



THE OFFICIAL PUBLICATION OF THE PUBLIC WORKS ASSOCIATION OF BRITISH COLUMBIA, THE ALBERTA PUBLIC WORKS ASSOCIATION, THE SASKATCHEWAN PUBLIC WORKS ASSOCIATION, THE MANITOBA PUBLIC WORKS ASSOCIATION, AND THE ALBERTA MUNICIPAL SUPERVISORS ASSOCIATION

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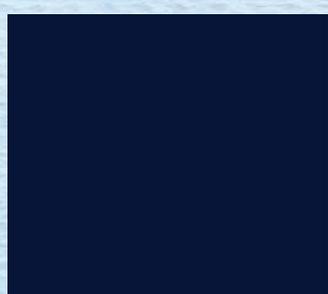
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A Message from the Canadian Public Works Association

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By working together, the impact citizens and public works professionals can have on their communities is magnified and results in the ability to accomplish goals thought to be out of our resource reach.

What is the role of public works in leading community resiliency? Resiliency during a lengthy pandemic challenges every public works professional to provide leadership in order to maintain service levels in the communities we serve. During unprecedented times, people depend on their local government to continue to provide essential services. The importance of remembering that we have a responsibility to continue to plan for our infrastructure needs today and into the future has never been more crucial.

It is very easy to delay projects that may be badly needed or “just get by” with temporary repairs to vital infrastructure until the economy improves. The Canadian Public Works Association (CPWA) Board continues to meet with officials to advocate for a strong, sustainable infrastructure investment model at the federal level. We know that infrastructure funding must include planning for infrastructure that prevents, reduces, and withstands the impacts of climate change. Climate change and resiliency are real impacts to our environment. However, this impact can be mitigated by building resilient communities through the empowering of society through advocacy efforts.

The CPWA Board has eight directors from across the country who advocate to all levels of government and community leaders on the role of public works in the delivery of solutions to their daily infrastructure needs. Our Board has divided into three task forces based on our public policy priorities to ensure we have the

resources to advocate at the federal level. The three task forces are: Emergency Management and Disaster Mitigation; Sustainable and Climate Resilient Infrastructure; and Strategic Planning. These task forces are an important part of developing resiliency as we can begin to understand our vulnerabilities that exist today and identify strategies that reduce the opportunity for these risks to compound. We have learned that when community capacity is tapped into and enhanced, the community becomes more self-reliant, sustaining, safer, and stronger; therefore, more resilient.

Community Resiliency is built into this year’s National Public Works Week 2021 theme, “Stronger Together.” By working together, the impact citizens and public works professionals can have on their communities is magnified and results in the ability to accomplish goals thought to be out of our resource reach. I hope everyone has purchased a poster (www.apwa.net/Store/detail.aspx?id=PSTR21) to display at their workplace to continue with the boards advocacy to engage citizens to think about the role public works plays in creating a great place to live. I want to close by saying thank you to those who have found the inner strength to stay positive in a negative situation this past year, being the sunshine on a rainy day is not naïve, it is a true act of RESILIENCE!

Patty Podoborzny, C.E.T., CLGM, PWSIII
President
Canadian Public Works Association

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 or www.cpwa.net.



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A Message from the Public Works Association of British Columbia

The 2021 conference will run October 5 to 6, 2021, and the PWABC is really excited for you to join us!

I hope this update finds you, your families, and your public works organizations and colleagues doing well as we all continue to work and live through the changes and challenges associated with COVID-19. It has now officially been over a year since the official declaration of the global pandemic, and like all of you reading this message, the Public Works Association of British Columbia (PWABC) has definitely had to change and adapt in order to survive. But that said, brighter days appear to be coming on the horizon for all of us, and I'm sure that we are also looking forward to putting the pandemic in the rear-view mirror. On this note, please know that our Chapter submitted a letter of vaccination priority request for essential public works professionals to the Honourable Premier of British Columbia, Mr. John Horgan; Minister of Health, Mr. Adrian Dix; and the Provincial Health Officer, Dr. Bonnie Henry on January 8, 2021. Although the initial response was not favourable to most of our industry, our Chapter hopes that this will be reconsidered over the coming weeks as the province's vaccination plans continue.

What can you look forward to now? How about our 3rd Annual Joint Conference with the BC Municipal Safety Association! The PWABC is thrilled to be partnering with this great safety association once again, and we look to all of you to join in on this virtual event. The 2021 conference will run October 5 to 6, 2021, and the PWABC is really excited for you to join us! Alternatively, maybe you are a vendor or supplier hoping to connect with our delegates. If so, keep your eye on our website at

www.pwabc.ca for sponsorship and tradeshow partner opportunities; we'd love to welcome back our past partners and look forward to the opportunity of starting new relationships with new partners.

I would also like to take this opportunity to recognize our Chapter's 2020 Annual Awards Winners, so in no particular order, please join our Board in congratulating the following winners:

- Dedicated Service Award: Angela Mowatt, Clerk Dispatcher, City of Nanaimo
- Women's Ambassador Award: Pat Miller, Retired, Sun Peaks Mountain Resort Municipality
- Outstanding Public Works Employee Award: Ritchie "The Water Guy" Fulla, City of Nanaimo
- Project of the Year Award, Gilbert to Number 3 Road South Dike Upgrade Project, City of Richmond
- Manager of the Year Award: John Elliot, City of Nanaimo

Before closing, I'd like to send out a big thank you to all of our 2021 Board members. These fine folks are doing an excellent volunteer role on behalf of all of our membership and their organizations – thanks to you all! On that note, we are always looking for help, so if you have some volunteer capacity and a passion for public works, please drop us an email at executivedirector@pwabc.ca to let us know your thoughts and ideas on how you'd like to contribute!

Chris Anderson, ASCT, CPWP-M
President
Public Works Association of British Columbia

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You can learn more about the Public Works Association of British Columbia on their website: www.pwabc.ca.



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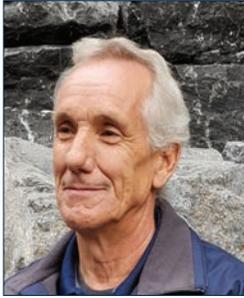
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A Message from the Alberta Public Works Association

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Here we are well into 2021 and other than the weather, our world and lives remain the same with news of lockdowns, restrictions, and new protocols coming out almost daily. Thankfully, the winter was a mild one and did allow us all the ability to spend time outside. As we see the winter in the rear-view mirror and warm sunny days ahead, it is time to start thinking about putting the winter equipment away and getting the turf equipment and street sweepers out of hibernation.

Again, a big thank you goes out to everybody who worked tirelessly throughout the winter, keeping our residents and visitors safe as they moved about our municipalities and province.

The Alberta Chapter of the American Public Works Association (APWA) is hard at work planning and getting ready for the 2021 Conference and Trade Show. During the general meeting, I will be handing the Chapter presidency into the very capable hands of Mike Haanen. Mike is employed as the Roads Foreman with the City of Fort Saskatchewan. This year will see a very different presentation as the entire conference will be held virtually June 14 to 17, 2021. Please go on the website to get yourself and your employees registered. Although the plan moving forward was to have the Equipment Rodeo as part of the Conference and Trade Show, due to the restrictions on gatherings the Rodeo has been postponed until next year when hopefully we can gather in person again.

The Board would like to send out a huge THANK YOU to all our sponsors, presenters, and vendors for being patient and supporting

public works through the COVID-19 pandemic. Go to our website to check out all future education sessions or to become a APWA member. As a member you will receive discounts on APWA education opportunities and events. The APWA is moving ahead with PWX to be an in-person Conference and Trade Show, which will be held in St. Louis on August 29 to September 1, 2021. Our National Public Works Week (NPWW) will be throughout the week of May 16-22, 2021, and the theme is "Stronger Together." Those two words have never meant more than they do at this time.

We truly are stronger together – all the way from our personal lives all the way up to our work lives as public works professionals where we have had to change almost everything about how we interact with co-workers and residents, and how we can continue to deliver the incredible service that we do. Our schedules and work loads have been altered many times due to new protocols, staff shortages or budget cutbacks; and yet, we seem to shrug it off and go out and do the job that we feel our province and our neighbours expect.

I have been in public works for just over 32 years and have never been prouder of this profession and the people in it than I am now. We never put ourselves first, we always are there to do what needs to be done, and we never expect to be thanked. You people truly are *stronger together*. Well done. Please continue to take care of yourselves and each other. Thank you.

Garry Webster

President
APWA, Alberta Chapter

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.

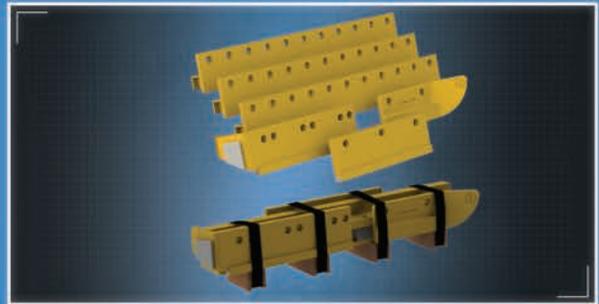
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A Message from the Saskatchewan Public Works Association

As I write my final President's Message, I recall what a crazy past year it has been. Who would have thought, that a year later, COVID-19 would still be affecting our lives? As vaccinations are rolling out in the province, there appears to be a light at the end of the tunnel. We have come to realize how quickly things can change and just as quickly how we must adapt. Public works professionals have been at the centre of this change, keeping their communities safe and operating normally.

