

ReNew

November/December 2019

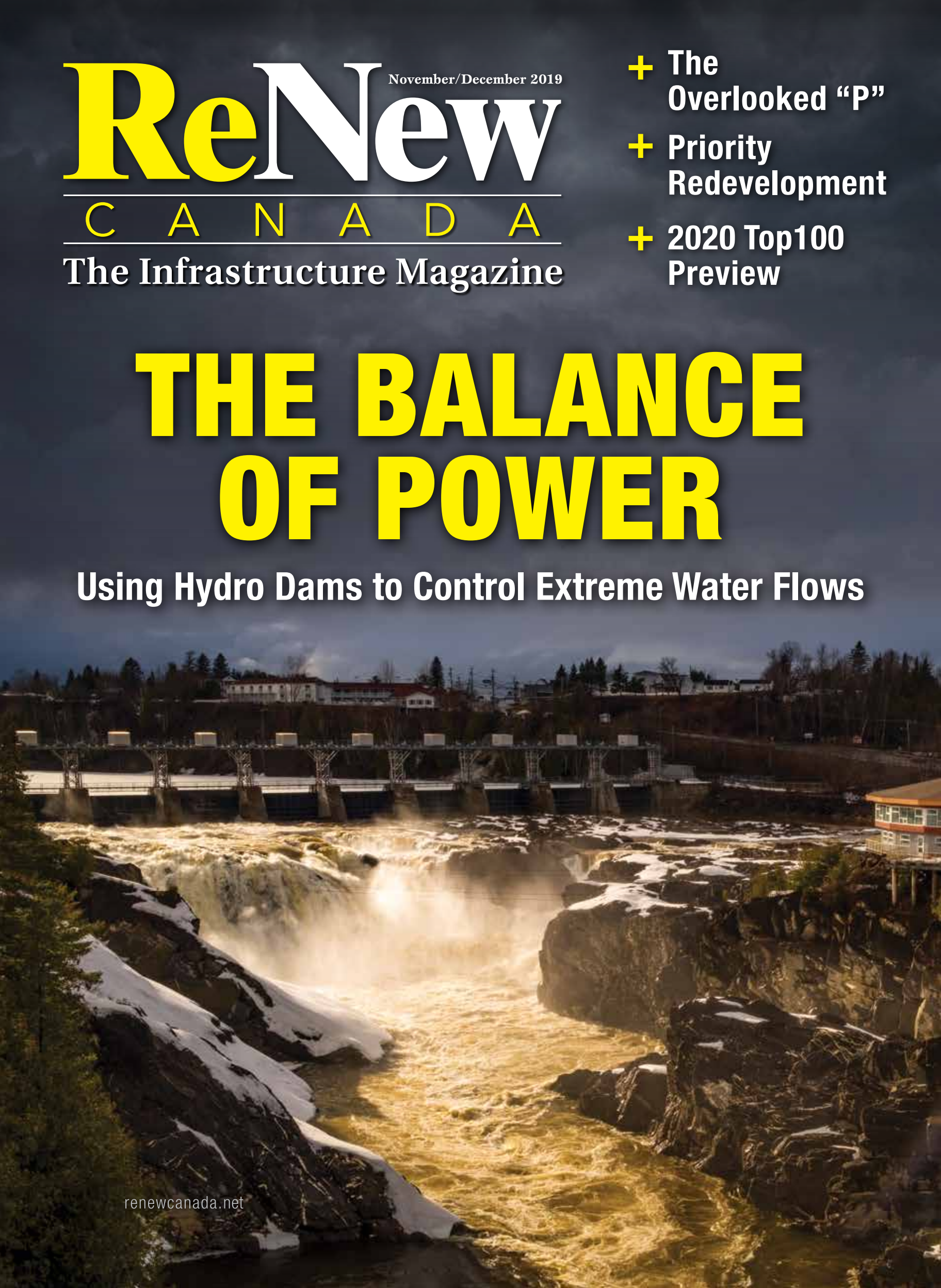
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The Infrastructure Magazine

