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It is truly hard to believe how quickly a year passes by. As I complete my final term as President of the Public Works Association of British Columbia (PWABC), I want to take this opportunity to thank you for allowing me to serve as president of this exceptional organization over the past four years. It has been an honour and experience filled with many memories, from meeting new members to the ongoing relationships with professionals across the public works profession.

A special thank you to our board of directors for their continued support in making this association successful. It takes a collective effort to make an association like ours successful and a very special thank you to our executive director, Ashifa Dhanani, for her guidance and professional support through this past year.

We continue to further the public works profession by constantly evolving to meet the demands for quality education and events. This past year, we provided a number of events to showcase the public works profession. Events were held across the province that included a one-day Operations Seminar, Women in Public Works, networking nights led by the emerging leaders group, snow and ice training, and other courses related to public works. We will continue to explore new opportunities in the future and I would like to encourage you to provide your input on courses and events that you would like to see in your specific area of public works.

I would also like to invite members to get involved with PWABC or local events to showcase the public works profession. Please let us know how we can assist you in organizing an event for your community.

The 2017 Annual Technical Conference and Tradeshow was another success. A huge thank you to the Penticton team for all their support and hard work in organizing the event and to the suppliers, manufacturers and sponsors for their continued support to PWABC and the public works profession. Our 2018 Annual Technical Conference and Tradeshow will be in the beautiful resort town of Sun Peaks, details will be posted on our website soon.

As I transition to the role of past president, please join me in welcoming Greg Wightman as your new President of the Public Works Association of BC. Greg's experience in the public works profession will allow him to form new initiatives and to continue building this great organization with a special emphasis on education and the emerging leaders group. He will lead the association for the next two years.

I am very proud and honoured to be part of this great profession and association. Thank you for your continued support and dedication to the Public Works Association of BC.

### Deryk Lee

President  
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# A Message from the Alberta Public Works Association

**H**appy New Year from the Alberta Public Works Association (APWA)! This past year was an exciting year for the us and we look forward to 2018.

The Chapter celebrated its 20th Anniversary of the Equipment Roadeo this past September. Thank you to all who participated! The competition was tough this year, check out a list of the winners on our website. Also on the website is a video of the Roadeo that showcases the skills of all these talented equipment operators. Be sure to watch and share!

Our annual Excellence in Public Works Conference in October was well-attended. We had some great pre-conference workshops, sessions and, of course, the tradeshow. Thank you to the vendors and sponsors for their continued support of this event.

During the Conference, the 3rd Annual Emerging Leaders Event was held—this year it was Axe Throwing! It's a chance for those starting out in the public works profession to have some fun and meet some new people. This event keeps growing each year and that's why we will be adding additional Emerging Leader events throughout the year and around the province. Emerging Leaders doesn't have an age limit, so if you're interested in attending an event I encourage you to attend.

The Chapter also held its AGM on the final day of the Conference. It was here that Peter McDowell became the Past President and I went from being President-Elect to President. Thank you to Peter for his time as

President. I would like to welcome our new board members, Dennis Tomuschat, Mike Haanen, Joe Guido and Risha Rushton. I would also like to take the opportunity to thank our departing Board members, Darwin Durnie, Dave Rarog and Dean Berrecloth, for their many years of service on the Board.

I must say I am excited to be the Chapter President and working with such talented and dedicated public works professionals. Our first task as a new Board was to finalize the Chapter's Strategic Plan. This upcoming year you will see new training, network opportunities and initiatives that will make us all stronger, more successful public works professionals. Learn about these opportunities through our website, email and Twitter. Sign up early to secure your spot. Also, check out the Area Idea Group meetings, they are free to attend and always have a jam-packed agenda of interesting topics.

In this issue of *The Roadrunner*, check out the article on the City of Cold Lake and their award winning National Public Works Week celebrations. Cold Lake is the most recent winner of the Chapter's NPWW Award, in fact, they won the CPWA award too! It was an amazing effort and I look forward to visiting Cold Lake at the end of January and learning first-hand what it takes to pull off such a feat!

Please don't hesitate to reach out to me, I'd love to hear from you!

### Joline McFarlane

President  
APWA Alberta Chapter  
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Did you know the SPWA website has a used-equipment section.

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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.

**W**inter seemed to arrive early this year, but as I am writing this article, it kind of feels like spring outside. That got me thinking about SPWA from the spring to now. The chapter has had a busy summer/fall with events and the planning continues for our annual conference.

The Equipment Expo & Golf Tournament on July 14, 2017 in Regina was a great event, with attendance slightly down from last year. There were a number of suppliers with various pieces of equipment on display, such as graders, sweepers, flushing trailer, patching equipment and a safety display. We hosted the Backhoe Roadeo where two participants had qualifying times to move on. One winner, Garret Halbgebachs, was able to attend PWX in Orlando and had a great time at the event. We will have the 2nd Annual Roadeo on June 22, 2018 in Warman. SPWA will be offering travel assistance to the next qualifiers to help offset the costs to get them to Kansas City in August 2018. The golf tournament was a fun time on a nice sunny day, ending with a steak supper and door prizes at the Joanne Goulet Golf Course.

Our fall workshop took place on October 19, 2017 in Saskatoon and was very well attended with 105 delegates. Sessions on grid road maintenance, construction, technology, aggregate and signage were well received. Suggestions were also provided for additional sessions so a "Grid Roads - Take 2" will definitely be planned.

Development continues on the 2018 Conference and PWville (tradeshaw) in Moose Jaw. It has been a while since our last conference in Moose Jaw, and we are looking forward to a fantastic event. Mosaic Place is a great venue with an attached curling rink, so we added a new conference

social event—a Fun Spiel. Information has been mailed out but watch for further email reminders to follow with details of the conference. Every municipal and First Nation public works department should have already received our inaugural SPWA wall calendar. Check out the monthly supplier info, photos and also reminders of our events. Our website now has the finalized conference agenda and lists the hotel partners (with special SPWA rates) that will have scheduled bus service each day.

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

Please visit our website and see the page for "Public Works Used Equipment" as a means for you to be able to post your items for sale to others. The entire website is very user friendly, contains information on all our events, and is designed as a virtual "One-stop shop" for public works. You can also follow us on Twitter @SPWAchapter.

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.

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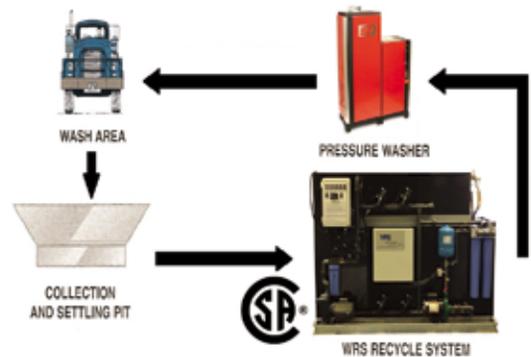
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**Did you know** that Manitoba is the longest serving of the Canadian chapters and has been providing a forum for practitioners since 1955! We actively support our membership, the public and policy makers to collaborate and maintain healthy communities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

# A Message from the Canadian Public Works Association, Manitoba Chapter

**There is tremendous value in being a member; it opens up numerous opportunities for individuals to share their experiences with others on many committees and through socializing at events.**

**A**s my year as President of the Manitoba Chapter of the CPWA is coming to an end I would like to take this opportunity to thank both the Board of Directors and the members for allowing me the privilege of representing them this past year. I am honoured to work with so many exceptional people who are willing to share their experience and knowledge in a variety of areas in the public works field.

Through the many educational, training and accreditation programs, APWA and CPWA takes good public works people and makes them better. There is tremendous value in being a member; it opens up numerous opportunities for individuals to share their experiences with others on many committees and through socializing at events.

Membership in our association provides access to many social events which are well attended. We started the year with our annual golf tournament, which was once again a big success and everyone participating had a great time. Through the generosity of our golfers and sponsors we were able to add to the Red River Scholarship Fund. Please mark your calendars for our 2018 golf tournament which is scheduled for May 31, 2018 at Bridges Golf Course.

