their network of sales teams or dealers to obtain site photos with the orientation and location of the marked building. This allows the engineers to begin the process of evaluating the site conditions, which often involves conversations with the sales team or dealer, and customer, before the engineers can finalize its site analysis.

## Site conditions

While there are substantial differences between building codes in various jurisdictions, evaluation of site conditions is broadly

similar. A few key effects must be determined: snow, wind, and seismic.

Both snow and wind effects are impacted by surrounding terrain and structures. For example, engineers will often require heights of adjacent structures if applicable. In practice it is sometimes difficult to make a clear distinction between roofs that will be fully exposed to winds and those that will not. The designer should, in consultation with the owner, weigh the probability of the roof becoming sheltered by an adjacent taller building, adjacent taller trees, or by an addition to the building itself. Such changes could cause either snow drift loads or higher average snow loads.

In considering drift loads, even the characteristics of the upwind obstructions are considered in many cases. For example, deciduous trees versus evergreen trees, tree species, and average tree heights all play a role into the upwind obstructions considered. Wind effects in built-up urban environments require

detailed review by experienced engineers to ensure they are correctly evaluated.

Seismic loading is also considered for all locations. Seismic loading can be a controlling load condition, particularly on the west coast. The seismic loading parameters are defined in the governing building code for the site.

## Building enclosure

The enclosure of a building should also be considered. Open-ended structures, fully closed structures, or partially closed structures all play a significant role in the demand on the structure. The customer's application for the structure will determine which configuration is needed. For example, a bulk storage application for salt and sand will often utilize a one-ended structure with the open end facing away from the prevailing weather. This configuration provides unrestricted access to load and unload the salt from the building while protecting it from precipitation.



## Building usage

The use of the building must also be considered. Buildings in low-hazard applications, such as bulk-storage of salt, are not required to have the same reliability as buildings that are occupied by people. A careful review of the building's usage ensures that the correct application-related parameters are selected for the design.

## Use the experts

The entire process of a site-specific review can be quite involved and should only be left to the most experienced engineering professionals. A fabric structure company should use external, third-party engineers to review all structures to avoid company bias and ensure the strict objectivity of the design work. Site-specific reviews for standard configurations are usually completed in one to two weeks. If the review identifies that changes are required, these are discussed with the customer before the drawings are finalized. The customer is then supplied with stamped drawings for their structure.

The outcome of the evaluation is the selection of appropriate design parameters per the

relevant building code which defines the load cases that must be evaluated for the structure. The site evaluation ensures that the appropriate parameters are used for the analysis of the structure. The configuration of the building is thereby validated, or changes are made to ensure the structure has the requisite reliability for the site. This, along with snow loads, wind speeds, and seismic parameters, are considered as part of a detailed review for every site.

## High Top (HT) Series designed specifically for salt storage

Calhoun's HT Series was designed specifically for salt storage for municipal customers. One of the particular challenges for storing a bulk commodity such as salt and sand is the ability to quickly and easily maneuver the tractor trailer inside the building. What makes Calhoun's HT Series so unique is the height of it. It allows tractor trailers to load and unload directly inside the building. The easy maneuverability from the extra height and free span interior saves time stockpiling salt.



Every piece of the design of the HT Series can be replaced 100 per cent of the time from an individual Keder panel to an individual cable to an individual truss section. The same unique compression coupler design found in Calhoun's CC Series is applied to the HT Series, but uses larger top and bottom cords, and a deeper truss depth. This makes the HT Series extremely durable in heavy snow load areas. ▮

*Allan Ball, M.A.S.C., P.ENG, has two decades of engineering experience and a master's degree in mechanical engineering. Having been with Calhoun Super Structure since 2011, he manages the team responsible for building design and analysis, offering technical expertise and input.*



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# Canadian Infrastructure is Failing.

## How to Respond.

By Derek Geisel, strataWORKS Canada Ltd.

**F**ederal, provincial, and municipal politicians continue to tell us they are committed to funding and fixing Canadian infrastructure. Yet, I find it very difficult to see any hard evidence of that commitment. We should all be asking why the state of our core public infrastructure is declining and failing at an accelerated pace year after year.