- + The Overlooked "P"
- + Priority Redevelopment
- + 2020 Top100 Preview

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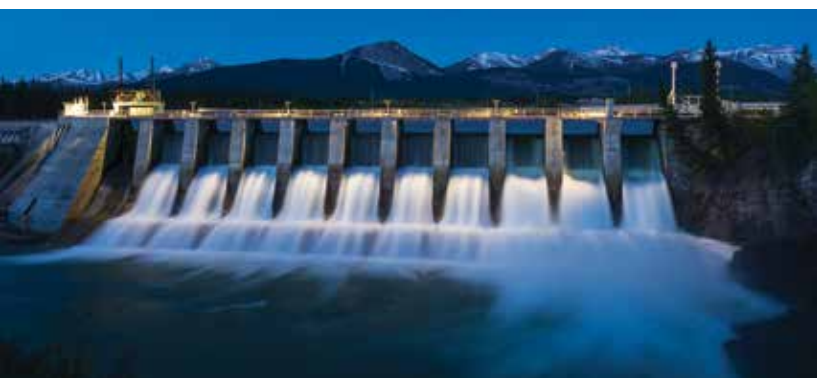
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NOVEMBER/DECEMBER 2019

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CAN YOU SEE THE SIGNS?

By Andrew Macklin

Few people see construction the way we do. They jump on the road to get from point A to point B and, if they encounter delays because of construction or construction vehicles, they get frustrated, even stressed out, as a result. That frustration and stress leads to anger, then to complaints, then to people having a hard time supporting future construction. And with the scary rise in the power of the NIMBY movement, any steps the industry can take to avoid such nasty conflicts should be taken.

Enter the simple solution: the sign. Yes, in the age of digital disruption where smart technologies rule, I am suggesting our biggest ally may be the simple solution we have used all along. But this time, with a different perspective.

How many times have you driven a familiar roadway where construction is ongoing, but intermittent depending on weather and time of year? < pause > That was a rhetorical question, because we all have. And when the roadway is familiar, it makes no sense whatsoever to pull out a map application because, if construction is active, signs will be posted. Obvious, right?

But let me ask you this, and I need you to really think about this: where is the sign posted? A few hundred metres out perhaps, maybe even a kilometre? More than likely, it is some distance in that range.

Now comes the big question: was that sign placed at a distance that allowed you to react, look up an alternative route, and then have the option to take that alternative route? And did it tell you what the current delay was going to be? < pause > I didn't think so.

Here lies the issue. Because when we post road signage, we post based on a 'reasonable' distance or some other municipal/provincial parameter, rather than one that actually has the opportunity to have a positive impact on the driver. And since that same driver is the intended audience, shouldn't the signage be targeted to meet their needs?

To provide a real-life example: a construction crew on a 400-series highway let people know there were lane reductions ahead, but did so just a few metres from the last exist before traffic began to build up as a result of construction. The result? Not having time to react and explore alternatives meant that a normal six-minute stretch of highway took one hour and six minutes to travel. At midnight. On a weekday.

This is the new way we need to think about construction signage: use the tools you have to inconvenience people as little as possible. Next time, it could be you on the road. Wouldn't you appreciate the chance to react? ♣

Andrew Macklin is the managing editor of ReNew Canada.

andrew@actualmedia.ca

MANAGING EDITOR Andrew Macklin

GROUP PUBLISHER Todd Latham

PUBLISHER Nick Krukowski

ART DIRECTOR AND SENIOR DESIGNER Donna Endacott

ASSOCIATE EDITOR Simran Chattha

CONTENT AND MARKETING MANAGER Todd Westcott

CONTRIBUTORS Patrick Bateman, Ehren Cory, Jennifer Chung, Alex Kent, Joelle Lancaster, Natalia Lasakova, Carroll McCormick, Neeraj Mehra

ADVERTISING Nick Krukowski
nick@actualmedia.ca

ADVISORS Nick Reid, James Sbrolla

actualmedia

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PORT HOPE AREA INITIATIVE REACHES IMPORTANT MILESTONE



Canadian Nuclear Laboratories (CNL) announced that it has successfully completed the cleanup and environmental restoration of three temporary storage sites as part of the \$1.28-billion Port Hope Area Initiative (PHAI). Contaminated soil from these locations—Pine Street North Extension, near the Municipal Sewage Treatment Plant, and Centre Pier—has now been safely transferred to CNL's Long-Term Waste Management Facility (LTWMF).

One of Canada's largest environmental remediation projects, PHAI involves the cleanup of approximately 1.2 million cubic metres of historic low-level radioactive waste from various sites in Port Hope. The waste is a consequence of past practices involving the refining of radium and uranium by a former federal Crown corporation, Eldorado Nuclear Limited, and its private-sector predecessors.

"After years of meticulous planning, it's very rewarding for the local community and our staff as we continue to restore the lands in Port Hope," commented Scott Parnell, general manager of CNL's Historic Waste Program Management Office. "With these three locations complete, CNL has transported over 80,000 tonnes of waste to the LTWMF, where it will be safely isolated from the environment in an engineered containment mound." ❁



Burnaby Hospital redevelopment.