Our Spring Fling was held on June 29, 2017, at Shaw Park. We watched the Winnipeg Goldeyes in action and enjoyed a great buffet from the Clay Oven restaurant. We also took the opportunity to present a Life

Membership in the American Public Works Association to Cheryl Anderson of the City of Winnipeg Public Works Department. The weather was perfect that evening and the food and drink were great!

In October 2017, CPWA Manitoba hosted a Lunch and Learn Design Build presentation by Don McRitchie, P.Eng., who is the Team Leader with the Capital Projects Branch in the Engineering and Operations Division at Manitoba's Department of Infrastructure (MI). We had an excellent turnout for Don's very informative presentation and we look forward to doing more of these events in 2018.

Thanks to all involved in making these social events this past year a success!

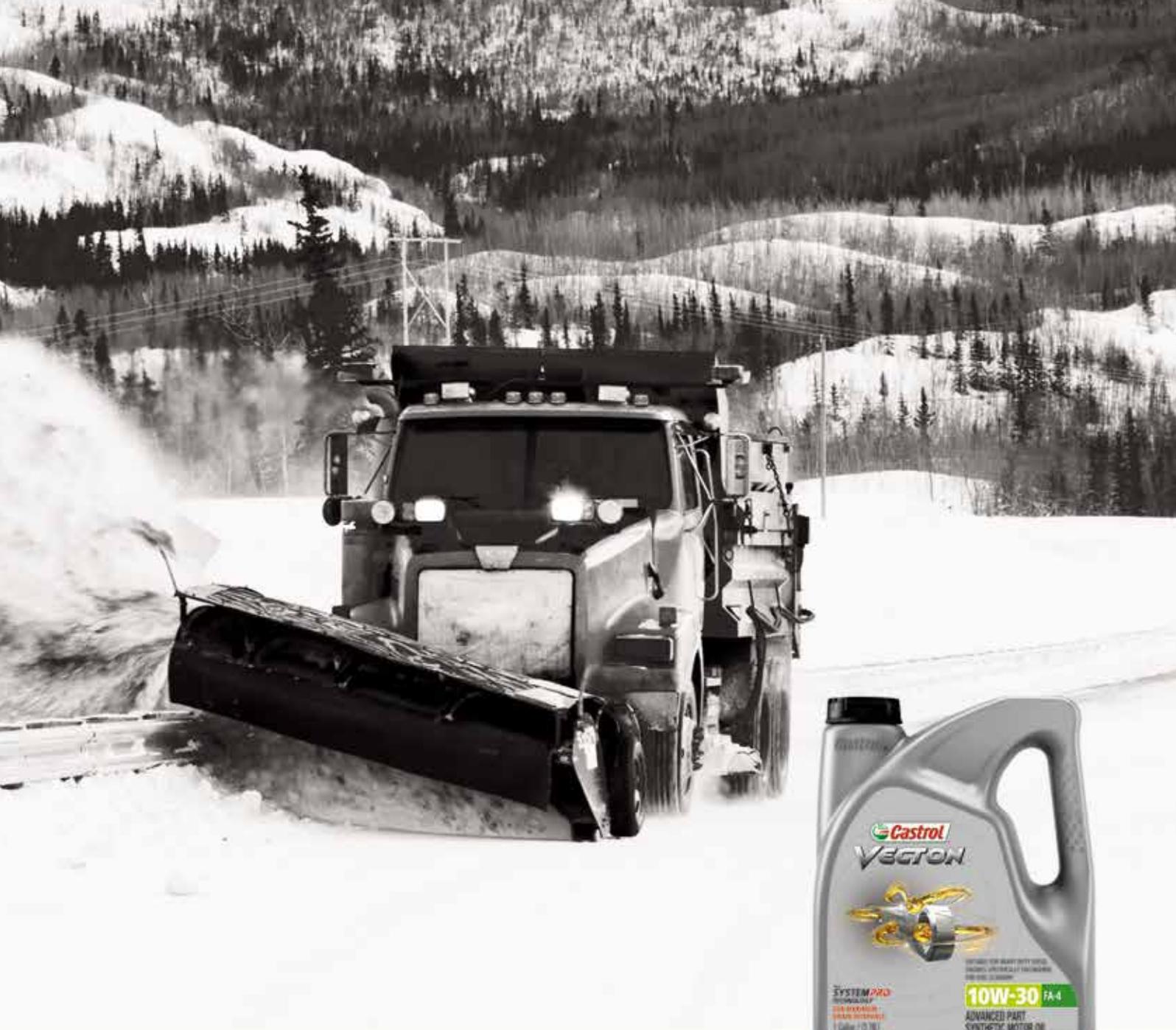
Our AGM will be held at Assiniboine Park on January 18, 2-18. The keynote speaker is Steve Hudson so be sure to mark your calendar.

I look forward to assisting the Manitoba Chapter next year in other areas and assisting the incoming President and Board members whenever I can.

In closing, I would like to thank all the Board members for their continued support, efforts and commitment to the Chapter. I would also like to thank our chapter members and everyone involved with public works for choosing a career that gives so much back to everyone's communities.

### Neil Gobelle

President  
Manitoba Chapter, CPWA/APWA



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# A Message from the Alberta Municipal Supervisors Association

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Hello everyone. Let me start my first *Message from the President* by introducing myself...I'm Joe Duplessie, and I am the Alberta Municipal Supervisor Association's (AMSA) new President as of November 2017. I am also the General Manager of Infrastructure and Planning for Lac Ste. Anne County, and I have been on AMSA's executive for the past year as Vice President and before that as a Zone Director.

Thank you to AMSA's membership who elected me to hold this position, and to AMSA's executive members for their ongoing support and guidance. I'd also be remiss if I didn't thank Bill Cade, who now takes the role on the executive as Past President. His years of service on AMSA's executive—the last two as President—have supported the growth of our association and fostered existing partnerships with the Alberta Association of Municipal Districts and Counties (AAMDC), Alberta Public Works Association (APWA) and many of our loyal sponsors.

This past year was yet another year of change in the world of municipal government, with elections and new *Municipal Government Act (MGA)*. In 2017, municipalities in Alberta also saw the revival of provincial grants that support public works infrastructure projects, such as the Strategic Transportation Infrastructure Program (STIP) for roads and bridges, and the Alberta Municipal Water/Wastewater Partnership (AMWWP). Many of our rural communities will benefit from these

additional funds for infrastructure projects in the coming years.

Now that the new MGA has taken effect, municipalities are starting to be able to complete their service lists in order to be able to complete their newly required Intermunicipal Collaboration Frameworks (ICF), which is no small feat. Transportation, water and wastewater, solid waste and recreation are a few of the required components of ICFs, in an effort to better share services and collaborate with neighbours to best serve our communities. Some rural municipalities have a few ICFs to complete, while others have up to 18 municipalities with common borders. This regional collaboration work is anticipated to keep all of our AMSA public works managers busy for the next two years.

Finally, I want to invite you to join us for the next AMSA convention, which takes place in Edmonton from March 20 to 21, 2018. AMSA will also have a booth in the Alberta Association of Municipal Districts and Counties (AAMDC) tradeshow to provide information on our membership and activities. If you work in a supervisory role in the field of public works—whether rural or small urban community—I encourage you to visit our website [www.amsapw.ca](http://www.amsapw.ca) and learn more about AMSA's long history of sharing best practices through professional development.

Again, thank you to the membership for your faith in me as president, and I look forward to serving my next two years as your spokesperson and advocate.

### Joe Duplessie

President  
Alberta Municipal Supervisors Association

# In a Haze: Legalized Marijuana and the Workplace

By Sean Ward, Reynolds Mirth Richards & Farmer LLP

**T**he federal government's planned timeframe to implement the legalization of marijuana in July 2018 is fast approaching. As a result, employers need to quickly prepare by considering the steps they need to put into place to ensure that their workplaces are not subject to disruption or unsafe behaviour when marijuana is legalized.

Although legalization will bring some changes, recent experiences dealing with medical marijuana, which is currently permitted in Canada, provides some insight into how the law will deal with some of the issues likely to arise in the workplace. In particular, two recent cases illustrate the balance between employers' duties to accommodate under human rights legislation, and the need to ensure and protect safety in the workplace.