Our 62nd Annual Conference and PWville, titled "Managing Your Municipality," took place February 23 to 26, 2021, and was our first virtual conference (virtual meetings are still something that some people are getting used to). Our delegate and supplier numbers were down this year, but it was still a great event. Sessions on various topics included: asset management, mental health, snow routes, and synthetic stabilization, and we enjoyed energetic questions and discussions. Being a virtual event, this allowed a number of APWA representatives to attend including: Dan Hartman, Region IX Director; Mary Joyce Ivers, APWA President; Scott Grayson, APWA Executive Director; Anne Jackson, CPWA Liaison; and Patty Podoborzny, CPWA President. Chapter Executives from British Columbia, Alberta, and Manitoba also attended.

Our AGM was hosted at the conference and I would like to welcome Staci Dobrescu, from the City of Moose Jaw, as the new President. I would like to thank outgoing Director Andrew Fahlman, City of Melville, for his time and effort over the past few years. Re-joining the Board is Andrew Stevenson (ATAP Infrastructure Management Ltd.), Eric Quail (City of Saskatoon), and George Jakeman (Regina). Congratulations to all and

welcome... we have an exciting year ahead of us! Thanks to all the Board members who volunteer their valuable time and energy to make our events a success.

We are working out the details for our National Public Works Week Virtual Workshop titled, "Wastewater Collection Systems: The Good, The Bad, & the Very Ugly". It will be held May 20, 2021. It will discuss so-called 'flushable' wipes, regulations, operation and maintenance issues, jetting, and the National Association of Sewer Service Companies (NASSCO) rating system of mains. Our Chapter is applying for CEUs for this session, so watch for additional details coming soon. Due to health restrictions, we are uncertain of hosting any in-person events, so we are planning additional virtual roundtable discussion/workshops on both water and roadways topics throughout the rest of the year.

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 endeavoring 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.

Dale Petrun

Past-President

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The Saskatchewan Chapter strives to promote professionalism in the public works field and provide a network through which members can share and receive useful information.



Welcome to Winter-peg! Three days ago, we were golfing. This photo was taken April 13, 2021, during a spring snowstorm that dumped 25 centimetres on Winnipeg, which was the largest snowfall of the entire winter season!



A Message from the Manitoba Public Works Association

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Justin S. Wiebe, P.Eng.

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.

I would like to start by thanking the 2019-2020 Manitoba Chapter Board of Directors for taking on a two-year term and commitment to our Chapter to help get us through the pandemic. With the added responsibilities brought on by the COVID-19 pandemic, it is appreciated to be with such caring and giving people.

The vaccines have started arriving and are going to be the beginning of a long-awaited recovery process. Our public works professionals are to be commended for their continued service. They keep things safe and running properly so we can all get on with our daily lives. The public doesn't always realize what the public works folks have done for them to provide the services they come to expect. There is not enough praise that can be given and they seldom get a thank you for the work that they do. Take the time to give positive feedback to them and definitely thank them for their work – they deserve it.

Our Chapter is doing well so far in 2021. We have welcomed some new members to our Board this year, each of them bringing new ideas to the table. All of the committees are filled and I am looking forward to more educational sessions, in person events when possible, and advocating with not only federal but provincial and local governments.

Like many associations, fundraising has slowed and is causing financial difficulties for our Chapters. Recently another Chapter had low registration for their annual fundraiser conference and lost money with it. We had a

It is a great honour to be chosen as president and I look forward to representing the public works professionals of Manitoba and being part of a non-profit association that helps others. Thank you for your commitment to your community.

Western Canada Snow Conference planned for this fall, however we have decided to postpone it until the fall of 2022. Hopefully, this turns around as we move into a post-pandemic world.

It is a great honour to be chosen as president and I look forward to representing the public works professionals of Manitoba and being part of a non-profit association that helps others.

Thank you for your commitment to your community.

Steve Blayney

President

Manitoba Public Works Association



A Message from the Alberta Municipal Supervisors Association

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The world looks different today than the last time members of the Alberta Municipal Supervisors Association (AMSA) met in person – that was all the way back in the fall of 2019 for a convention! It's hard to believe a year has passed with pandemic restrictions in place. This spring, AMSA delved into the virtual world and hosted a two-day (half days) convention and annual general meeting with fantastic attendance. If you were unable to attend in person, the virtual convention is archived on the AMSA website at www.amsapw.ca.

For those who do not know about the association and its history, AMSA celebrated its 40-year anniversary in 2020. Please see a few photos here and more on page 23 – what great memories!

AMSA's mission is to unite 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. AMSA 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.

AMSA members at conventions review new legislation and technologies, as well as examine management strategies beneficial to both seasoned public works professionals and newcomers to the field. With another great lineup for the new format of a virtual spring conference, members learned about emotional intelligence in leadership strategies as well as harassment liability for employers. We also recognized long service amongst our peers.

Thank you to AMSA executive members past and present for their support in developing fantastic convention itineraries and the continued pursuit of professional development opportunities for our engaged group of municipal public works leaders.

We look forward to a time when we can gather in person to share best practices.

Sincerely,

Shaune Kovitch

President
Alberta Municipal Supervisors Association

AMSA is 40! 1980 to 2020 Turn to page 22 for more photos!





Bonnie Konzelman

STRONGER



Jeanette Austin



Katelyn Erickson



Kristen Dixon

TOGETHER



Patty Podoborzny



Staci Dobrescu



Mary Joyce Ivers

During Women’s History Month in March, The Roadrunner caught up with an incredible group of women to discuss their success in public works and why women should consider a career in this sector.

By Jenna Collignon, Staff Writer

Bonnie Konzelman, Manitoba Chapter of the American Public Works Association

“I grew up exposed to concrete construction works,” says Bonnie Konzelman, treasurer for the Manitoba Chapter of the American Public Works Association (APWA), and retired from the City of Winnipeg, Manitoba, in their Planning, Property and Development and Public Works Departments.

“My family owned a small construction business that drove me to want to pursue a career in civil engineering.” After graduating with a Bachelor of Science in Civil Engineering, Konzelman pursued a position

with a research, testing, and consulting engineering firm. Throughout her career, from these early days to a position with the City of Winnipeg, she has had great mentors who provided valuable advice and mentorship.

Konzelman has been the Treasurer of the Manitoba Chapter of the APWA since 2011. “We value sharing information on new and innovative technologies, continuous learning about public works and issues of public interest, leadership, education, protecting the environment, and the opportunity to meet and learn from colleagues and co-workers. I think that joining the Chapter, regardless of field of practice, is a great place to meet other women in the industry and become involved in your community and industry events.”

“I see a career in public works as an opportunity to provide services to the community as the primary objective,” says Konzelman. “It is a fantastic and interesting career that can be performed by any gender. The industry is continually improving in providing equal opportunity for both men and women, and I believe that promoting public works careers to women in general, and providing more accessible mentor programs, may help to make it more inclusive.”

Jeanette Austin, Alberta Chapter of the American Public Works Association

“I got into the industry by accident,” says Jeanette Austin, Executive Director of the Alberta Chapter of the American Public Works Association. “When a door opens, I’ll walk through it and I’ll figure it out when I get there. I was really lucky with my career in public works – I had one person teach me public works from the ground up and fell absolutely in love with it.”

Austin received a Rec Admin degree and worked for the City of Calgary, Alberta, in parks and recreation, then as a special events coordinator before moving away from the city and working as a manager in a retail establishment. She ended up going back to her hometown without a job and jumped at the opportunity for a temporary position as a utility clerk.

“Early on, I saw public works as the heart of the community,” says Austin. “So many people don’t view public works in a positive light, but what most of the public don’t realize is that public works is behind

everything. If we don’t have public works, we don’t have a community!”

Austin now has the opportunity to provide education and training for leaders who are moving up in communities. “In the small communities, so many move up through the ranks. Being able to provide them with the thought provoking challenges that engage them and interest them is so important to help people move up in their careers.”

“My day to day is constantly varying. That’s something I love about this job – there is always something new to work on, and knowing that the work you do is providing a way of life for those around you,” says Austin. “This is a great field to work in, and women have a place in it. Our strength is in being female and bringing that other point of view to the job.”

Katelyn Erickson, Clearwater County, Alberta

Katelyn Erickson, C.E.T., Surfaced Roads Supervisor for the Public Works Operations in Clearwater County, Alberta, began her career as a flag person for a road construction company in hopes that she would be able to put herself through school to become an architect. Upon completing the Architectural Technologies program at the Southern Alberta Institute of Technology (SAIT). She took the Civil Engineering Technologies program and spent 11 years working for that same construction company. “It turns out that I enjoyed the road works/infrastructure part of civil more than the design and construction aspect,” says Erickson. “After parting ways with the road construction company, I found an opportunity with the County in the public works department maintaining infrastructure, and it was right in my wheelhouse.”

Erickson’s “typical” day is anything but typical. “Depending on the time of year and the day, it could be in the office working on putting together tenders or RFQ’s, or it could be a day spent in the field doing road inspections.” She believes that if you enjoy serving your community and being apart of the “boots on the ground” end of things, public works is a fantastic career for everyone.

“I have been fortunate enough in my career to work for two different organizations that have done a great job of including women in the industry,” says Erickson.

“Having women in different positions, from management through to labourers, is very encouraging to see.”

“If someone were to give me advice when I was starting out, I would have wanted someone to tell me not to take things too seriously,” says Erickson. “Tomorrow is always a new day, and nothing is worth getting too stressed or worked up over. Also, stick with it – if this is something that you enjoy, keep going.”

Kristen Dixon, City of Penticton

Kristen Dixon, General Manager of Infrastructure for the City of Penticton, British Columbia, started in the industry on a whim. “My mom was actually the one who told me I was going to be an engineer,” says Dixon, “and I thought, hey, that sounds like a reasonable career – and now I love what I do.”