Burnaby, B.C.

\$1.3-BILLION REDEVELOPMENT PLAN FOR BURNABY HOSPITAL

The Government of British Columbia has announced major facility upgrades at Burnaby Hospital and two new patient-care towers, which will give people in this growing community faster access to better health care.

The redevelopment, which at more than \$1.3 billion will be among the province's largest-ever health care investments, will impact every part of the existing hospital campus. It will add two new patient-care towers with new wards and operating rooms, a total of almost 400 beds (the majority in single rooms), a bigger emergency department, and a new cancer treatment centre. The last big upgrades at Burnaby Hospital happened more than 40 years ago.

In November 2017, the government directed Fraser Health to begin planning a complete redevelopment for the hospital—a significantly more substantive commitment than the conceptual renewal plan for the hospital announced in April 2017.

The redevelopment begins with a new six-storey, 11,858 square-metre, 78-bed, patient-care tower. The tower is expected to open in 2023, with construction starting in 2021.

The redevelopment will also upgrade the support facilities building on campus, creating a larger emergency department, increasing the number of treatment bays from 47 to 62, and adding a new medical device-reprocessing unit. These upgrades are expected to be complete by 2024.

The second patient-care tower will have 160 new beds and a state-of-the-art cancer treatment centre. It is expected to open in 2027. Detailed business planning for the tower is underway, with construction expected to begin in 2024.

The 297-bed Burnaby Hospital opened in 1952 and provides acute and emergency care, as well as general and internal medicine, general surgery, neonatal intensive care, palliative care and an adult mental health and substance use in-patient unit.

Burnaby is the province's third-largest city, and the number of patients requiring hospital care there is expected to increase almost 60 per cent by 2036. ❁

NEXT ISSUE: JANUARY/FEBRUARY THE TOP100 PROJECTS ISSUE

Provincial Analysis

Breaking down the projects in the 2020 report.

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The Hamilton LRT projects remains in active procurement, with financial close expected in October of 2020.

Credit: Metrolinx

ONTARIO RELEASES P3 PROJECT PIPELINE

By Andrew Macklin

Hundreds of infrastructure industry stakeholders packed Toronto's Arcadian Court for the official announcement of Infrastructure Ontario's new project pipeline in September.

Unveiled by Minister of Infrastructure Laurie Scott, the pipeline features 32 projects with an approximate expected value of \$65 billion. Twenty-two of the 32 projects are currently in pre-procurement, however 16 of those projects are listed with some expected procurement dates, giving the industry an appreciation for when the projects expect to move forward. This includes the Ontario Line subway, with the Request for Qualifications listed as being released in the spring of 2020. In total, the 22 projects include five transit projects, 16 health projects, and one correctional complex.

A second list of 11 projects was also included as part of the announcement, representing projects that the provincial government has determined will move forward using the AFP model, but the scope of the model, and project, have not been fully determined at this time. This list includes six health projects, two children's treatment centres, two subway projects, and one highway project.

Traditionally, the update is announced at the Canadian Council for Public-Private Partnerships' annual conference. However last year the government was not prepared to release an update at that time, having just taken office a few months earlier.

"We had to take stock, talk to our Ministries, gather data, work with Infrastructure Ontario very closely in order to produce a solid list of commitments on infrastructure," said Scott.

Scott, flanked by Infrastructure Ontario CEO Ehren Cory, also announced that the market update would now be released on a quarterly basis, a change being made as a result of feedback from the industry. Fall and spring updates will be comprehensive, including new projects, updates to the procurement schedule, and new information about the expected cost of the project. Summer and winter updates will just include updates on the procurement schedule.

Focusing on transit-oriented development

One of the key conversations that emerged from the announcement, outside of the unveiling of the list, was the need for transit-oriented development to be done in concert

with the new subway and transit stops built as part of the new lines.

"When its done poorly it takes decades, it's done haphazardly without a really good planning framework, and the benefits accrue to private developers a lot of the time," explained Cory. "The government has directed us to work with Metrolinx on this to do it the right way. That means being really thoughtful about each of the station locations and what's the context around them, what's the development potential around them, who are the development partners, who are the current landowners and who could partner with us."

With marquee inter-city intersections potentially being redeveloped as a result of new stations (Queen and Spadina and King and Bathurst on the Ontario Line as examples), a coordinated approach to transit-oriented development will help ensure that the area around new stations is developed in a thoughtful manner. That approach should ensure that demands for housing, retail, and social amenities are balanced. 🌱

Andrew Macklin is the managing editor of ReNew Canada.