## Current law and medical marijuana

It is currently illegal to grow, possess or use marijuana in Canada unless there is

an applicable exemption. The current rules are governed by the *Access to Cannabis for Medical Purposes Regulations*, SOR/2016-230 ["ACMPR"], under the *Controlled Drugs and Substances Act*. Under the ACMPR, a person must obtain a substantive prescription from a medical doctor for medical marijuana use, which includes certain specified details and must either purchase the marijuana from a licensed producer or receive a permit to grow limited amounts of cannabis products for his or her own use.

Obtaining a medical document is the first step in the process under the ACMPR for a person to become lawfully entitled to possess and use medical marijuana. The person must then register with a licensed producer to be provided the medical marijuana, or with Health Canada to be able to produce a limited amount themselves. Then the individual can either order the marijuana from the licensed producer, or grow the limited amount permitted.

The ACMPR creates conflicts between an employer's obligation to provide for

safety and security in the workplace and its duty to reasonably accommodate disabilities under human rights legislation. This is highlighted by decisions from an Alberta arbitrator and the British Columbia Human Rights Tribunal, which demonstrate the limits of medical marijuana use in the workplace.

## Circumstances where an employer is required to accommodate

An Alberta arbitration decision illustrates that an employee may be permitted to continue working in a safety sensitive position despite his or her use of medical marijuana necessary to accommodate a disability.

In *Calgary (City) v. CUPE, Local 37 (Hanmore Grievance)*, 2015 A.G.A.A. No. 43, a grievance was started by an employee with 20 years' experience working for the city as an equipment operator. He suffered a workplace injury which led to a degenerative neck disease, and later chronic pain. In 2009, he obtained a prescription for Cesamet, a synthetic cannabinoid. However,

he found the effects overwhelming and his doctor agreed to provide a medical declaration for medical marijuana instead.

The employee then notified two supervisors regarding his use of medical marijuana and continued to operate heavy equipment in a safety sensitive position. He performed his duties as required without incident, without being observed or reported for displaying any cognitive impairment or changes in job performance for over a year.

However, when upper management found out about the employee's use of medical marijuana, the city conducted an investigation and removed the employee from the equipment operator position, while accommodating him in a non-safety sensitive position as a labourer.

The employer's investigation took approximately nine months and required the employee to attend an independent medical examination. The city concluded the employee had a dependency and could not be returned to the safety sensitive position of equipment operator.

The majority of the arbitration board, however, concluded those actions were improper. They concluded that the city's investigation was flawed and that nine months to conclude the investigation was too long. They put significant weight on the fact the employee reported his medical marijuana use to his supervisors as was required by the city's policies and was permitted to work without incident. They indicated the marijuana use was not prejudicial to the protection of the employee or other employees in the workplace.

The board did impose conditions requiring the employee to reduce his monthly medical marijuana to levels suggested by the independent physician to minimize the risk of impairment, and provided that the employee would be subject to random substance-testing to measure influence or recent use of marijuana, as well as performance monitoring.

Nevertheless, this was a costly lesson for the employer. The employee had been out of the safety sensitive equipment operator position for four years and the majority of the arbitration board reinstated him to his position with lost wages, overtime and pension benefits.

## As such, a simple and inflexible zero tolerance policy is likely not sufficient, as it risks violating an employer's human rights obligations.

### Circumstances where an employer is not required to accommodate

A decision by the British Columbia Human Rights Tribunal, however, shows that a disability does not provide an employee with an automatic and unlimited right to use medical marijuana.

In *French v. Selkin Logging Ltd.*, 2015 BCHRT 101, Mr. French was a short-term employee responsible for operating heavy equipment for a logging company. The employer had a zero-tolerance policy for drugs in the workplace. Mr. French said he had not smoked marijuana for 10 years, but used it again after his cancer surgery in 2009. He had no medical authorization for using marijuana or Health Canada authorization to use marijuana.

Mr. French usually smoked six to eight marijuana cigarettes at work each day, sharing them with a fellow employee who was a casual user, and smoking them in front of other employees. Although other employees told the company's foreman about Mr. French smoking marijuana at work, the company did not initially follow-up. That changed when Mr. French and another employee hit a moose with a company truck and the mechanic found marijuana in the truck.

During an investigation by the employer, Mr. French admitted to smoking marijuana at work. The foreman reminded him of the company's safety obligations and the zero-tolerance policy for drugs, and told him he could not continue to do so. Mr. French said if he continued working, he would continue to smoke marijuana on the job. The company issued a termination letter, but indicated if Mr. French wanted to come back to work, it was to a drug free workplace. That led Mr. French to file the human rights complaint alleging discrimination on the basis of physical disability.

The Tribunal noted that Mr. French's doctors did not tell him to smoke marijuana, nor was it prescribed for him, nor did he have an authorization to possess it for medical reasons. The Tribunal accepted that a general workplace rule which prohibits the consumption of alcohol, narcotics or marijuana at work was within management's rights and for safety reasons was rationally connected to the job.

It was recognized that a duty to accommodate arises when an employee is using marijuana for medical purposes at work. However, Mr. French was using an illegal substance at work and did not tell his employer he was using an impairing substance in the workplace. Without the legal authorization to smoke marijuana at work, and without the medical authorization indicating it was safe for Mr. French to smoke marijuana at work, any accommodation allowing marijuana use in those circumstances would have amounted to undue hardship on the employer. Accordingly, the complaint was dismissed.

### Strategies for employers

The upcoming legalization of marijuana requires employers to plan for potential risks that may arise in the workplace. While workplace impairment issues are not new, given longstanding issues relating to alcohol, a particular concern related to marijuana is the difficulty in determining impairment. Although it is clear that cannabis impairs motor skills and judgment, the level of THC in bodily fluids cannot be used to reliably indicate the degree of impairment or risk of injury. Unlike alcohol, residue of medical marijuana can remain in a person's system and be detectable for 30 days or more, such that its presence in the body does not necessarily indicate impairment.

In this context, establishing policies to deal with marijuana use will be critical.

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Employers have a legal responsibility to ensure a safe workplace. However, for positions that are not safety-sensitive, the employer may have to permit marijuana use; particularly if that use is tied to a disability protected by human rights legislation. As such, a simple and inflexible zero tolerance policy is likely not sufficient, as it risks violating an employer's human rights obligations. Instead, policies should:

- Include clear guidelines of usage and possession;
- Ensure that the employer is flexible to the employee's human rights' needs, up to the point of undue hardship;
- Differentiate between recreational use of drugs and dependency on drugs; and
- Allow the employer to send the employee for drug testing or otherwise submit to an independent medical examination in appropriate circumstances.

Adopting clear, enforceable policies is a centerpiece to any workplace strategy to deal with marijuana use. Any policy must balance human rights issues and the employee's right to privacy. Once an employer has a clear, enforceable policy that has been communicated and received by its employees, that policy effectively becomes part of the contract of employment.

Employers should also keep apprised of any developments in testing for marijuana impairment because they will affect the scope and use of any testing available to employers, and are likely to impact on the law applicable to such testing. Finally, employers may want to consider ensuring their human resources personnel have training in understanding the effects of marijuana use. As the legalization of marijuana progresses, it is an important opportunity for employers to consider and evaluate their workplace policies and practices in relation to drug use in general and marijuana in particular. ▶

*Sean Ward, Partner, Municipal Team Leader, co-chairs the firm's Municipal Law Team, carrying on a practice with an emphasis on municipal, administrative and media law. Sean is also a member of the firm's Construction Law Team and provides advice to both owners and contractors on various contracting issues and construction disputes.*



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# Employment Issues in the Twitterverse

By Sean Ward, Reynolds  
Mirth Richards & Farmer LLP

It is widely understood that employers have a duty to protect their employees from harassment and abuse. However, many employers may be surprised to learn those obligations extend to preventing and addressing harassment and abuse online. A decision issued by an arbitrator in a union grievance in Ontario raises a number of important concerns for employers to consider with respect to their social media policies and some of the risks arising from the use of social media.