*The Canadian Infrastructure Report Card (CIRC)* recently published the 2019 report (available here: <http://canadianinfrastructure.ca>), with help from many engineering and municipal associates. When reading this third report, we need to determine if we are actually improving our core public infrastructure, or if federal and provincial governments are choosing to download more responsibility onto local governments, asking them to do more and more with less and less funding.

Repair costs for declining roads, bridges, and sewer systems increase each year and cripple municipal budgets. Replacement costs are in the billions of dollars. Public works departments are falling behind in all levels of general maintenance of infrastructure assets. Is this happening to you? Are you being forced to make daily decisions that cannot follow good maintenance practices because you don't have adequate maintenance funding?

A good example is road maintenance and the ongoing pothole issues that are reported year in and year out. We will never get rid of potholes in Canada, so what is the best way to deal with them? Conditions that occur during the fifth season of the year – Pothole Season – cause public works real and significant problems. Fluctuating weather, water everywhere, too many potholes to be repaired are just a few of these challenges. There is an equal challenge in the temporary repair mind set. We can all accept that hot mix asphalt is the preferred material for pothole repairs, but we also need to agree hot mix cannot be used effectively in cold weather or on wet streets or in waterfilled potholes. The cost to “temporarily repair” potholes and then come back to fix them with hot mix in warmer weather is very costly, especially when your public works department has thousands of potholes to repair.

The 2019 Report Card shows:

- 39 per cent of Canadian roads are in poor to fair condition. The 2016 Report Card showed 38 per cent of Canadian roads were in poor to fair condition.
- 38.7 per cent of the national bridges and tunnels are in poor to fair condition. The 2016 Report Card showed 26 per cent of Canadian bridges and tunnels were in poor to fair condition.



*The Canadian Infrastructure Report Card 2019 is available for free download, in English and French, at <http://canadianinfrastructure.ca>.*



Bridges also remain an ongoing concern because of structural compromise and the incessant breakdown of concrete and reinforcement bar due to harsh surface treatment for winter weather. The road salts and calcium chloride used to keep road surfaces clear and safe cause many serious integrity problems on bridges.

Is it becoming too easy to blame the public works sector? Hopefully not, but there are a few simple things a public works manager can practice to ensure best value repairs are always in place.

1. Publish specifications for material properties and performance that look after your particular needs in the best way at the best value. Similar specifications can be published for roads and bridges, sewers and, underground services
2. Introduce Value-Based-Procurement (VBP) for your public works department. Insist that purchasing decisions consider how a product or solution

will best deliver the outcomes required and will reduce the total cost of care.

3. Eliminate purchasing decisions that focus exclusively on lowest price.
4. Use the Canadian Infrastructure scoring system to help classify your road and bridge assets and allocate your maintenance budget to the repairs that will give you best results.

Finally, don't let anyone say public works is the reason our core public infrastructure is failing. ▀

*Derek Geisel is the President of strataWORKS Canada Ltd., a national distributor of performance enhanced products for road repairs. strataWORKS strongly supports best-way repair standards and is a leading advocate of value-based purchasing in the public sector.*

*The opinion expressed in this article is that of the author and not necessarily those of the associations involved in this magazine or the publisher. We welcome your comments on what was written.*

### The condition rating scale used in the CCPIS

- Very poor: The asset is unfit for sustained service. It is near or beyond its expected service life and shows widespread signs of advanced deterioration. Some assets may be unusable.
- Poor: There is an increasing potential for its condition to affect the service it provides. The asset is approaching the end of its service life, the condition is below the standard and a large portion of the system exhibits significant deterioration.
- Fair: The asset requires attention. The asset shows signs of deterioration and some elements exhibit deficiencies.
- Good: The asset is adequate. It is acceptable and generally within the mid-stage of its expected service life.
- Very Good: The asset is fit for the future. It is well maintained, in good condition, new or recently rehabilitated.
- Unknown: Not enough data exists to respond.



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