Projects in Active Procurement

Project Name	Model	Location	Estimated Total Cost
Hamilton LRT	DBFOM	Hamilton	> \$1 billion
GO Expansion: Lakeshore East - Central Corridor	BF	Greater Toronto Area (GTA)	\$200M - \$499M
GO Expansion - Milton Corridor Upgrades	DBF	GTA	\$100M - \$199M
GO Expansion: Lakeshore West Corridor	DBF	GTA	\$500M - \$1B
Hurontario LRT	DBFOM	Mississauga/Brampton	> \$2B
Halton Regional Consolidated Courthouse	DBFM	Halton	\$200M - \$499M
GO Expansion: OnCorr	DBFOM	GTA	> \$10B
QEW Credit River Bridge	DBF	Toronto	\$200M - \$499M
GO Expansion: Lakeshore East - West Corridor	BF	GTA	\$200M - \$499M
Thunder Bay Correctional Complex	DBFM	Thunder Bay	\$200M - \$499M

Projects in Pre Procurement

SUBWAYS AND TRANSIT

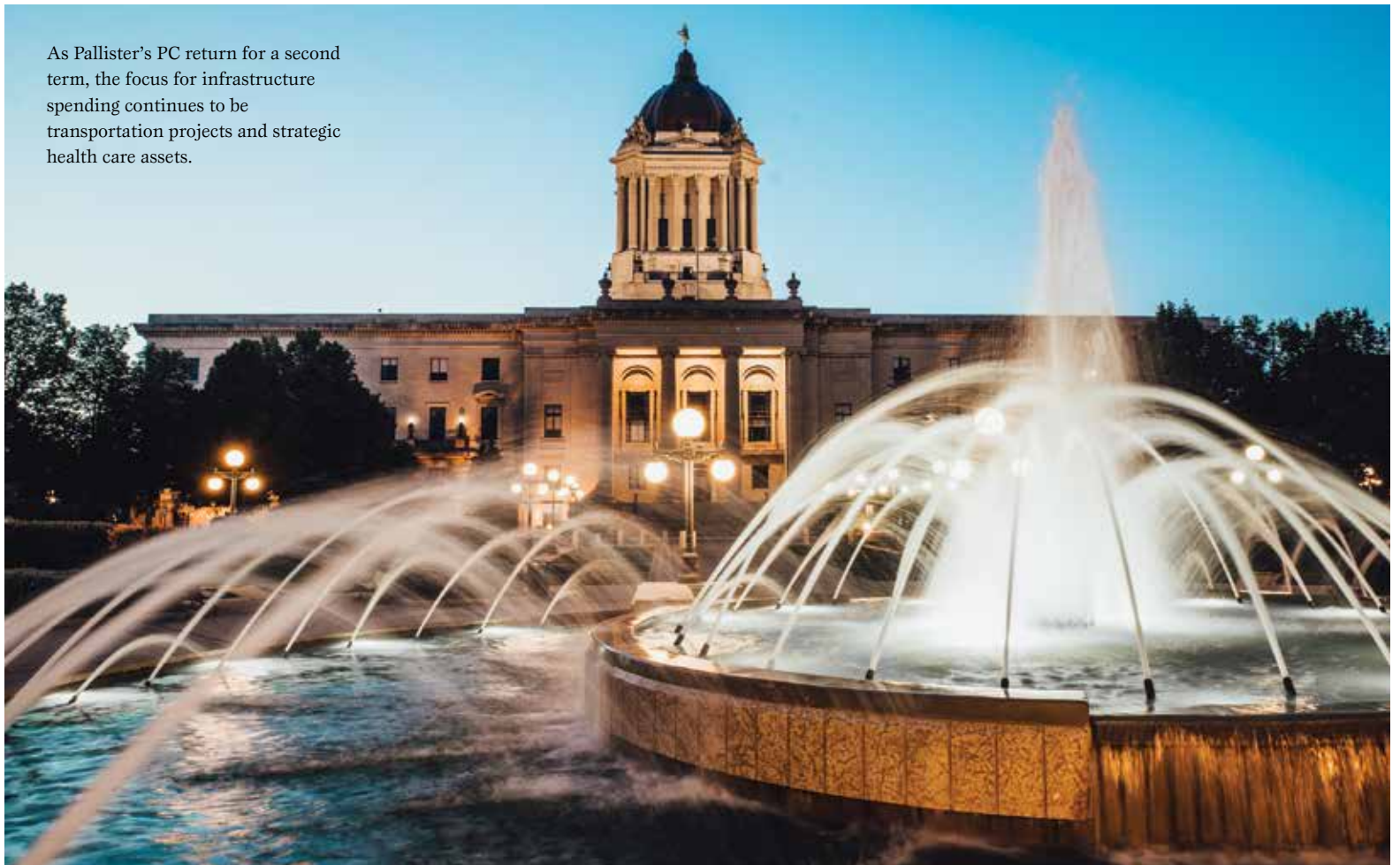
Project Name	Model	Location	Estimated Total Cost
Ontario Line Subway	DBFM	Toronto	> \$10B
Line 2 East Extension (Scarborough) Subway	TBD	Toronto	> \$5B
Line 1 Extension (Yonge Street North) Subway	TBD	Toronto	> \$5B
Eglinton Crosstown LRT - West Extension	TBD	Toronto	> \$4B
GO Expansion: Union Station Upgrade - Platform Expansion	TBD	Toronto	\$200M - \$499M