The 2016 decision was the result of a grievance submitted by the Amalgamated Transit Union, Local 113 against the Toronto Transit Commission (the “TTC”). The TTC operated a Twitter account, @TTCchelps, which was used to receive and respond to comments and complaints from the public. The account was monitored by six “senior service representatives” employed in the TTC’s customer service centre working on a rotation and using a computer program to assist with responses.

The problem that arose was many of the tweets contained personal attacks and abusive and disparaging comments about the public body’s employees, including racist, homophobic, sexist and threatening language. The service representatives usually responded by acknowledging the customer’s frustration, provided information on how to file a complaint, and asked that the customer refrain from making abusive, profane, derogatory or offensive comments.

The union, however, felt this was not sufficient and submitted a grievance, alleging that the employer created a forum for “haters and abusers to heap abuse” on its members and that the employer then failed to properly respond to that abuse by



protecting employees. As a result, it argued that the employees felt intimidated, bullied, harassed and threatened by the tweets.

The arbitrator hearing that grievance agreed with the union that the employer’s approach to dealing with the abusive tweets was inadequate, noting that both human rights legislation and the applicable collective agreement provided a right to a workplace free from harassment and discrimination. He then noted that:

“...social media sites operated by the TTC, such as @TTCchelps, can be considered to constitute part of the workplace for purposes of determining whether the HRC, the Agreement, and TTC policies have been contravened as a result of harassment.”

The concept that the “workplace” includes social media is an important consideration for employers. Given the similarities in human rights legislation across the provinces on those points, and the common use of similar language in most collective agreements, these same principles could equally apply to most employers across the country.

As a result, the arbitrator found that the employer should have taken all reasonable and practical measures to protect employees from harassment through social media, which meant not only advising that the messages were not condoned, but also demanding that the customer immediately delete the offensive tweets, and then blocking any

tweeters who do not comply. The arbitrator went so far as to say that it may be appropriate for the employer to seek the assistance of Twitter in having the offensive tweets deleted, and if no such assistance was provided, to consider ceasing its use of the Twitter account.

This is significant because effectively blocking abusive tweeters can be very difficult in practice. Social media sites such as Twitter are not often quick to agree to simply delete users or their tweets, at least not without obtaining a court order directing them to do so. That involves significant time and expense for an employer to the extent it is even possible to achieve those results.

This also suggests that employers who are not able to properly manage and address those issues could effectively lose the right to operate a social media account in order to comply with their obligations to employees under collective agreements and the applicable human rights legislation.

Accordingly, this should serve as a caution for employers operating or considering the use of company social media accounts. There are obviously many opportunities provided through the use of social media as a tool for more effective communication, with the potential to quickly reach new or broader audiences. However, this decision emphasizes that there are also many risks

that must be managed and addressed, and the costs of complying with these obligations must also be considered. It should be well understood that an employer cannot simply establish a platform such as a Twitter account or Facebook page, without having in place a plan to protect their employees from any improper use of those platforms.

In particular, it is critical that employers have in place effective social media policies regarding the use and monitoring of any social media accounts used by an employer. Having broad policies which provide that all employees are entitled to a workplace free of any harassment may seem like an obvious and inoffensive clause in a collective agreement or personnel policy. But it is important to remember that harassment and abuse increasingly happens online and through social media. So, in the absence of other policies explicitly limiting an employer's obligations when it comes to monitoring or responding to posts or comments on its website or social media accounts, this decision suggests an employer can be compelled to take positive steps to address offensive or threatening comments on behalf of its employees.

Along with concerns regarding abuse or harassment as evidenced by this arbitration decision, employers also need to consider the risks of defamation claims when

establishing a social media account or a webpage that allows for online posts or comments. The law of defamation in Canada provides that any party who "publishes" defamatory content is liable in defamation. That extends beyond the author of any defamatory content to a person who is responsible for the media in which it is published.

Traditionally, that rule meant that a newspaper (along with its editor or publisher) could be sued for an opinion piece or letter to the editor that it published, even where the newspaper did not necessarily endorse or even agree with the content at issue. In the internet era, that means a person responsible for a website on which defamatory material is posted could potentially be liable for defamation.

Although in some cases courts have avoided assigning liability to those responsible for a website in circumstances where they were unaware of a defamatory comment or post, it is clear that once the website operator becomes aware of any defamatory material, they have a responsibility to remove it, failing which they may become equally liable for the publication of that comment.

This provides one further reason for employers to be cautious in operating a social media account. At minimum, an employer should be prepared to devote sufficient resources to monitor the account and promptly respond to any complaints that may arise. A review and update of personnel policies and social media policies to address the use of those sites and issues of workplace harassment and defamation is also important. Ultimately, however, the decision is a reminder that there are risks to the use of social media, and any employer who thinks online abuse is simply a personal problem for employees needs to quickly rethink its approach before finding itself in a similar position. ▀

*Sean Ward, Partner, Municipal Team Leader, co-chairs the firm's Municipal Law Team, carrying on a practice with an emphasis on municipal, administrative and media law. Sean is also a member of the firm's Construction Law Team and provides advice to both owners and contractors on various contracting issues and construction disputes.*

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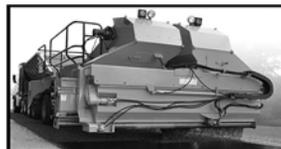
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**American Public Works Association, National Weather Service and Public Works, A Natural Partnership**  
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**Alberta Public Works Association, Public Works Supervisor, Level I**  
February 26 to 29, 2018  
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**SPWA 2018 Annual Conference and PWville (Tradeshow) Leadership in Planning for Tomorrow**  
February 27 to March 1, 2018  
Moose Jaw, Saskatchewan  
Mosaic Place

**Alberta Public Works Association, Public Works Supervisor, Level II**  
March 19 to 22, 2018  
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**AMSA's Spring Convention**  
March 20 to 21, 2017  
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**National Public Works Week**  
May 20 to 26, 2018

**SPWA National Public Works Week Workshop**  
May 24, 2018  
Regina, Saskatchewan

**Canadian Public Works Association, Manitoba Chapter, Annual Golf Tournament**  
May 31, 2018  
Bridges Golf Course  
Starbuck, Manitoba

**SPWA Equipment Expo, Rodeo & Golf Tournament**  
June 22, 2018  
Warman, Saskatchewan  
Legends Centre and Golf Club

**PWX – Public Works Expo**  
August 26 to 29, 2018  
Kansas City, Missouri

**Alberta Public Works Association, Rodeo**  
September 7, 2018  
Red Deer, Alberta  
Westerner Park

**PWABC Annual Technical Conference and Tradeshow**  
September 15 to 19, 2018  
Sun Peaks, British Columbia

**Western Canada Snow Conference**  
September 26 to 27, 2018  
Saskatoon, Saskatchewan  
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**Alberta Public Works Association, 2018 Excellence in Public Works Conference & Tradeshow**  
October 1 to 3, 2018  
Red Deer, Alberta  
Sheraton Hotel

**AMSA's Fall Convention**  
November 20 to 22, 2018  
Edmonton, Alberta  
Shaw Convention Centre



### Public Works Superintendent Honoured by AMSA Peers

Darrell Szott, Flagstaff County Public Works Superintendent, was awarded the 2017 Peer Recognition Award at the Alberta Municipal Supervisors Association's (AMSA) fall convention in Edmonton this past November. Each year, AMSA recognizes one member for their long-standing commitment not only to AMSA, but to the enhancement of the field of municipal public works.

AMSA is a group of public works leaders from across the province, representing 69 rural and small urban municipalities. Members' goals are to improve service to their respective municipalities and citizens.

#### Congratulations, Darrell, on this well-deserved recognition!

Peer Award recipients:

- 2017 – Darrell Szott (Flagstaff County)
- 2016 – Terry Fleming
- 2015 – Phil Lodermeier (Lacombe County)
- 2014 – Jack Dunsmore (MD of Taber)
- 2013 – Brian Adamkewicz (Athabasca County)



## AMSA Recognizes Long-Time Members at Fall Convention

The Alberta Municipal Supervisors Association's (AMSA) honoured long-time members at the fall convention in November.

Thank you for your commitment to AMSA and the public works profession!

### 20 YEARS - 2017



Kevin Cymbaluk.