After completing the University of Alberta’s co-op program, through which Dixon had the opportunity to do five different work terms in both the municipal and the private sector, she quickly realized the public sector was where she wanted to be. She worked for the City of Edmonton, Alberta, before moving to the Penticton, and then to the City of Kamloops, British Columbia, where she first had her first true taste of public works when she took on a position leading capital projects and streets operations. This is where she fell in love with public works, and went on to take a position leading the Engineering and Public Works Department in Port Coquitlam, before taking on the role of Chief Administrative Officer. Now, back in Penticton, she has returned to her engineering and public works roots, which she has always found so rewarding.

“I think that careers in public works are fantastic for women to pursue because there is always something new and challenging,” says Dixon. “In public works, you’re really making a difference in people’s day to day lives. That’s the part I love the most, because I get to make the city a better place.”

Though the public works industry has been stigmatized as a “man’s job,” Dixon believes that women have an important place in it. “Lots needs to change in our industry, still, to make it more inclusive, like overcoming the historical barriers and the perception of the work. I am the only woman on my senior leadership team, and have typically been for my whole career.”

“My one piece of advice to young women considering a career in this industry is to not be fearful of this path and just be yourself. You will be surprised by the support you will receive in this amazing industry. We bring such an interesting aspect and perspective to Public works that is often overlooked – but we need this diverse set of opinions to allow us to provide better services for all.”

Mary Joyce Ivers, American Public Works Association

Mary Joyce Ivers, CFPF, PWLF, APWA President, has been in public works sector for 28 years, starting out in a position in the City of Ventura, California, writing specs. She worked her way through the department, becoming the department’s Public Works Deputy Director. Throughout her career, though, she has believed one thing over all: “you have to love what you do every day.”

From day to day, Ivers spends her time looking for ways to be more efficient and improve the work that her team does around the community. “Besides a lot of virtual

zoom meetings,” she says, “I do a lot of coordination and supporting our people here. Making sure that our division managers and staff do their jobs well, and that we ourselves are constantly updating policies and procedures so that we can do the best we can for our communities.”

Passion and satisfaction has been a common thread throughout all of these conversations, and that was no different with Ivers. “This job is very rewarding. Careers in the public works sector are so diverse, with so many different opportunities to get involved with, depending on your passion – whether it’s in engineering, transportation, fleet, facilities, water and wastewater, go wherever that passion takes you.”

“One of the best things about working in public works, for me, is the satisfaction of seeing your project come to fruition, seeing the work you do in the community around you,” says Ivers. “I think anybody can do any job, and it’s important to promote and offer the opportunities to pursue a career in this industry to everyone. To the young women coming into

the industry – be confident, believe in yourself, because you can do this.”

Patty Podoborzny, Town of Bruderheim, Alberta

“I think the industry has come a long way since I started over 25 years ago,” says Patty Podoborzny, Chief Administrative Officer for the Town of Bruderheim, in Alberta. “The industry is growing and attitudes are changing, opportunities are everywhere for women to coach others for a more inclusive work environment.”

Podoborzny started in public works after receiving a diploma in Surveying Technology. Her first job was with Alberta Transportation as a survey crew chief on the twinning of HWY 16, and she quickly fell in love with the industry. Fortune favoured her as she moved her way through the industry, landing various jobs, and eventually Podoborzny was promoted to Operations Foreman where she was given a geographical area to manage. “The days as Operations Foreman could be quite long, with emergencies and weather being unpredictable on any given day,” says Podoborzny. “But,

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at the end of the day, it is my passion to be in this industry, and I think that any woman who enjoys a non-traditional career with lots of variety would do incredibly well. If you want a chance to improve the quality of life of community and work to protect the environment which makes a difference to so many people, then you might be able to find your place in public works.”

“If you’re considering a career in public works, network early. Grow your support team as soon as you can; there is so much to learn from others who have travelled your path and they are more than happy to share,” says Podoborzny. “Never stop learning and growing your passion.”

Staci Dobrescu, City of Moose Jaw, Saskatchewan

“I have been working for the city since 1996,” says Staci Dobrescu, Utilities Supervisor Water and Wastewater/Meter Department for the City of Moose Jaw, Saskatchewan. “I started as a summer student getting my psychology degree, and I never left.”

Dobrescu started in the industry in the playground program, organizing activities for kids in parks, and has moved her way up through parks and rec, sanitation, streets and roads, and into the water and wastewater department. “When I came into water and wastewater, women had never been in the division. I was the first,” says Dobrescu. “This field was male dominated and still is, which often leads to a more difficult crew to move a woman into. But my boss felt that I could handle it, and I found my home there.”

Day to day, Dobrescu has a lot of plates constantly spinning. She works through multiple meetings throughout the day, works with 34 permanent staff members, coordinates excavation jobs such as water mains, service repairs/replacements, sewer repairs, etc., she supervises the water meter department, and deals with personnel as well as any capital projects that have to do with water and wastewater – all of it comes through her in some facet.

Though Dobrescu believes that the industry does need to change, she believes that women are making the change for themselves.

“We’re making the change just by entering the field. It is challenging, I’m not going to lie – but it is so rewarding. That is why I have fallen in love with this field, and stayed in public works my entire career: because for me, personally, it is so incredibly validating to find self-satisfaction in what I do, and to know that I have made a difference in the community.”

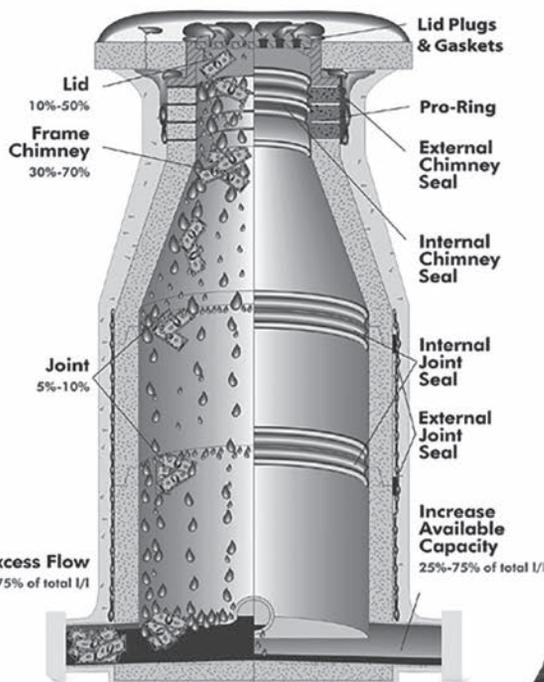
“Never give up,” says Dobrescu on advice to young women coming into the industry. “There are things that will take you down a notch, but power through it, because the reward is totally worth it. Yes, this is a male dominated industry, and there are those who don’t believe women have a place in it – prove them wrong.”

Thank you to the wonderful ladies who took the time to chat with *The Roadrunner* to share their stories of success in public works. We hope to continue this story in future issues. If you’d like to nominate a woman in your public works department, please email ssavory@matrixgroupinc.net.

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Upcoming Events

National Public Works Week 2021
May 16-22, 2021
Stronger Together

The Saskatchewan Chapter's Virtual Workshop
May 20, 2021
Wastewater Collection Systems – The Good, The Bad, & the Very Ugly

The Alberta Chapter's Excellence in Public Works Virtual Annual Conference & Tradeshow
June 15-17, 2021
Everyday Heroes

The Manitoba Chapter Golf Tournament
June 17, 2021
Bridges Golf Course
11:00 am shotgun start

PWX 2021
August 29 to September 1, 2021
St. Louis, Missouri

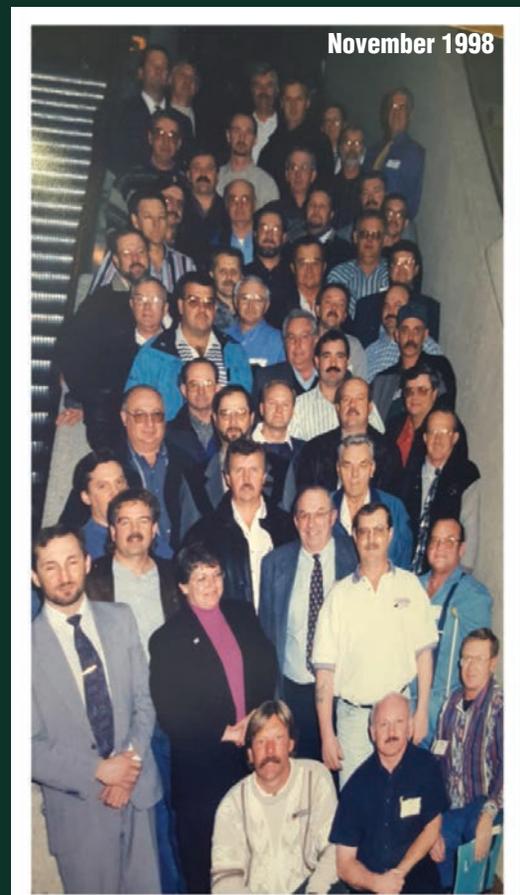
The 3rd Annual PWABC & BCMSA Joint Annual Virtual Conference & Trade Show
October 5-6, 2021

Western Canadian Snow Conference
POSTPONED to October 2022
Winnipeg, Manitoba

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**Note, all in-person events are subject to COVID-19-related gathering guidelines in individual locations.*

AMSA Turned 40 in 2020!