HOSPITALS AND OTHER SOCIAL FACILITIES

Project Name	Model	Location	Estimated Total Cost
Kingston General Hospital	DBF	Kingston	\$500M - \$1B
Lakeridge Health - Bowmanville Redevelopment	TBD	Bowmanville	< \$200M
Trillium Health Partners Broader Redevelopment - Queensway Health Centre	DBFM	Toronto	\$500M - \$1B
Niagara Falls Hospital	DBFM	Niagara	\$500M - \$1B
Hamilton Health Sciences - West Lincoln	TBD	Grimsby	< \$200M
Trillium Health Partners Broader Redevelopment - Mississauga Hospital Site	DBFM	Mississauga	> \$2B
CAMH Phase 1D Redevelopment	DBF	Toronto	\$500M - \$1B
The Ottawa Hospital - Civic Redevelopment	DBFM	Ottawa	> \$2B
North York General Hospital	DBF	Toronto	\$500M - \$1B
William Osler Health System - Peel Memorial	TBD	Brampton	< \$200M
Weeneebayko Area Health Authority	DBF	Moosonee/Moose Factory	\$200M - \$499M
Hamilton Health Sciences - Hamilton Redevelopment	DBF	Hamilton	\$500M - \$1B
Windsor Regional Hospital	DBFM	Windsor	> \$1B
The Hospital for Sick Children	DBFM	Toronto	> \$2B
Lakeridge Health - Broader Redevelopment	TBD	TBD	TBD
Scarborough Health Network Broader Redevelopment	TBD	Toronto	TBD
Ottawa Correctional Complex	DBFM	Ottawa	TBD

Source: Infrastructure Ontario

As Pallister's PC return for a second term, the focus for infrastructure spending continues to be transportation projects and strategic health care assets.



MOVING MANITOBA FORWARD

A look into Manitoba's infrastructure landscape post-2019 provincial election.

By Natalia Lasakova and Lauren Stone

In April 2016, Manitobans witnessed a momentous win for the Progressive Conservative Party of Manitoba (PC). After a 17-year New Democratic Party (NDP) era the PCs, led by Brian Pallister, won the largest majority in Manitoba history. Less than four years into the PC government's first term, Manitobans headed back to the polls on September 10th after an early election was called by Premier Brian Pallister, whose party had a comfortable lead in the polls for several months.

In a landslide victory, the PCs secured another majority. Brian Pallister will continue his mandate as Premier for another 4-year term, while Wab Kinew will lead the NDP as the Official Opposition.

The Pallister-led PCs won 36 seats, just four short of the historic 40-seat majority they won in 2016. The NDP now holds 18 in the Manitoba legislature. Losing a seat to the NDP, the Manitoba Liberals lost official party status winning just 3 seats across the province.

During the election campaign the PC party rolled out a five-point plan of their guarantees which were largely built on

Premier Pallister's pre-existing mandates—to roll back taxes, provide strategic health-care funding, create more jobs, build more schools, and make a Made-in-Manitoba green plan.

Addressing Manitoba's \$9 billion infrastructure deficit remained at the forefront of the parties' campaign platforms as public opinion polls continued to indicate that Manitobans considered infrastructure a top public policy priority.

NDP leader Wab Kinew pledged to spend \$6.64 billion over four years on Manitoba infrastructure to be split in three ways: 37.5 percent would be allocated for roads, bridges and highways, another 37.5 percent for healthcare services and the remaining 25 percent would be used for municipal infrastructure improvements. The NDP plan called for a \$690 million increase from Pallister's current allocations toward strategic infrastructure.