### 15 YEARS - 2017



Bryce Cook, Brian Anderson and Darrell Stone.

### 10 YEARS - 2017



Mark Harbicht, Mark Greibrok, Shannon LaHaye, Raymond Bouchard, Doug Ponich, David Churchill and Randy Brodie.

### 5 YEARS - 2017



Rick Green, Dan Blackie, Ron Pelensky and Kurt Magnus.



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# Winnipeg's New TMC Drives Improvement

By Ryan Patrick, City of Winnipeg



**T**raffic signals have come a long way in Winnipeg over a short period of time; any 'Pegger need only to think back a few years to how traffic had been managed, to today and how we now operate. The city's traffic transformation began when the Transportation Management Centre (TMC) opened in early 2017.

The two-year project included renovating an entire building and upgrading the entire network of signalized intersections and all their components. As part of this, over 650 intersections were modernized; lights were converted to LED, plastic lightweight heads were added, and the old electromechanical cog and dial

system was pulled and replaced with a network of wireless LTE modems allowing remote access and communication.

Visuals now come from a network of over 100 cameras placed at strategic intersections to maximize coverage—each can "see" three kilometres of roadway! With 100 cameras, coverage of regional roads is approaching the 50 per cent mark.

All of this came in at a cost of just over \$3.5 million. To put that into perspective, that's the equivalent of building 750-metres of four-lane roadway. Other cities have undertaken similar projects, opting for fibre communication; over \$100 million dollars and a decade later, many are still not complete.

So, what does this new system actually provide? Compare a timing concern on the old system vs. the new, and it quickly becomes apparent. Under the old system a timings engineer would go to site at the time and day of the complaint to get an understanding of the complaint. They would then cross reference it with another day or time to see if the problem was replicated. Then it's back to the office to draw up a new timing chart, run some tests, back to the site, change the pins on the dial in the cabinet, watch to make sure the system is working, back again to the site for another visit to confirm the new timings have corrected the issue.

A long-winded process, right?

Today, in Winnipeg, if someone makes a complaint a TMC employee can simply use the signal software. Seven days' worth of recordings from the observation cameras are available for review. If an issue is observed a new timing plan is drawn up and sent to the intersection with the click of a mouse and the intersection can be monitored at all times via the cameras.

Side-by-side the TMC employee can quickly and easily see how much more efficient, powerful and robust the new system is; it becomes crystal clear when you look at the stats. The old system had a backlog of 1,200+ complaints with a turnaround time measured in years. Within one year of opening the TMC that number has been reduced and is kept

under 100! That's a huge improvement for customer service.

Now staff can actively monitor intersections using cameras and the signal software to review corridors more frequently, react to incidents and pick up malfunctions almost instantly (as shown in the main photo on your left). Changes can be made and implemented in minutes. It's important to remember though, that to give someone more green time, you're robbing it from someone else. Unfortunately, there is no way to eliminate all the red lights for everyone—there are just too many factors, protected turns, pedestrian crossing times and intersecting arterial roads, to name a few.

The creation of the TMC fueled a thirst for data and spawned a revolution of change. The goal was to improve customer service from a signals perspective but it has become so much more than that. Data is now coming into the TMC about everything that affect drivers which has prompted us to ask how this data can improve other services within the city.

For example, TMC is assisting the Streets Maintenance Department. Take the case of a pothole—the TMC now receives a report from a Waze\* user on a pothole, an operator can process that report, potentially find it on camera, add an image to the file and transfer it to Streets Maintenance. Now they have a new way of getting reports and not only that, but they can now see the pothole and its severity. This enables them to prioritize jobs and manage routes and crews more efficiently, all from a source that was none existent last year!

As the TMC develops it is creating new bonds and links with different departments and sharing traffic/incident data to assist others in work flow and customer service. Future projects involve transforming the way street permits are requested, created, managed and enforced. The goal is to improve data flow in order to improve service and knowledge. This equally returns right back to the street and driver.

What's more, the TMC doesn't just make changes to signals, it reports incidents to the driver. Waze is the free navigation app that allows for real-time incidents to be input, monitored and tracked so that drivers can have instant updates about things that impact their journeys. This includes everything from road construction, collisions and stalls, to debris and wildlife hazards. Drivers can even report things they see!

In addition, TMC connects with other platforms like Twitter, where followers can read reports and context to incidents, inclusive of photos of the incident (pre-vetted with privacy in mind). You can follow @WinnipegTMC or use #WpgTMC.

The TMC has not yet passed its first birthday so you can only imagine what the future will bring. We are already looking at more functionality from the signals software, more cameras and even some really cool innovative

projects like the interaction of autonomous vehicles with signals. There is lots more to come! It's a very exciting process for both staff at the TMC and for Winnipeg's drivers. ▶

*Ryan Patrick is the Supervisor at Winnipeg's Traffic Management Centre.*

\*Download Waze from your app store or via [www.waze.com](http://www.waze.com).



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# Cold Lake Wins NPWW Awards... **Twice!**

By Megan Gorecki,  
City of Cold Lake



*The team from the open house.*



*"Testing" equipment at the open house.*



*One lucky colouring contest award winner.*

**C**elebrating National Public Works Week (NPWW) is something that the City of Cold Lake takes very seriously.

For the last few years, the northern Alberta city has been embracing its community and teaching its residents about what a public works department does.

"We make sure that our events are fun and engaging," says General Manager of Infrastructure Services, Azam Khan. "Our open house is very popular and gives residents a chance to learn about all public works functions. Residents especially like climbing aboard large pieces of equipment that they might otherwise never get a chance to sit in."

It is because of the City of Cold Lake's dedication to the celebratory week that they were the winners of both the Alberta Public Works Association Project of the Year Award and the Canadian Public Works Association Small Centre Award for National Public Works Week—twice.

"Our staff have become quite proud of their awards," says Khan. "And for good



*Raising the flag to honour National Public Works Week.*



*A clean up crew.*



*Food drive success.*



*Paint the Plow efforts.*

reason. They work extremely hard and the community loves the chance to come out and meet the staff.”

The City of Cold Lake kicked off the 2017 celebrations with a flag raising ceremony, with a special flag made specifically for NPWW. Earlier in the year, local schools were asked to participate the Paint the Plow Program by having some of their students paint a plow blade. These blades were displayed at other NPWW events, at the Canada Day Parade and are then used all winter long to clear roads and highways.

“The paintings hold up surprisingly well,” says Khan. “The students love seeing their artwork drive up and down the highway in the winter and it is easy to pick out the painted blades.”

Another event put together by the staff is the colouring contest, which is open to a variety of ages, where kids colour public works-themed images. The winners are presented at a City Council meeting; they receive a prize and get their photos placed on social media.

“There are so many events, it’s hard to highlight just a few,” said Khan. “We also host a separate open house at the Water Treatment Plant, a Community Clean-up and a Toxic Round-Up for people to bring in household hazardous items, like paint cans, that need to be disposed of in a particular way.”

New to 2017 was a food drive, where 740 kilograms of non-perishable food and over \$2,100 in monetary donations was collected for the local food bank.

“A lot of hard work and dedication goes into our National Public Works Week events,” says Khan. “We are happy to connect with the public about what public works does, and it is always a great opportunity for the community to get involved.”

With every year, the event continues to grow, but new additions to the week are kept quite secretive.

“Everyone will just have to come out and see for themselves what we have planned for 2018,” says Khan. “It’s going to be another great year for National Public Works Week.”

*Megan Gorecki is the Communications Coordinator for the City of Cold Lake.*

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# The City of Regina Realizes Potential of Slip Lining Cast Iron



1. The water model study showed that using a slightly smaller HDPE pipe would allow for smooth slip lining without impacting the supply needs.
2. The inner walls of the cast iron pipe had tuberculation build up.
3. Prior to pulling the HDPE pipe through, a high-pressure water jet removed the tuberculation. This image shows the pipe after cleaning.
4. The project required the excavation of four pits; the first was shaped as a ramp.
5. In this pit, an HDPE saddle was electro-fused to connect an existing eight-inch water main to the newly installed pipe.