The Saskatchewan Public Works Association (SPWA) and American Public Works Association (APWA) 2020 Awards

Distributed virtually – February 24, 2021

TONY MARCECA MEMORIAL SCHOLARSHIP – SPWA

Abbey Petrun

LIFE MEMBER – SPWA

Rodney (Rocky) Frank, spent 41 years with the Town of Assiniboia. He started part-time with the community. Rocky initial split time between parks at the rink and public works. He maintained grass and green spaces, dug graves, did road maintenance, and picked garbage. Doing a bit of everything was common in the day and for Rodney through his career. He worked his way up from labourer, to equipment operator, and even spent time as the Director of Works. Rocky has been a consistent fixture at SPWA Conferences and will now continue to be as a Life Member.

AWARD OF MERIT – SPWA

Travis Leblanc, City of Moose Jaw

MERITORIOUS SERVICE AWARD – SPWA

ATAP Infrastructure Management Ltd.

CONTRACTOR OF THE YEAR – SPWA

NSC Minerals

HARRY S. SWEARINGEN AWARD – APWA

George Jakeman

PROFESSIONAL MANAGER OF THE YEAR AWARD – ADMINISTRATIVE MANAGEMENT – APWA

Neeraj Saroj, City of Regina

GERRY WHEELER MEMORIAL AWARD – SPWA

Andrew Stevenson

PUBLIC WORKS PERSON OF THE YEAR – SPWA

Mark Caringal, City of Moose Jaw

National Public Works Week (NPWW)

May 16 - 22, 2021

THEME: Stronger Together

APWA is proud to announce “Stronger Together” as the theme for the 2021 National Public Works Week poster. This year’s exciting poster challenges our members and their citizens to think about the role public works plays in creating a great place to live. By working together, the impact citizens and public works professionals can have on their communities is magnified and results in the ability to accomplish goals once thought unattainable.

Public works helps maintain a community’s strength by working together to provide an infrastructure of services in transportation, water, wastewater, and storm-water treatment, public buildings and spaces, parks, and grounds, emergency management and first response, solid waste, and right-of-way management. Public works provides togetherness needed for collaboration with all the stakeholders in capital projects, infrastructure solutions, and quality of life services.

Download this 2021 poster at <https://npww.apwa.net> for a cost of \$14 USD (member price).



National Public Works Week - May 16 - 22, 2021

During **National Public Works Week (NPWW)**, the Saskatchewan Public Works Association (SPWA) will be hosting a VIRTUAL workshop on May 20, 2021, titled **‘Wastewater Collection Systems - The Good, The Bad, & the Very Ugly’**

This Workshop will examine:

- So called ‘Flushable’ wipes - issues
- Progress in material & regulation
- Its effects on your systems
- City PW staff discuss their sewer (lift) experiences from an operation & maintenance perspective
- A contractor will be talking about jetting
- Content on CCTV and the NASSCO system of rating your mains



*CEUs are being applied for with this session.



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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A look at the Water and Roadways Roundtable Session. Jim and Angellah Braysshaw presenting *Change is Inevitable – Transition is Intentional: How to Avoid a Transition Crisis*. ATAP presented the Water Main Swabbing Workshop.

SPWA 62nd Annual Conference & PWville

The Saskatchewan Public Works Association (SPWA) linked the people with the information, skills, experience, and equipment at their virtual 62nd Annual Conference & PWville (Tradeshow), February 23 to 26, 2021. This conference brought together people from across the province who are involved in all aspects of public works. The theme of this year's conference was *Managing Your Municipality* and the event featured 22 speakers on topics from varying disciplines including the 0.6 CEU *Water Main Swabbing* Workshop presented by ATAP Infrastructure Management Ltd.

What a kerfuffle this past year has been! Our Keynote Speaker, Dr. Jody Carrington helped us put things into perspective and focus on what's important: relationships and connections! We also had Jim and Angellah Braysshaw present a session called *Change is Inevitable – Transition is Intentional: How to Avoid a Transition Crisis*, which outlined how a transition crisis snuck up on us in the past and may be lurking around the next corner of change ahead.

The SPWA also hosted the widely popular *Water and Roadways Roundtable Session*, which were well attended with great delegate participation!



Keynote Speaker, Jody Carrington.

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Duty of Fairness in Procurement

By Sonia Sahota and Marcela Ouatu, Civic Legal LLP

This article provides a brief overview of the meaning and scope of the duty of fairness owed by public owners when procuring for works and services.

A discussion of the duty of fairness in procurement must necessarily start with discussion on the “two contract” model established in *Ron Engineering*¹ which provided that once complete bids are submitted in response to an invitation to tender, a contract (Contract A) is formed that is to be distinguished from the construction contract to be entered into upon the acceptance of one of the compliant tenders (Contract B). The Supreme Court of Canada (SCC) later clarified that *Ron Engineering* does not mean that Contract A will always be formed; whether the submission of a bid will give rise to Contract A depends on the parties’ intention to initiate contractual relationships by the submission of a bid.²

Importantly, the Court further noted that while Contract A is governed by the express terms in the tender documents, it is also informed by implied obligations.² Building on this foundation, the SCC subsequently recognized an implied contractual term of Contract A “to treat all bidders fairly and equally.”³ In this case, the SCC considered that implying such a term in the assessment of the tender bids “is necessary to give business efficacy to the tendering process” and preserve its integrity. Without such an implied term, bidders may elect to not participate in the tender process over concerns of incurring the costs of preparing futile bids.³

An owner’s “duty of fairness,” or conversely “unfairness,” may manifest in different ways, and the more common displays are as follows:



- Giving a bidder an unfair advantage over other bidders (e.g., permitting incumbent advantage, accepting a post-closing submission);
- Not following the prescribed tender rules (e.g., arbitrarily changing rules during evaluation);
- Not conducting a transparent process (e.g., applying undisclosed evaluation criteria, having hidden preferences,⁴ not maintaining proper records of the evaluation process);
- Not undertaking a diligent evaluation of bids against disclosed criteria;
- Allowing conflict of interest or bias to operate (e.g., allowing personal interests to compromise ability to exercise impartial discretion during evaluation, having biased specifications geared towards a specific bidder);
- Engaging in bid shopping; and
- Conducting a sham process.

While creative drafting of the tender instructions may afford owners some latitude to deal with unforeseen circumstances, such as reserving the right not to accept the lowest or any bids, these so-called “privilege clauses” cannot be so broadly drafted, or interpreted, as to excuse owners from an obligation to treat all bidders fairly. Courts have largely rejected any interpretation of privilege clauses that would allow the owners to effectively contract out of their duty of fairness

since to hold otherwise would undermine the integrity of the tender system⁵ by introducing arbitrariness and uncertainty.

As such, the courts have noted that privilege clauses must be exercised consistently with the duty of fairness. For example, in 1994 the City of Nanaimo⁶ passed over the lowest bid based on the bidder’s past performance on similar projects, considering that the bid may in fact not be the lowest overall cost to the City. The tender documents reserved the right for the City to not accept the lowest tender and contained a provision that the contract would be awarded for “the greatest value based on quality, service, and price.” The court recognized that considering the bidder’s past performance was not an improper undisclosed criterion. However, fearing that this reasoning might lead to arbitrariness in the tendering process, warned that where the lowest bidder is not the successful bidder, any additional factors taken into account “will have to be shown to be reasonable and relevant... by reference to the essential requirements of objective fairness and good faith.”⁶

As noted earlier, Contract A does not always arise upon the submission of a bid. In such a case, the parties’ interactions may be characterized as negotiations and, to date, courts have not recognized a free-standing duty of fairness during negotiations. Such a duty is said to be inconsistent with an adversarial and competitive tendering process and

thought to cause great uncertainty in this area of law.⁷ That said, when a procurement process is initiated by a public authority, a general duty of procedural fairness (derived from administrative law principles rather than on the creation of Contract A) is owed to the bidders.⁸ For municipal owners, this must remain top of mind during any procurement process, whether a competitive tender or negotiated request for proposal. This duty is breached when the procedural rules established for the procurement process are not properly followed by the public authority or where those rules are inherently flawed or unfair to the proponents.⁸

In summary, purchasing owners are well advised to treat all bidders fairly and equally when undertaking a competitive tender that may give rise to Contract A between themselves and the bidders, even when the owner has reserved itself wide discretion through use of privilege clauses. Additionally, public authorities are reminded that they are subject to the duty of procedural fairness pursuant

to administrative law. Therefore, even in the absence of Contract A forming, municipal owners will still want to act fairly when engaging in negotiations with bidders, as some courts may be willing to expand the reach of the duty of fairness⁹ to organizations vested with an obligation to serve in the public's best interest, especially when expending tax dollars. ▶

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, and Marcela Ouatu is an associate, with Civic Legal LLP, a British Columbia law firm with expertise in municipal law, land development, construction, procurement, and complicated contract matters. Visit www.civiclegal.ca for contact and additional information.

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6. *Sound Contracting Ltd. v Nanaimo (City)*, 2000 BCCA 312
7. *Midwest Management (1987) Ltd./Monad Contractors Ltd. v BC Gas Utility Ltd.*, 2000 BCCA 589
8. *Murray Purcha & Son Ltd. v Barrier (District)*, 2019 BCCA 4
9. See *Mellico Developments Ltd. v Portage la Prairie (City)*, 2002 MBCA 125 for an instance where the court left open the possibility of a duty of fairness outside Contract A.



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How Workplace Noise Can Affect Your Health



Health effects of exposure to noise

We immediately think about noise affecting our hearing, but it is associated with other health effects as well. Though it's difficult to pinpoint noise as the culprit in some cases, researchers believe it may act as a general stressor and cause some symptoms that are totally unrelated to hearing – such as changes to blood pressure (e.g., high blood pressure) and heart rate. A noisy environment can affect how a worker breathes and sleeps and, generally, can have a negative effect on the worker's physical and mental health.