The Liberal Party pledged to create a 10-year infrastructure plan to prioritize urgent and high return on investment infrastructure projects. Liberal leader

Dougald Lamont's \$16 billion plan outlined a greener approach to roads, bridges, and transit with an emphasis on upgrading Highway 75. Both the NDP and Liberal Party placed great emphasis on the need to build a stronger relationship with the City of Winnipeg, which has been at odds with the province over funding and procurement models for key infrastructure projects.

Unlike his political opponents, Premier Pallister refrained from making any ambitious infrastructure promises and instead re-iterated his government's previous commitments. Earlier this year, Pallister's 2019 Budget pledged \$1 billion for strategic infrastructure spending including \$350 million on highway projects and \$45 million in additional funding as part of the province's 150th year commemoration. The budget also allocated funds for upgrades at Headingley Correctional Centre and the Manitoba Centennial Centre, and improvements to airports at St. Theresa Point, Norway House, and Shammattawa. Municipalities were also promised more flexible funding for roads and bridges and other infrastructure projects.

A perspective view of a large, curved tunnel under construction. The tunnel walls are lined with concrete segments. On the left, there are several rows of white pipes supported by metal brackets. In the center, a set of tracks runs along the length of the tunnel. A large, yellow, flexible pipe hangs from the ceiling on the right side. The tunnel is illuminated by a series of rectangular lights along the walls, creating a strong sense of depth and perspective.

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The provincial government spent its first term in office at odds with the City of Winnipeg over infrastructure funding, as the community looks for increased funding to reduce its infrastructure deficit.



Priority Projects to Watch

Louise Bridge and Arlington Bridge replacements

Chief Peguis Trail Extension West

Route 90 Improvements

North Transit Garage Replacement

Rapid Transit Corridors

Southwest Interceptor – Phase 2

Reducing deficit

One of Pallister’s main priorities when assuming office in 2016 was to lower the \$932 million deficit inherited from the previous government and to balance the budget. Four PC budgets later, the Pallister government is on track to succeeding. Manitoba’s deficit is projected to total \$360 million at the end of this fiscal year due to a combination of the government’s fiscal restraint and financial help from Ottawa through federal transfer payments.

There are serious questions about how the PC government will tackle the fiscal challenges facing Manitoba. The PCs ran on a platform that would decrease taxes for Manitobans, while also reaffirming their commitment to balance the budget by 2022. In their fully-costed platform, the Manitoba PCs pinned their election campaign promises at \$856 million. The government says this will be funded through efficiencies, selling unusable government property, and reducing senior management within government bureaucracy.

Such fiscal restraint has translated to the provincial government reviewing how infrastructure dollars are delivered across the province and its municipalities. The Province and the City of Winnipeg continue to be in a very public dispute regarding their infrastructure-funding model, and as a result, major infrastructure projects have been put on hold. Earlier this year, the City of Winnipeg reported 22 major unfunded infrastructure projects at a total price tag of \$4.9 billion of which \$4.5 billion remains without a money source. These include projects like the Louise Bridge, Route 90 expansion, Chief Peguis Train extension,

and the North End Sewage treatment plant upgrades.

In addition, the Manitoba Heavy Construction Association reported that since 2016, funding for the Highways Capital program fell from \$588 million to \$350 million leading to low bids on projects and companies bidding cash flow to stay afloat in hopes of provincial funding programs eventually increasing. This has been the case in many jurisdictions across Canada creating an unintended monopoly of bidders.

Opportunity for Manitoba and P3s

Public-private partnerships remain relatively unexplored in Manitoba. In spring 2017, the Pallister government introduced an omnibus bill—Bill 24, Red Tape Reduction and Government Efficiency Act—which repealed the Public-Private Partnerships Transparency and Accountability Act and ended the requirement for major capital projects done in partnership with the private sector to first undergo a study comparing the benefits of doing them entirely with public funds.

In 2018, the province grappled with the idea to build five schools in Winnipeg and Brandon through a P3 model though after cost-benefit analyses were completed, the province decided against it. Mark Romoff, CEO of the Canadian Council for Public-Private Partnerships, applauded the Premier for considering the delivery model and stated that he remains hopeful Manitoba will consider it for future projects. At a CCPPP conference hosted a few weeks after, Premier Pallister expressed that the province welcomes the use of P3s and is generally supportive of this approach. He stated that

projects would be evaluated on a case-by-case basis depending on the economic feasibility of the individual project.