**The site chosen to test the feasibility of the technology had no service connections and the 300 metres of cast iron water main ran underneath a large pile of recycled asphalt, a new private parking lot and next to a commercial building.**

Regina's large diameter cast iron water mains were installed between 1913 and 1920 and have been identified as "at risk for failure" due to the age of the water mains, as well as the expanding clay soil that surrounds the pipes. Along with the increased potential to break, these mains have reduced pressure and fire flow capacities. In the event of a break, many areas of the community can go without water.

The city has about 13 kilometres of large diameter (400 to 750 millimetre) cast iron water mains to rehabilitate or replace. As a way to efficiently rehabilitate these aging cast iron mains, slip lining with high-density polyethylene (HDPE) was chosen as the method to trial. This project was completed by both internal city crews and private contractors.

The objective of the City of Regina's 2017 pilot project was to focus on a location where it would be difficult to use the traditional

open cut trenching method. The site chosen to test the feasibility of the technology had no service connections and the 300 metres of cast iron water main ran underneath a large pile of recycled asphalt, a new private parking lot and next to a commercial building.

A water model study was done to ensure that the selected diameter for the newly-installed pipe would satisfy both current and future needs. The study showed that using a slightly smaller HDPE pipe allows for smooth slip lining without impacting the supply needs.

The inner walls of the cast iron pipe were in rough shape due to the tuberculation build up. Prior to pulling the HDPE pipe through, a high-pressure water jet removed the tuberculation. The slip lining trenchless method was applied by pulling the 16-inch HDPE pipe inside the cast iron host pipe. Prior to being pulled inside the host pipe, 50-foot lengths of HDPE pipe were butt-fused together inside a small tent that was set up on the ground. This provided a controlled environment for the fusing process. The project required the excavation of four pits. The first entrance pit was shaped as a ramp, allowing for a gradual slope for the HDPE pipe and at a horizontal entrance into the host pipe. The main reason for excavating the second pit was due to the existence of a water main tee. An HDPE saddle was electro-fused down in the pit to connect an existing eight-inch water main to the newly installed pipe.

There are several methods that can be used for the pulling process. The City of Regina chose to use a horizontal coring machine

which was set up in the fourth pit. A pulling head was fused onto the end of the HDPE pipe and the rods of the horizontal coring machine were connected, fed through the host pipe and hooked to the pulling head. This allowed crews to pull the entire HDPE pipe.

There were several reasons the slip lining process using HDPE pipe was chosen:

- Major financial savings when compared to the costs of open cut trenching.
- There is less disruption for residents and businesses in the affected area.
- Continuous fused joints of the pipeline without gasket joints, as they can potentially be a source of leakage and water loss in a water system.
- The HDPE DR17 pipe was used, in part, due to its fatigue life of 10,000,000 cycles, which translates to an excess of 100 years.
- This pipe has the lowest life cycle cost when compared to other systems. This is due to significantly reduced or no leakage, reduced need for maintenance crews,

reduced seasonal water main breaks, no need for cathodic protection, and no loss of flow capacity over the long term.

- The pipe results in reduced water quality issues over the long-term.
- HDPE pipe has lower surge pressures, which means a longer life expectancy for pumps and valves, as well as lower pressure class pipes.

This project was a huge success and in the future, the City of Regina plans to use this method, where feasible, as a part of its Large Diameter Cast Iron Replacement Program. In cases where upsizing the pipe may be required, the option of directional boring larger diameter HDPE pipe beside the existing cast iron is being considered. ▸

*This article was a collaborative effort by staff at the City of Regina Water & Sewer Engineering & Water & Sewer Construction Branches, and Water Works Department, who are continually looking for new and innovative ways to rehabilitate Regina's aging infrastructure and increase the city's level of service to Regina's residents.*

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By Jeri Smith and Teresa Gratix, Camrose County

**C**amrose County is a rural agricultural-based county in east central Alberta surrounding the small City of Camrose. The 8,458 residents rely on the Camrose County Public Works Department to maintain the 2,500 kilometres of primarily gravel roads, and the water/wastewater systems for five hamlets within our boundaries. In addition to maintaining the road network with summer blading and winter plowing, Camrose County Public Works staff are responsible for bridges, culverts, signs, gravel crushing and hauling operations, and assists villages and towns within our borders in many of these areas.

In a rural municipality the most visible and costly asset of the municipality is road infrastructure. Regular maintenance of the roads is the responsibility of 10 grader operators, and their supervisor, who is a former grader operator. Each operator covers an area of about 240 kilometres using a JD872 Grader.

In 2012, the county experienced the dissolution of the Village of New Norway into the municipality. This resulted in an increase in the responsibilities to the Public Works Department, especially in the utilities area, and with hamlet snow removal being



▲ *The county's equipment needs to function in both urban and rural settings.*

◀ *Camrose County prefers to rehabilitate bridge structures with culverts as the resulting structure accommodates large farming equipment and lasts longer.*

▼ *Camrose County is a rural agricultural-based county in east central Alberta.*

added to the road maintenance crew's workload. The unique needs of this more urban area has resulted in the purchase of additional equipment, such as a six-way

snow plow attachment for the skid steer used to clear narrow alleys, as well as additional utility crew staff. The county is expecting two additional villages to be dissolved in the next

# Camrose County: A Small Team Gets the Job Done

couple years, which will further stretch staff, equipment and financial resources.

In the last five years, the Public Works Utility Department has grown from one water/wastewater system to the current inventory of two potable truck fills, five hamlet water distribution systems, one industrial subdivision water distribution system, five wastewater collection systems, and four wastewater treatment lagoons. The utility crew consists of one foreman and two operators. In addition to regular system maintenance and testing the crew performs watermain replacement and installation. Utility equipment includes a JD410 backhoe and a vac truck.

Shoulder pulling is an important method of improving local gravel roads. In 2017, the shoulder pulling crew was limited to completing only 12 miles as the very wet spring delayed the start of construction season. Road re-construction projects are planned by Council on a five-year priority list. Typically, one or two road construction projects are completed each year using the Municipal Sustainability Funding from the provincial government. Difficulties in obtaining environmental permitting has delayed our projects and as a result, no construction was completed in 2017. To adapt to this difficulty, road construction projects will now be engineered and designed two years ahead of construction.

In recent years, more and more county funds have been required to maintain bridges in the County. Bridges are owned by the province but the responsibility to maintain them has been pushed down to the municipal level. The County was successful in two bridge grant applications under the Alberta government's Strategic Transportation Infrastructure Program in 2017, but for the most part, Bridge maintenance and rehabilitation is the fiscal responsibility of the county. Whenever possible, Camrose County prefers to rehabilitate bridge structures with culverts as the resulting structure accommodates large farming equipment.

Camrose County is fortunate to be an area rich in gravel deposits; the county currently has four active gravel pits. These pits supply gravel for all county needs. Gravel crushing is contracted to third party operators. Council has recently

adjusted the gravel spec to eliminate more fines from the gravel, and the third-party testing company ensures the contractor is following these specs for the 4:20, 4:25 and 4:30 piles that are crushed. The county is actively looking to acquire additional resources within the county to meet the demand in future years.

The Camrose County Public Works Department is proud of the volume and quality of work carried out. The crews are

small compared to many neighbouring counties, with only 33 full-time employees (10 grader operators, three utility workers, five administrators and 15 labourers). They all work hard to accomplish the tasks economically and efficiently. ▶

*Jeri Smith, CET, is a Construction and Design Coordinator with Camrose County. Teresa Gratix is Corporate Services Manager for Camrose County.*



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# Sort, Toss, Roll:

By Charlotte Davis, City of Nanaimo



## Automated Solid Waste Collection Services Introduced to Nanaimo

**S**tarting in the fall of 2017, automated solid waste collection services have been implemented to homes in Nanaimo, Vancouver Island, British Columbia. The initial business case presented to Council was based around reduction of injuries to collection staff, secondary to that was the notion of improved service to residents and increased diversion.

With 28,000 homes in Nanaimo we opted to introduce this project in two phases. In the first phase, approximately one third of the city received the new service in fall 2017. The rest of the city will receive the new service this coming summer. This phased approach has given us the opportunity to iron out any issues that came up during the first phase. Most of the lessons learnt have related to proper cart placement and

identifying the methods of communication that provide the best value.