Hearing related health effects range from tinnitus (a ringing or buzzing in the ear), to temporary hearing loss that may improve over time in a quiet place, to permanent hearing loss. A person who is exposed to noise for long periods of time or is exposed often, or at high frequencies, may experience permanent hearing loss. Also known as permanent threshold shift, permanent hearing loss gets worse for as long as the noise exposure continues. Noise-induced permanent hearing loss is a cumulative process. Initially, noise-induced hearing loss is most pronounced at a frequency of 4000 Hz, but it spreads over other frequencies over time and as the noise level increases.

Sometimes, just one short burst of extremely loud noise, such as a gun shot, can cause acoustic trauma that damages hearing.

Besides noise, other factors that affect a worker's hearing may include vibration (e.g., from a jack hammer), the worker's age, certain medications and diseases, and exposure to "ototoxic" chemicals, such as toluene and carbon disulfide. Exposures to noise outside of work (e.g., recreational activities such as playing in a band, or skeet shooting) are also factors that contribute to the person's overall noise exposure.

What can be done?

A noise assessment and employee survey can help determine where the noise is coming from, how much noise there is, who is

By Canadian Centre for Occupational Health and Safety

Exposure to noise, too often, is more than just annoying and disruptive – it can permanently damage our hearing. Occupational noise is one of the most common health hazards in the workplace and can affect people differently, depending on how susceptible they are.

Low or moderate noise levels that may be found in an office, school, or computer room are most likely to cause annoyance and stress, and may make it difficult for people to talk to and hear one another. Louder, "industrial grade" noises, which may be found in a manufacturing facility, on a farm, or even in a cafeteria, can cause permanent hearing loss.

How loud is too loud?

Occupational exposure limits (OELs) for noise are usually given as the maximum

length of exposure permitted for various noise levels measured in decibels (dBA). While the noise exposure limits vary slightly within the different jurisdictions in Canada, most jurisdictions limit exposure to continuous noise at 85 dB(A). The Canadian Centre for Occupational Health and Safety (CCOHS) has more information on *Occupational Exposure Limits for Workplace Noise in Canada* on its website.

Even without technical measurements however, certain tell-tale signs can help you determine if your workplace has a noise problem. Do people have to raise their voices? After a shift, do their ears ring, and do they need to play their car radios louder on the way home than on the way to work? After working in a noisy environment for a few years, do the employees find it hard to understand conversations at parties, restaurants, or other crowded places?

Controlling noise and preventing work-related hearing loss is essential. Once your hearing is lost – it's gone forever.

exposed, and for how long. The most obvious and effective solution to noise, of course, is to eliminate it, but that's not always feasible in the workplace. The next best option is to control noise at its source by lowering it to acceptable levels with engineering controls. Administrative controls, and the use of appropriate personal hearing protection, are also used.

Engineering controls substitute or modify the noise source itself, or the workplace environment (e.g., enclosing the noise source, using mufflers on equipment, etc.). Administrative controls involve rotating work schedules or changing production schedules to keep noise exposure time within acceptable limits. Where these approaches cannot adequately control

exposure to noise, workers should wear appropriate personal hearing protection such as earmuffs or plugs, but preferably only as an interim measure until noise is controlled at the source.

Controlling noise and preventing work-related hearing loss is essential. Once your hearing is lost – it's gone forever. ▶

The Canadian Centre for Occupational Health and Safety (CCOHS) promotes the total well-being – physical, psychosocial, and mental health – of workers in Canada by providing information, training, education, and management systems and solutions that support health and safety programs and the prevention of injury and illness.

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Are You Getting Value for Your Investment Fees?

By Charlene Birdsall, CPA, CMA, CIM, CFP, National Bank Financial



“How many millionaires do you know who have become wealthy by investing in savings accounts? I rest my case.” – Robert G. Allen.

Savings accounts might earn .05 per cent on your money, but a greater share of Canadians see value in putting their money in investments while working with Investment Advisors. According to a 2020 study from the Montreal-based non-profit CIRANO Institute, investors who received professional advice were found to accumulate 131 per cent more assets after 15 years with an advisor compared with investors without advisors. Investment advisors are better equipped to provide the guidance to achieve their clients’ goals.

Determining the value of professional investment advice is a catch 22. While receiving advice, the cost of paying for it also eats away at those returns over time.

You may want to ensure you are getting value for your investment fees paid.

So, how do investment advisors get paid?

- **Transactional based accounts** are where clients would pay their investment advisors commissions for each transaction to buy and sell an investment. The costs are normally paid up-front and range between 1.5 to 10 per cent, depending on the size of the transaction. The fees would only be tax deductible once the security has been sold and would be part of the capital gain or loss. This type of account is less common.
- **Mutual funds** fees are called management expense ratios (MER) and come out before the client’s growth of the investment. These fees can range

between 2.15 to 3 per cent annually, whereby part of the fee goes to the fund managers, and the balance of the fee is paid to the advisor as a trailer of 0.75 to 1 per cent (out of the MER). It is only the trailer portion that is reported on your annual statement of fees.

- **Fee based accounts** are the most effective and common way of paying for investment advice. It is a set percentage based on the value of the investments. Having an easy-to-understand fee schedule for your wealth advice puts you and your investment advisor on the same side of the table, focusing on the same objective: growing your wealth. The investment advisor does well if the portfolio does well, therefore, both the client and advisor interests are aligned.

Figuring out fees

So, what is a reasonable fee? This will depend on a variety of factors, such as portfolio size, the asset allocation of the portfolio, and the type of investments (bonds, common stock, trust units, mutual funds, exchange traded funds, closed end funds, structured products).

If you are working with an investment advisor and have an actively managed portfolio, fees could be as high as 2.5 per cent but averaging 1.7 per cent based on the value of the portfolio. For accounts \$500,000 plus, fees can be as low as 0.7 to 1.5 per cent. National Bank offers a dynamic fee structure, where there are set automatic fee reductions at certain thresholds, lowering your overall total percentage of fees paid. They have also included family pricing in fee schedules to lower total fees paid for the family.

Are you getting bang for your buck in the fees that are charged by the financial advisors though? Some questions you may want to ask yourself:

- Do you know how much you are paying in fees?

Percentage Increase in Asset Size Associated With a Financial Advisor, 2010, 2014, and 2018

| Tenure with a financial advisor | 2010 | 2014 | 2018 |
|---------------------------------|-------|-------|-------|
| <4 years | 0.0 | 60.0 | 79.0 |
| 4 to 6 years | 58.0 | 268.0 | 79.0 |
| 7 to 14 years | 99.0 | 164.0 | 114.0 |
| 15 years or more | 173.0 | 290.0 | 131.0 |

- Does my advisor have the required proficiency and training?
- Do I have mutual funds or an exchange traded fund with hidden fees?
- What types of services are you receiving for fees paid?
- Are you receiving proactive investment advice and recommendations?
- Is the performance meeting benchmarks?
- Are you receiving non-investment advice, such as wealth transfer, tax optimization, financial planning, and mortgage information?
- Are your investments tax efficient?
- Are your fees tax deductible?

With your hard-earned money, you should be paying for a good advisor. A good advisor would:

- Assess your risk tolerance;
- Implement a financial planning strategy to meet your goals over time;
- Have access to good research, and find the best investments in the best sectors and geographic regions;
- Recommend selling when close to targets, or when there are cash requirements;
- Manage the risk by investing in quality investments, keeping on top of each security, and know what is going on with the economy;
- Boost returns by implementing tax saving strategies;
- Clarify fees paid to them, and how they are working for the client to keep fees low; and
- Most of all, good advisors keep in touch with their clients. Good advisors let their clients know what is going on with their portfolios, and good clients help the advisors when major life changes take place, like a home purchase, a birth in the family; or a death in the family.

From my experience, when dealing with prospective clients, many are still unaware of exactly what fees are being charged in their portfolio. Even though fees are now required to be reported annually, there are still hidden fees that are not shown (i.e., management expense fees on mutual funds, exchange traded funds, structured notes, and closed end funds), all of which eat away at your total return on investments.

At the end of the day, your goal should be to have a well-diversified portfolio that is tax efficient and an investment advisor that prioritizes your interests and goals in a cost-efficient manner. ▸

Charlene Birdsall, CPA, CMA, CIM, CFP, is an Investment Advisor and Portfolio Manager for National Bank Financial. You can reach her at charlene.birdsall@nbc.ca. National Bank Financial – Wealth

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On Fort Street, the two-way protected lane design retained nearly 95 per cent of on street parking and delivered new seating, street trees, and commercial loading zones by eliminating a travel lane.

It's About the Journey, Not the Destination

The Harbour Road Protected Bike Lanes connect to the regional trail network and a rapidly growing neighbourhood.



Dallas Road is a hot spot for commuters, families, and tourists alike.



By Sarah Webb, City of Victoria

Over the past several decades, cities have seen big changes in transportation and mobility. Shared, electric, and smart mobility services are just as innovative today as the combustion engine or airplanes once were.

How cities continue to adapt to these changes will be a result of how they address issues like climate change and public health, support an aging and increasingly diverse population, and embrace new technologies like electric bicycles and connected traffic signals. Most certainly, how we move in urban environments will be influenced by the amount of space allocated on our roads to different users and uses.

Roads are critical to pretty much every aspect of urban life – they are designed to help move people, goods, and services while

providing access, keeping our economy moving and connecting to destinations. But what if they could do more? What if they could shape mobility choices by making walking, cycling, and public transit the most attractive option? What if they could help create spaces to encourage social interaction and make our communities more beautiful? What if they could help add to our urban forest and do a better job of supporting vulnerable people in our community, like children and seniors?