Looking ahead

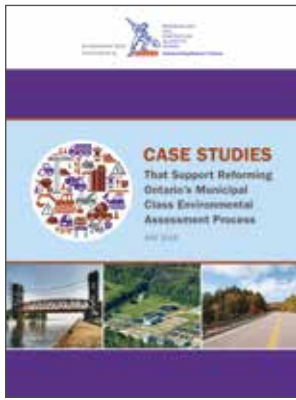
Much of the future of Manitoba’s infrastructure landscape stands on the provincial government’s ability to maintain strong relationships with the municipal and federal governments. The province’s approach to infrastructure funding requires tri-government commitment in order to get shovels in the ground and move forward on key projects, while keeping their finances in order.

In August, the Manitoba-Minnesota Transmission line received approval from National Energy Board (now known as the Impact Assessment Agency) to begin construction. The province is currently waiting on federal funding on a number of projects that were submitted last year, including a \$67 million share of the Low Carbon Economy Fund and a \$540 million allocation for the Lake Manitoba outlet channels. The fate of these funds, as well as those pertaining to other key projects in Manitoba, will likely not be determined until after the federal election. ♣



Natalia Lasakova is a research analyst for Global Public Affairs in Toronto. Lauren Stone is a senior advisor with Global Public Affairs in Winnipeg.

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HCAT is an organization of contractors in the heavy civil engineering construction sector involved in bridge construction and rehabilitation, tunnels, marine construction, structure foundations and other infrastructure in the GTA.

International Union of Operating Engineers, Local 793



This Oakville-based union represents thousands of crane and heavy equipment operators in Ontario's construction industry – the men and women who build our roads, bridges, subways and offices.

Joint Residential Construction Association



Representing the unionized residential builders in high-rise and low-rise construction, this Vaughan-based organization is dedicated to labour relations.

LIUNA, Local 183



This is the largest construction local union in North America. It is comprised of more than 52,000 construction workers in the Greater Golden Horseshoe who work on projects for residential construction, sewer and watermain, roads, bridges, pipelines, railroads and utilities.

Ontario Formwork Association



Woodbridge-based OFA represents more than 50 employer companies and 4,500 employees in provincial collective bargaining as they complete the formwork to build condominiums, subway tunnels, treatment plants and other forms of concrete infrastructure.

Toronto and Area Road Builders Association



TARBA has more than 25 contractor members that perform the majority of new road construction and maintenance for the City of Toronto, as well as municipalities in Halton and Peel Regions as well as Simcoe County. Members also perform work for the TTC, Metrolinx, the Ministry of Transportation, other provincial agencies and private developers.



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Moving to a prescriptive procurement model would encourage private sector innovation, such as greater use of on-site renewable energy generation.

Inset: Tim Murphy

AN EDUCATION IN PARTNERSHIP

Tim Murphy discusses his new book on the Canadian P3 landscape.

By Andrew Macklin

The term ‘the man needs no introduction’ is so brutally cliché, and yet, in the case of Tim Murphy, the line certainly applies. A former Liberal MPP and chief of staff to former Prime Minister Paul Martin, Murphy has established himself as one of the country’s top political insiders, and also as a legal force on Bay Street.

It is in his legal capacity that Murphy has found himself making a significant contribution to the country’s infrastructure industry, thanks to his new book: *Public-Private Partnerships in Canada: Law, Policy and Value for Money*. The book is Canada’s first comprehensive guide to the P3 landscape and all that it entails.

We sat down with Mr. Murphy to discuss the book and all things P3 related.

Let’s start with the basic question: why write a book about P3s?

When you look at the historic growth of the model across the globe, obviously the first big innovations came out of the UK under the Private Financing Initiative (PFI) model. And there are texts that come from England that speak to the model there. But it’s kind of had its glory days and is in a bit of decline.

When you look around the world, Canada is generally seen as the model of success for public-private partnerships. But we didn’t ever have a Canadian text that spoke to what we did from soup to nuts: how they were structured, how they were procured, what were the policy

contexts and implications, how do you get a successful procurement, and then how risk is allocated, how the project is financed, and how it’s delivered.

There just wasn’t anything in Canada that captured that. I was teaching a course to law students using materials and texts from the UK and other places. I looked at that and saw that clearly there was a gap from an academic and from a knowledge point of view.