In line with the phased approach we have purchased trucks and carts in two phases. In total, we have purchased seven 31-cubic-yard split stream trucks with Labrie bodies and one 14-cubic-yard truck with a Ginove body. The small truck will be implemented as part of the second phase in our tighter, more restrictive areas. The small truck will service approximately 400 homes per eight-hour day and the larger trucks will each service approximately 600 homes per day. For a medium density city, with all disposal facilities located in the south of town and an 85 per cent participation rate, these numbers provide maximum productivity.

Once fully implemented, productivity will be greatly increased compared to the former manual collection service because the service will now be provided solely by

city staff utilizing a single fleet of split body trucks. By utilising split body trucks, we are able to cease using a contractor for the collection of recycling and reduce the number of vehicles on the road by 50 per cent.

Further benefits here lie in the fact that the new fleet is powered by Compressed Natural Gas which is 25 per cent greener and makes the trucks considerably quieter. The split trucks allow us to collect two streams of waste from each home in Nanaimo weekly; during week one we collect organics and recycling and during week two we collect organics and garbage. Because we are now using carts we are also able to collect yard waste comingled in with food waste in the organics carts (residents have loved this added service).

Wheeled carts were purchased from Rehrig Pacific Company. Our attractive carts are hot stamped with city logos on the

sides and the lids are colour coded to act as the last line of defence in helping residents sort their waste correctly.

As for sizes, all single-family homes received a standard set. This consists of one 120-litre black garbage cart, one 120-litre green organics cart and one 240-litre blue recycling cart. All homes with suites received one upsized set of carts; 240 litres for garbage, 240 litres for organics and 360 for Recycling. We asked residents to trial their carts for the first three months of the program (during which time we will still accept extra bagged waste). After the three-month trial we will no longer accept extra waste but residents have the ability to upsize their recycling carts free of charge, and to upsize their garbage cart for \$100 annually.

While carts are not equipped with locks as standard, they can be fitted with gravity locks, which are available by request for those experiencing rodent problems. So far, very few residents have requested a lockable cart. The carts are owned by the city which makes us responsible for their repair and replacement.

Once both phases of the project are fully implemented, we will begin to work on our diversion rate. The plan to increase diversion is to incentivize residents to recycle more and throw away less by introducing a “pay as you throw system.” The RFID technology inside our wheeled carts gives us the ability to keep track of how often people set out their cans. By allowing unlimited set outs of recycling and only 12 set outs of garbage annually, as part of the base fee, residents would hopefully recycle more. Every additional set out of garbage would be billed as extra. One anticipated additional benefit to this practice is that decreased weekly participation should allow us to grow our collection routes somewhat and thus delay the purchase of additional trucks.

In summary, there have been three big wins to the introduction of automated solid waste collection in Nanaimo:

1. Injury reduction: Our workers are no longer at such a high risk of musculoskeletal injuries. To minimize the risk of new types of injuries we worked with an ergonomic specialist to train operators in best practices for avoiding repetitive strain injuries that can be associated with the use of joysticks.
2. Improved service to residents: The overwhelmingly large percentage of the population prefer the new service. It's cleaner, tidier, more comprehensive (now with yard waste), and it is easier to manoeuvre.
3. We have gotten smarter: With the built in RFID cart technology coupled with the onboard computers, we are now collecting smarter than ever. Some benefits include the ability to check progress on route in real time and the ability to

contact specific residents when we have a compliance issue, for example, contamination or cart placement issues.

We look forward to rolling out the second phase of implementation very soon. ▀

*Charlotte Davis, Manager of Sanitation, Recycling and Public Works Administration for the City of Nanaimo received the 2017 Women's Ambassador Award by the Public Works Association of BC (PWABC) at their annual conference.*

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# 2D Cross Slope:

## Machine Control for Motor Graders

By Nathan Duncan, Finning Canada

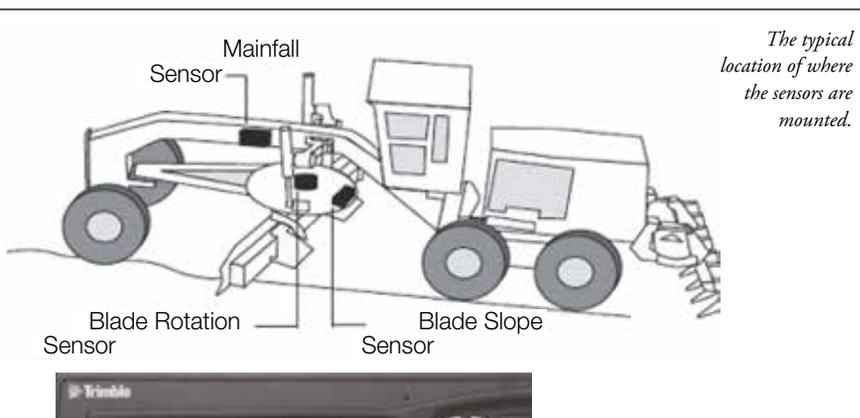


**C**ross slope, simply put, is “the percentage of slope on either side of the center of a road to allow for water to run off.” Water needs to run off the surface of a road so that it doesn’t pool, which can then lead to premature failure points in a road surface.

A Cross Slope System on a motor grader is a grade control application designed to control surface cross slope. Machine mounted sensors are used to calculate necessary blade slope positioning to achieve a desired cross slope of the surface. The system makes automatic adjustments to the left or right lift cylinder, typically performed by the operator. The specially designed in-cab display delivers all of the cross-slope information the operator needs to quickly and easily spread or cut material at the correct cross slope. The operator can select which side of the blade to control automatically and swap direction on the return pass without readjusting the settings.

Cross slope accuracy is critical in order to meet the water drainage, aggregate material costs and overall road quality specifications. Cross Slope Systems prove to be the most accurate system for gravel road maintenance resulting in improved productivity and potentially reducing road maintenance costs.

A Cross Slope System is composed of four major components in order to accurately measure cross slope. There is a display in the cab for the operator, a blade slope sensor on the back of the blade (typically behind the blade roll cylinder where it is well protected), a blade rotation sensor mounted on top of the blade circle swivel, and a machine slope sensor (typically mounted to the main frame of the machine above the blade assembly). These three sensors mathematically measure the cross slope of the blade and accurately indicate it to the operator in the display in the cab—there is no reference to satellites and it does not use and type of GPS.



*The typical location of where the sensors are mounted.*



*An image of what information the operator can see on the in-cab display; target cross slope in blue at the bottom and the red line, cut/fill values for the left and right side of the blade, and the blade in the grey box above the red line in relation to the target cross slope.*

Using the display and controls in the cab, the operator can either match an existing cross slope, or input a new cross slope target if the current cross slope on the road is outside of the specified limits determined. After the cross-slope target has been determined the operator only has to control one side of the blade, typically the toe of the blade or the leading edge.

The Cross Slope System will automatically take control of the heel of the blade, or the discharge side, and maintain the specified cross slope target regardless of what the operator does with the toe side of the blade. The hydraulics will keep the blade at the same slope as long as the automatics are turned on. The Cross Slope System can be installed onto any make of motor grader.

Significant productivity savings can result from using a Cross Slope System on a motor grader; less fuel burned, less material needed in order to cap a road surface, less wear on the machine, and reduced training costs when hiring new operators. Having a Cross Slope System will ensure that the machines have to make fewer passes in order to achieve the desired

## Cross slope accuracy is critical in order to meet the water drainage, aggregate material costs and overall road quality specifications.

cross slope target, and fewer passes result in less fuel burned, and less wear on the machine to do the same task that could have taken twice as long without a cross slope system.

Experienced operators are becoming more and more difficult to find, so having a Cross Slope System on the machines can significantly reduce the amount of time needed to train a new operator to understand and visualize what it is they are trying to achieve—they have the numbers right there in front of them and the system controls half of the blade for them to make them more productive faster.

In summary, the best practice and approach to maintaining gravel roads is to use a Cross Slope System. This is not only to maintain the road but to establish proper slopes, shoulder elevations and road widths prior to re-rocking.