Victoria is the capital of British Columbia and a major employment, tourism, and cultural destination. It boasts a compact design, mature mobility network with walkable neighbourhood villages, and a vibrant downtown that supports residents, workers, and visitors alike.

But Victoria cannot rest on its laurels if it truly wants to provide more equitable,

welcoming, and safer ways for people to get around. Cycling, walking, and transit continue to be the primary modes of transportation amongst women, young people, and households with lower incomes in Victoria. With anticipated population growth over the next decade and limited physical space, Victoria has no choice but to avoid gridlock by making it more attractive to use other modes of transportation. The automobile will continue to play a critical role – but it will be the investments that make it easier for more people, more often to travel by sustainable transportation that will help to manage demand on urban road networks.

Road retrofits are just one way the city is tackling the vision of supporting clean, seamless mobility options for everyone. Since 2016, Victoria has been using a complete street design lens as a part of its development

of a 32 kilometre All Ages and Abilities (AAA) Cycling Network. The AAA network is one of several strategies intended to help achieve ambitious mode share and climate action targets. Each project has a goal to improve road safety, support asset renewal, add to the urban forest, contribute to place-making, and reduce barriers in the built environment for people with disabilities.

Allocating space to support new users and changing the fundamental travel experience in an urban environment, however, is not easy. It requires challenging our assumptions on the use of public space and the level of service we provide to people travelling in different modes of transportation.

For retrofits to be successful, they require a collaborative design process with internal and external stakeholders, creative engineering solutions, and evaluation of different trade-offs. In the case of Victoria, each AAA project has had to address (and be accountable for) different trade-offs in order to achieve broader mobility goals. Whether it is reducing the number of on-street parking stalls to fit in protected bike lanes or adding wait times at an intersection so that pedestrians and cyclists have enough time to safely cross, AAA projects have represented a step-change in roadway design and operations.

Applying a complete street lens adds to project complexity, construction timelines, and ultimately project budgets. Embracing this approach, however, has been helpful in garnering broad stakeholder support and improving the resiliency of city streetscapes. In Victoria, this lens has resulted in the identification and fast tracking of underground infrastructure renewal, new trees and rain-gardens, public parklets and seating, accessibility features, play spaces, and public art.

In addition to public and agency consultation, input from the crews who maintain roads is also vital during the design development and construction process. From electricians to carpenters to street cleaners, this approach ensures that each investment tackles long standing operational issues, and can be safely serviced and properly maintained. Once changes are complete, cities also need to be prepared to monitor, adjust, and adapt. Just like a home retrofit, there are always tweaks to make. New road user education and maintenance regimes may be

required, along with targeted enforcement activities by police or bylaw officers.

The development of the AAA network in Victoria has been instrumental in supporting the City's leadership position on sustainable transportation and addressing its infrastructure deficit. Investments contribute to the region's competitiveness at several scales – from the macro-economic impacts of new construction to the community benefits of improved accessibility and transportation

affordability. With a goal to have more than 90 per cent of the municipality within 500 metres of an AAA route by the end of 2022, Victoria is quickly responding to emerging mobility challenges and encouraging new ways to travel using a complete street lens. ▸

Sarah Webb is the Manager of Sustainable Transportation Planning & Development for the City of Victoria. Photos are courtesy of the City of Victoria.

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The City of Moose Jaw's High Service Reservoir Pump House

By Craig Hemingway,
City of Moose Jaw

Moose Jaw, Saskatchewan has earned the moniker of “Canada’s Most Notorious City,” thanks to a legendary history of underground gangster activity. Also, underground, there is a water delivery system that, for years, was notorious for its age and deterioration. By 2022, the City’s water system will be #NotoriouslySecure, thanks to a crucial above-ground component to compliment almost a decade’s worth of underground investment.

Since 2015, the City has concurrently been working on three massive projects aimed at providing water security:

1. **A cast iron water main replacement program:** In 2015, City Council approved a 20-year, \$117 million program to replace aging and failing cast iron water mains. Beginning in 2016, the City has replaced over two kilometres/year, with three kilometres planned for replacement in 2021.
2. **The East Feeder Water Main Replacement Program:** Also in 2015, the City began replacing the aging and failing East Feeder Main system. The \$12.5 million project included the replacement of 4.2 kilometres of larger-diameter feeder main pipe that serves Moose Jaw residents in the central, east, and south sections of the city.
3. **Buffalo Pound to Moose Jaw Water Supply Transmission Line:** All the City’s potable water comes from the Buffalo Pound Water Treatment Plant, which is 20 kilometres away. In 2018, a brand-new transmission line to both the City’s Northeast Reservoir and High Service Reservoir was starting to be installed. Commissioning of the line is set for mid-April 2021. But come 2022, that line will feed into a brand-new building when the City’s new High Service Reservoir Pump House goes into service.



High Service Reservoir Pump house final rendering. Photos courtesy of Craig Hemingway.

The benefits of the upgrades

The City’s High Service Reservoir Pump House adds additional water security as it:

- Consists of two reservoir chambers with combined capacity of 27 ML;
- Represents 57 per cent of the City’s total treated water storage of 47 ML;
- Replaces a Pumphouse and East Chamber that was built in 1954. A Pumphouse addition and West Chamber was constructed in 1971 to increase capacity;
- Serves the largest pressure zone, which includes major industrial facilities such as the Moose Jaw Refinery;
- Is the most critical of the three reservoirs and pumphouses in the water network and cannot be taken completely offline; and
- Was determined that several components were deteriorated to the point that replacement and maintenance may be impossible.

Consequently, the City determined that replacement of the High Service Pumphouse, in its entirety, was a far more feasible option than performing upgrades or retrofits to the existing Pump House.

The City administration submitted an application to the Investing in Canada Infrastructure Program – Green Infrastructure Stream for funding assistance, but that request was rejected. Understanding the critical nature of constructing a new pump house, in August 2020, Moose



Breaking ground on the High Service Reservoir Pump House!

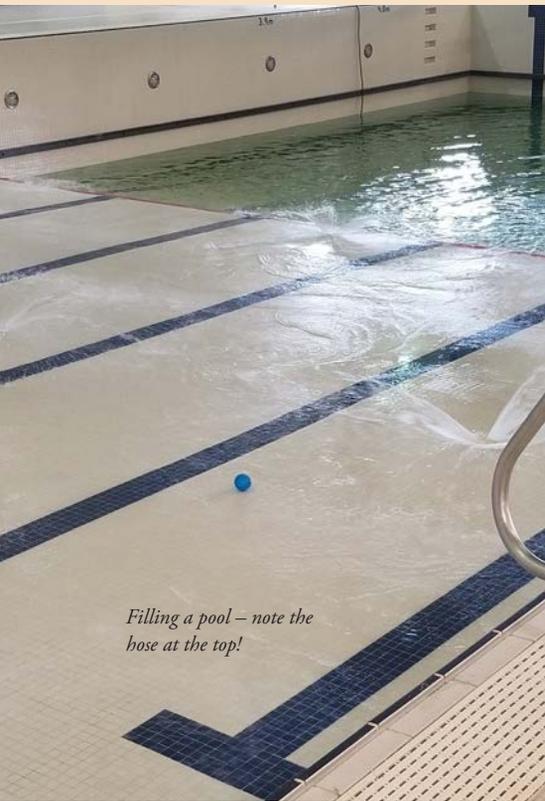
Jaw City Council approved borrowing the funds to make up for the shortfall in grant funding. The City was able to access \$4 million from the provincial government’s Municipal Economic Enhancement Program (MEEP) and will borrow the remaining \$10 million.

On September 17, 2020, a ground-breaking ceremony was held for the new High Service Reservoir Pump House, and construction is anticipated to be #NotoriouslyFinished by end of the summer, 2022.

All these improvements give the City of Moose Jaw the infrastructure pieces so that the residents can have peace of mind when turning on their taps for many years to come. ▶

Craig Hemingway is the Communications Manager for the City of Moose Jaw and is proud to support the Notoriously Excellent work of the City’s Engineering Team. Content assistance was given by Mark Caringal, Manager of Engineering.

Design Issues: What Not To Do



Filling a pool – note the hose at the top!



The control valve in this photo is located over 10 feet high.

By Stewart Schafer, P.Eng.,
City of North Battleford

Over my career, I have been involved with numerous municipal projects and am surprised how designers can forget some basic items that can cause maintenance personnel the greatest headaches. I have always been impressed how designers take a blank piece of paper and create engineering marvels, though sometimes those designers get so caught up in making the numbers and processes work, they forget that, after it has been built, it needs to be maintained.

One area where I have had both some laughs and concerns is with areas of open water, like swimming pools, lagoons, holding ponds, water treatment plants, and wastewater treatment plants. In the case of swimming pools, I have come across too many design flaws to name. For example, the lights over a pool need to be changed and maintained regularly, however access to these lights for

maintenance is often subpar at best. Draining a pool just to change a light bulb is a poor option, as is having maintenance staff climbing on scaffolding that is erected in a pool itself. Usually, the floor of a pool is not level for scaffolds and, what is worse, is seeing my maintenance crews wearing wet swimsuits while trying to climb a slippery scaffold to change a light bulb, never mind the fact that Occupational Health and Safety would have concerns about having electricity and water together. I've also seen similar problems in treatment plants, where the lights and mechanical systems are over open tanks.

One mistake I came across was on a pool project where the designer forgot to add a fill line for the pool. After touring the brand-new pool, an observer asked maintenance: "I didn't see a fill line. Are you telling me that you fill this pool with a garden hose?" The reply by maintenance personnel was, "of course not, we use five garden hoses."