Using this technology can save thousands of dollars in fuel and improve accuracy levels to within desired cross slope targets. In fact, this sort of system could potentially save thousands of dollars in material cost per mile, and reduce the cost to train new operators.

The bottom line is that gravel roads are necessary and, if not built and maintained properly, the annual cost to support a gravel road network can get out of control. A Cross Slope System is a tool to help reduce those costs, if used properly. ▀

*Nathan Duncan is the Regional Technology Manager for Finning Canada. Nathan is an experienced Red-Seal Heavy Duty Equipment Mechanic with a demonstrated history of working in the construction industry.*

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# Manitoba Study Compares Culvert Installation Techniques

By Leonnie Kavanagh, PhD, P.Eng., Ahmed Shalaby, PhD, P.Eng., and Walter Burdz, P.Eng, MBA



*U-shaped thermistor strings around a culvert.*

In 2015, Manitoba Infrastructure (MI) and the University of Manitoba (UofM) initiated a study to evaluate alternatives for cost-effective culvert installation techniques to mitigate excessive road roughness caused by bumps and dips at culvert locations.

Increased road roughness caused by culverts can adversely affect ride quality and create potentially unsafe driving conditions. The roughness is the result of culvert base materials settling/shifting due to inadequate compaction, erosion of the backfill or supporting materials, differential frost heave in backfill and surrounding materials, or the combined effect of these factors. The impact of a culvert's settlement/movement on road roughness is typically more pronounced when the depth of cover is two metres or less.

## Case study

A side-by-side installation study was conducted on a provincial highway to compare various alternative culvert installation techniques. The project consisted of five newly-constructed through-grade culverts over a 10-kilometre section of PTH 68, near the town of Arborg, Manitoba. The location is about 120 kilometres north of the City of Winnipeg.



*The completed culvert installation in 2015.*



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## Increased road roughness caused by culverts can adversely affect ride quality and create potentially unsafe driving conditions.

All installations were double barrel reinforced concrete pipes (RCP) with diameters of 1,500 to 1,800 millimetres each, respectively. PTH 68 is an asphalt-paved, rural, two-lane highway with an average frost depth of 2.5 metres. Traffic volumes are in the range of 1,000 vehicles per day. The road structure is a 100-millimetres thick bituminous surface on approximately 500 millimetres of granular base. The subgrade is a high-plastic clay with a typical moisture content of 25 per cent.

Four innovative installation techniques were used in varying combinations at the sites between September and November 2015. The techniques included a longer 6:1 transition zone for open cut culverts, comparing two backfill materials (native high-plastic clay versus granular base), use of rigid insulation below the culvert to reduce frost depth, and geogrid/geotextile reinforcement installed in layers in the clay backfill.

Each site was instrumented with thermistor strings and data loggers to collect continuous temperature profiles in the vicinity of the culverts, and to monitor frost depths. Strain gauges were installed in the geogrid/geotextile reinforcement to assess the mobilization and effectiveness.

### Data collection and monitoring

Pavement surface profiles and roughness were collected immediately after construction and are continuing to be measured annually using a laser profiler. The profile measurements and temperature data collection will continue over the next two winters. The initial results and analysis showed that the granular backfill at the 6:1 transition

zone is more effective in reducing pavement roughness caused by excessive settlement and/or differential frost heaving than the native clay backfill.

The addition of geotextile/geogrid reinforcement and rigid foam insulation also reduced roughness in the clay backfill locations. The results of this study will allow Manitoba Infrastructure and the University of Manitoba to recommend best practices for cost-effective culvert installations in a manner that enhances road

safety, and reduces surface roughness and its associated maintenance costs. ▶

*Leonnie Kavanagh, PhD., P.Eng., is a Research Associate, Civil Engineering, at the University of Manitoba. Ahmed Shalaby, PhD., P.Eng., is a Professor and Research Chair, Civil Engineering, at the University of Manitoba. Walter Burdz, P.Eng, MBA, is the Executive Director, Highway Engineering, at Manitoba Infrastructure.*




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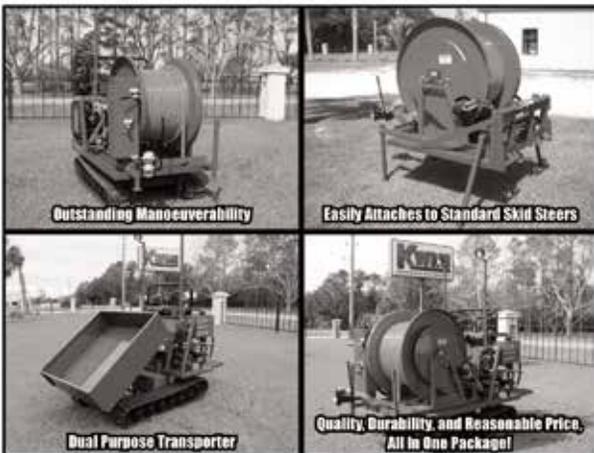
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# The Canadian Common Ground Alliance Needs Your Support for Federal Damage Prevention Legislation

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By Sean Sullivan, Alberta Common Ground Alliance

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Damaging a buried utility is not only dangerous for the workers involved but can deprive nearby homes and businesses of those essential services. Each year in Canada, the estimated societal cost of damaged underground infrastructure is more than \$1 billion.

One of the most important steps for preventing damage to underground infrastructure is establishing Canada-wide damage prevention legislation.

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disruption

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damages were  
voluntarily  
reported across  
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damage to  
underground  
infrastructure  
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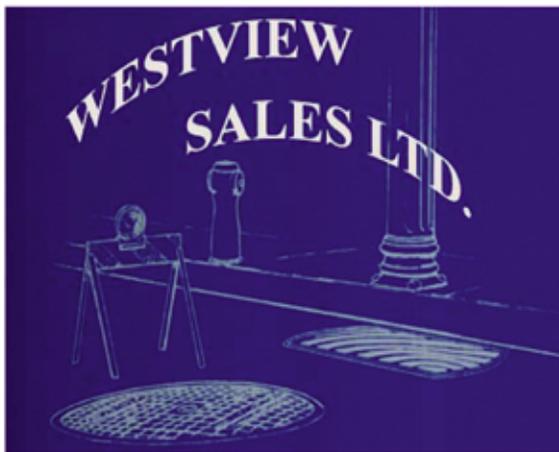
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## In order for *Bill S-229* to pass the House of Commons, Canadians need to show their support.



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This legislation would require owners of underground infrastructure to register their buried utilities with a one-call centre, require excavators to request a utility locate from a one-call centre prior to digging, and require utility owners to provide the location of their underground infrastructure upon receiving a locate request.

This year, federal damage prevention legislation will be put in front of Parliament. *Bill S-229*, the *Underground Infrastructure Safety Enhancement Act*, was first adopted by the Senate on May 2, 2017, and has quickly followed the path to the House of Commons where it is supported by Lloyd Longfield, MP for Guelph, Ontario.

The bill simplifies existing processes for protecting buried utilities from uncontrolled excavations and applies them to the protection of federally-regulated underground infrastructure. *Bill S-229* makes it easier for ground disturbers to protect themselves, their family and their community from the risks of damaging a buried utility.

The bill is a necessary step for damage prevention in Canada; it ensures the safety of our workers, protects the integrity of our buried utility network and preserves our essential services, and it will help guide future provincial damage prevention legislation.

However, in order for *Bill S-229* to pass the House of Commons, Canadians need to show their support. The Canadian Common Ground Alliance (CCGA) have made it easy to contact your member of Parliament. Let your MP know that preventing damage to buried utilities is important to you by visiting the website [ICanDigSafe.ca](http://ICanDigSafe.ca) and selecting a pre-written letter of support that you can send to your MP directly from the website.

If you would like to show your support online, follow @CanadianCGA on Twitter and share posts that include the hashtag #SupportS229.

Your voice matters. Your support will help move *Bill S-229* forward. ▶

*Sean Sullivan is the Communications Advisor for the Alberta Common Ground Alliance.*

## Join the Letter Writing Campaign!

Show your support for *Bill S-229*! There are links to pre-written letters on the Alberta Common Ground Alliance website, which can easily be forwarded to officials.

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