A problem I constantly see is where designers have placed piping without thinking what it will block. There have been pipes run under the floors with no way to access the pipes if/when they start to leak, or worse, break. More than once, I've experienced a maintenance crew having to jackhammer through the floor to get access to the piping for repairs. Another common mistake is that pipes should not be

blocking access to other pieces of equipment. Numerous times, I've had to climb over, or duck under, a pipe or electrical conduit to get to another piece of equipment. In one water treatment plant, to replace a pump, maintenance staff had to lift a heavy pump over a pipe with a lift, set it down, reposition the lift, and move it over more pipes, before it could be taken out of plant. If the designer had repositioned the pumps, the 90-minute process for removing the pump could have been done in 20 minutes.

One very memorable mistake I've seen was the placing of several pumps in a basement with only a stairway to access them. Years later, one of the pumps had to be replaced. This was accomplished by four staff members manhandling a 300 KG pump up the stairs. The maintenance crew pointed out that, if the designer had placed a hatch in the main floor, using a lifting beam, the pumps could have been lifted easily out of the basement.

A common problem that designers miss is the height of items that need to be monitored or maintained. Being as I am five feet five inches tall, this stands out as one of my pet peeves. Designers often put gauges that need to be monitored regularly 12 feet above the floor and usually facing a wall that is 16 inches from that gauge. In one instance, a proposal for a chlorine room monitoring window was to start

almost six feet above the floor and end eight feet above the floor. I am not sure the height of the designer, but not one of the plant operators was taller than six feet. The five foot tall supervisor was not impressed when he was told they would need a step ladder to monitor the chlorine room.

Similarly, when items require maintenance, I like to use a rule of thumb that if you must hold something 10 KG above your waist for more than 30 seconds, it is too high. I've seen valve and mechanical items that need to be

serviced, commonly placed at heights of 1.5 metres (and higher) above the floor with no easy access to them. During these times, I wish the designer could be part of the maintenance crew when a part needs to be changed out.

One could write many more examples as it relates to maintenance issues (from design) that have been constructed and, I'm sure many readers could too. Most instances come down to the designers not thinking about maintenance items during design, and with them not having to deal with the project

once it has been constructed. I'd like to see designers trained in how to design a project considering maintenance in mind or have operations staff included in pre-design. ▸

Stewart Schafer, P.Eng., graduated from the University of Calgary Civil Engineering Department. He has worked with several organizations including the Battlefords Tribal Council, in the role of a Technical Advisor, and has been with the City of North Battleford since 2008.



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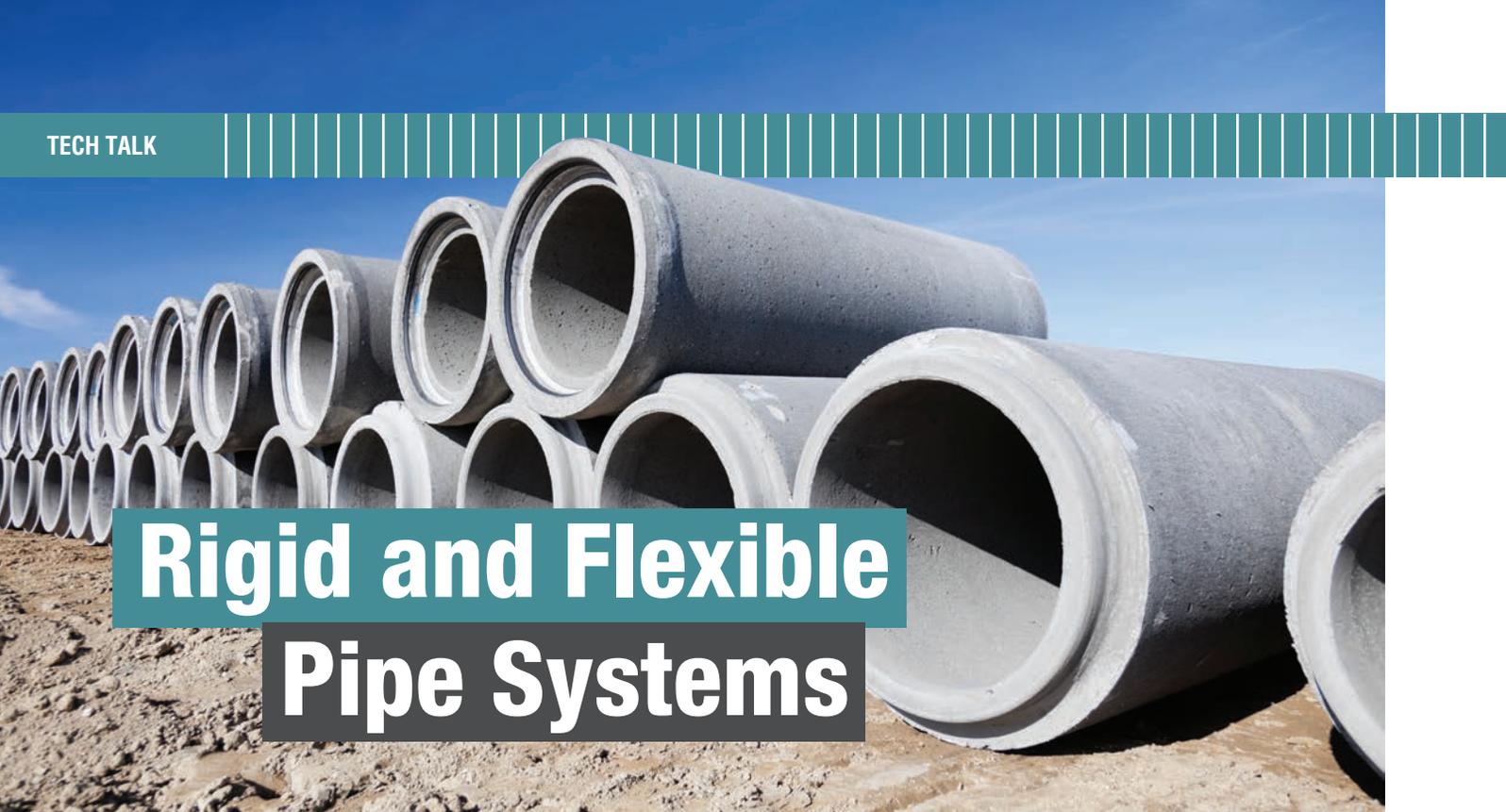
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Rigid and Flexible Pipe Systems

By Camilo Marquez, P. Eng., C.E.T., CAPM, Canadian Concrete Pipe & Precast Association

System evaluation

A buried pipeline is a system that integrates the properties of the soil surrounding the pipe and the physical properties of the pipe itself. The pipe is a critical structure that conveys water or other fluid and shall be designed hydraulically capable to transport the content within its walls but also needs to be capable of withstanding any considerable loads (live loads, dead loads, surcharge loads, construction loads) that can apply to the underground infrastructure. The structural analysis of a pipeline is based on the soil conditions and the construction inspections, which is extremely important when it comes to the success of the project. Construction inspection ensures that all these factors are met on site.

To analyze both rigid and flexible systems, it is necessary to differentiate their behaviour and the obvious differences between each other, as per various textbooks and international standards, such as ASTM (International Standards Organization) and CSA (National/International Standards organization).

Generally, rigid systems must be supported at the bottom (bedding) of the pipe, and flexible systems, in addition to bedding support, also require soil support on the sides, which ultimately controls the pipe deflection. This ensures the pipe will not over-deflect beyond its limits. The

inspection of soil support for both systems involves different indicators that should be considered in the design phase, which include but are not limited to:

- Distribution of soil around the pipe;
- Type of soil for bedding and backfill;
- Interaction of the soil in the trench wall and the foundation;
- Water movement within and outside the trench; and
- Type of trench.

For the designer, the selection of the type of trench depends on the disposition of the material, the soil condition, and the area where the project is taking place. There are some limitations, especially when the designer is battling to get extra “space” to adapt the installation (zoning requirements) or perhaps limitations due to the existence of other “locates” as some contractors call the existing utility lines. Therefore, the installation and the design should be based on the conditions of the native soil and its interaction with the properties of the pipe.

Water movement and migration is another piece of the jigsaw puzzle that needs to be addressed carefully.

Migration

This term could be wrongfully disregarded. It is probably a term that should

be subject to analysis thoroughly by designers and inspectors. This problem refers to the particles from the backfill material or trench walls transferring into the bedding material and the embedment material, which ultimately transforms the supporting soil under the pipe and around it to a much weaker and less stiff soil. It is important to analyze the installation procedure and the components of such installation (Howard, 2015).

Analyzing the soil and the compaction that is used can be extremely important (95 per cent of compaction). Hence determining the percent compaction from the laboratory could play an important role (ASTM D 698, standard proctor compaction test for cohesive soils).

When the soil is not properly compacted, these particles make their way into the voids of the coarser material, degrading the support of the pipe due to the groundwater flow. It is crucial to determine how the water is behaving. Based on that analysis, the designer should determine how to mitigate any possible problems that might affect the installation. Some designers recommend the use of geotextiles for migration issues (non-woven or woven geotextiles) and some other designers use “French drains” as a passageway of water.

Other methodologies can be used to contain migration issues, such as:

- Trench plugs;
- Bentonite clay plugs; and
- Trench breakers.

Rigid and flexible pipe systems

A pipe is a conduit, but it is also a structure. Under this concept, both systems, regardless of material, can fail if not installed properly. **Rigid pipe** is designed to transmit any loads (live load, dead load, surcharge load, construction loads) that are being applied to the pipe which is contained by the concrete walls and subsequently aided by the steel reinforcement. A **flexible pipe** is designed to support the loads by transferring the aforementioned loads to the surrounding soil.

Flexible pipe

One of the primary ways to control any possible issues that can be attached to the installation of a plastic pipe is by conducting a deflection test known as *Mandrel Test*

(*ASTM D3034*), which consists of introducing a go-/no-go device through the pipe. Using this methodology can help to determine if the soil surrounding the pipe has been compacted properly or not, and the maximum allowable deflection value of the pipe was met. Values between one and five per cent are considered a standardized range (Howard, 1977).

Flexible pipe deflection is directly proportional to the **stiffness** of the soil pipe and the stiffness of the trench wall, which is comprised of native soil or other backfill material. Buried flexible pipe changes its geometry during installation (elongation, load lag, deflection lag, deformation). It is important to determine any local deformation that could trigger more complicated issues (stress/strain in the pipe-wall).

Flexible pipe by design tends to deflect according to the ratio of the stiffness of its composition and the pressure induced by the soil-pipe system. The stiffness of the pipe can be determined by using a *parallel plate test (ASTM F4212)*.

Thus, the expression can calculate the product of EI:

$$EI = \frac{0.149pr^3}{\Delta y}$$

Where:

E=Modulus of elasticity of pipe wall material

I=Moment of inertia

P=Load

r=Pipe radius

Δy =Vertical deflection

Typically, some equations calculate the deflection of the flexible pipe. For instance, the most common ones are the *U.S. Bureau of Reclamation Equation* or the *Modified Iowa Formula* (Spangler, 1941).

$$\frac{\Delta x}{d}(\%) = \frac{100DI * KP}{0.146(PS) + 0.061E'_{design}}$$

Where:

$$\frac{\Delta x}{d}(\%) = \text{Max. Hz deflection}$$



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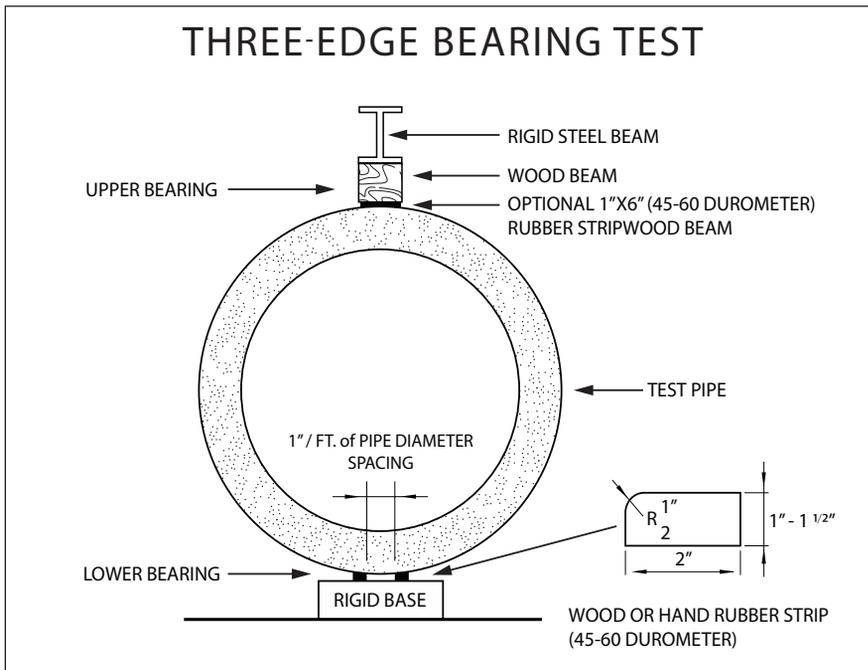


Figure 1. Three Edge Bearing Test. Figure Courtesy of American Concrete Pipe Association.

DI=Deflection lag factor

K=Angle of contact with the bedding material
P=External load (dead load + live load / pipe diameter)

PS=Pipe stiffness

E'design=Modulus of soil reaction

The previous equation only calculates the horizontal deflection; therefore, the vertical deflection needs to be considered for a proper calculation of the overall deflection inside of the pipe. Note that the denominator (E'design) refers to the backfill stiffness but also includes the interaction with the native soil material.

In other words, the combination of the soil surrounding the flexible pipe and the maximum allowable deflection are the primary components when it comes to the design and installation of a flexible system. Proper installation standards must be followed thoroughly. Using the *ASTM D2321* or *CSA 182.11* are the perfect guidelines for the adequate installation of flexible pipe material.

Rigid pipe

Reinforced Concrete Pipe or RCP is manufactured according to the standard *ASTM C76*, *CSA A257* and should be installed as per *ASTM C 1479* or *Concrete Pipe & Precast Installation guidelines* (OCPA, 2019).

The design of RCP depends on multiple factors, including the selection of a pipe-soil system strong enough that it can mitigate any excessive loading conditions. The pipe walls must be sufficiently strong, and the configuration of the steel should be adequate to transfer the load to the supporting bedding below the pipe.

Since the majority of the load would be carried by the pipe as opposed to the soil, the rigid concrete pipe then needs to be designed and installed with the right strength classification. The pipe strength is determined in a controlled environment by a test called the "three edge bearing test" (*ASTM C76*, *ASTM C497*). This test consists of three loading point condition (worst-case scenario in real life). See Figure 1 above.

The test is looking to obtain a 0.3 mm width by 300 mm long crack, which is not a structural problem; it is the practical way to realize the classification according to the standards (*CSA A257.2* & *ASTM C76*).

RCP can be designed by either using:

- Direct design: limit states design*;
- Indirect Design: empirical method to determine a bedding factor.

*not covered on this paper.

Some design engineers have used first principles that are highly accurate but somehow

tedious, or height of fill tables which can be practical as long as the notes of those particular tables are similar to the condition of the site that the project is taking place.

Another alternative could be the usage of PipePac, which is a free web-based software that allows the designer to determine the proper strength of the pipe under any given soil condition (*CCPPA, 2020*).

The installation also plays an important role. The designer should first evaluate the type of trench:

- Confined trench;
- Embankment (positive projecting); or
- Tunnel.

The selection of the type of trench influences the strength classification of the pipe. Having a confined trench would support the load acting on top of the pipe due to the proximity of the trench walls; but having a bigger excavation as the embankment condition, the soil prisms columns acting on top of the pipe are now supported by the pipe itself.

The selection of the bedding factor and the bedding as per standard installations (*Canadian Highway Bridge Design Code – CHBDC*) offer four types of installations for RCP. This classification depends on the quality effort of the soil compaction and its quality.

$$\text{Pipe strength} = \frac{W_e + W_l^*}{B_f} \frac{F_s}{\text{Diam}}$$

Where:

W_e=Earth load

W_l=Live load

B_f=Bedding factor

F_s=Factor of safety

Diam=Diameter of the pipe

As expressed in the previous equation, the bedding factor is in the denominator, therefore, selecting a good bedding factor can reduce the need for a high strength classification pipe.

It is important to reaffirm that the design of the pipe and the design installation for both systems are extremely important. As a designer and practicing engineer, it is our responsibility to follow the right methodologies and proper standards. ▀

Camilo Marquez, P. Eng., C.E.T., CAPM, is the Region Engineer for Manitoba and Saskatchewan for the Canadian Concrete Pipe & Precast Association.

Wheel Loaders Get the Snow-Clearing Edge



Motor graders are the industry's go-to solution for clearing snow, and with good reason. It's hard to find a way to move large amounts of snow more efficiently than this tried-and-true machine. But one size rarely fits all, especially when it comes to clearing snow in cities. Here, the smaller and more maneuverable wheel loader reigns supreme.

Using a wheel loader has the obvious advantage of a tighter turning radius, making it safer and easier to plow city streets and parking lots. Their smaller frames also allow them to grade in areas that a motor grader would never fit. Brandt helps operators make the most of this maneuverability with a new range of purpose-built masted and mastless snow wings, and front snow plows.

"These attachments create an exciting opportunity for contractors," explains Brandt Industries Senior Vice President, Sales – Manufactured Products, Neil Marcotte. "They can count on a much-needed boost to their productivity in a challenging application."

Each model utilizes a spring-trip cutting edge that protects the attachment and wheel loader when clearing at high speeds. This simple innovation also keeps snow loss to a minimum for more thorough clearing on each pass. What's more, the conical blade profiles increase their snow-casting capability, moving snow farther off the roadway. Together, these features save time by preventing the need for a second pass when clearing snow.

"We've designed this lineup to clear more snow in less time, while protecting the attachments and the loader from unseen obstacles buried in the snow," Engineering Manager, Nick Kohlman points out. "Productivity and uptime are always critical, but they're especially important for customers when their businesses slow down in the winter."

Brandt offers both masted and mastless snow wings, allowing operators to optimize their loaders with the right balance of visibility and clearance for their specific applications. The masted models are ideal for heavy snowfall areas and for working near high obstacles like guard rails. Brandt's masted snow wing provides

a 48" bench height with a shorter mast than competitors' options, giving operators industry-leading clearance without compromising visibility to the moldboard. Mastless models, on the other hand, are ideal for light snowfall areas and working near shorter obstacles. Brandt's mastless snow wing provides a 20" bench height with best-in-class visibility.

Brandt is known for building tough attachments that can handle challenging conditions, and these models are built with that reputation in mind. Their internal ribs and external gussets strengthen the moldboard, resulting in more durability than competitors' designs. For additional reinforcement, Brandt utilizes high-strength abrasion-resistant steel on all pivot areas.

Ultimately, these attachments maximize wheel loaders' production through the winter, ensure reliable uptime, and increase the utility of the machine. Marcotte says, "At the end of the day, we're here to help our customers succeed. The new snow wings and front plows allow them to work more efficiently and run a more profitable business." ▸

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