Secondly, when you think of the ambition recently articulated by the Ontario government to say to Infrastructure Ontario that they should consider exporting the model, and using the skills and the talents and the

abilities of the Canadian P3 market to sell those internationally. You also say, well is there a text or a place where you can say that the knowledge is gathered and there really wasn't anything like that either.

When you look at the current landscape, do you see a sector that is not using the P3 model enough, or perhaps not using it effectively?

I think that there is a world of opportunity in services. When you look at what has been largely the focus of P3s to dates, it's focused on buildings and the kind of hard services around buildings—HVAC, roof maintenance—hard asset maintenance and less in the services category. There's a bunch of reasons for that. As you get into services it gets more complicated, you have to do more work as a government to figure out what services criteria you want.

There are some examples. The driver's examination services here in Ontario were done under a P3 contract and successfully put out into the private sector in a seamless way and I bet you most of

the public has no idea.

That's a sector that is still growing and there is opportunity there. I think there is some reticence in the Canadian political environment around migrating the private sector into the provision of services as opposed to buildings. But I think, over time, there is an opportunity there.

In your book, you talk about the potential for P3s to be a tool for reconciliation. Can you expand on that?

I think when you look at First Nations communities and populations in Canada, there are differing degrees of challenges in those communities depending on a variety of factors.

One of the things we have seen in areas, for example in renewable energy in Ontario where the FIT program provided an enhanced return where First Nations could be owners. Being an owner of a project helps the economic development of First Nations communities, helps their capacity building

to be better integrated into the economy, to learn better the mechanics of successful economic development.

It also allows the social license of projects to be better achieved because they are, as owners, helping to define the framework of success for the project. So I think that is a component of building a social license. You see that, for example, potentially in the Trans-Mountain pipeline and the potential for Indigenous ownership of it.

When you put all that together, the opportunity to be an owner of the asset is a significant value for Indigenous communities. And providing ownership rights is part of a reconciliation to say, yes, we have insufficiently accommodated you, we've taken your land, we've not lived up to treaty rights, and this is a way to try and reconcile with those communities.

One model is the Watay project. You've got the private sector pairing, from a development perspective, with First Nations communities to provide distributed electricity to 15 First Nations.



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Based on the research you conducted in pulling together this book, did you observe anything in the current P3 models in Canada that you believe needs changing or tweaking?

The provincial government here in Ontario, under former Minister Monte McNaughton, had started a few things that I thought were very wise things to do. [...] One of them was, trying to figure out how we build more innovation into the model. [...] I do think that there is an opportunity to use the creativity that the private sector can bring to a greater extent; so how do we more innovation in the delivery, which probably drives you towards a less descriptive and more prescriptive output specification. In other words, really drive towards true output specifications. Because I think one of the things that we've seen is [...] as the engineers and public authorities have got their hands on the output specs they get back to the old model which is, I'm going to tell you what kind of screw you're going to use to put into that bolt as opposed to saying, here's what we want the thing to do.

That has a couple of challenges. It drives out innovation. Ultimately, you are stripping out

some of the very thing you are trying to get the P3 to do which is to create cost-effective ways to enhance the private sector's creativity and provide that public service. Secondly, I think it has actually generated greater areas for dispute between the public and private sector. Because what happens is that a lot of attention gets paid, by the legal folk, to the contract and the schedules. But the actual output specifications can have stuff buried in them, which actually are different risk allocations than what are in the rest of the contract documents because you've got engineers and public policy people and public officials who are saying no, I want a red rug (as an example).

We need to move to prescriptive instead of descriptive output specification, and we need to find a way to enhance the innovation and creativity that the private sector can bring to the table.

Thanks again to Tim Murphy for taking the time to sit down and talk with us. ♣

Andrew Macklin is the managing editor of ReNew Canada.



To order your own copy of Timothy Murphy's book, *Public-Private Partnerships in Canada: Law, Policy and Value for Money*, visit store.lexisnexis.ca

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THE POWER TO PARTNER

The evolution of energy partnerships to meet Canada's electricity needs.

By Alex Kent and Joelle Lancaster

The Canadian electricity industry has a long history of building solid relationships with communities across Canada. Partnerships provide a democratic avenue for electricity companies and communities to grow meaningful, long-term relationships that enhance mutually beneficial economic and business opportunities in the energy sector. The electricity sector is filled with examples of successful partnerships, both utilizing traditional mechanisms of collaboration as well as examples that strive towards new and innovative ways to bring communities and industry together.

Increasingly, governments at all levels, from federal to provincial, to local and Indigenous, are turning to Canadian electricity companies as important partners to help meet climate goals and improve the lives of Canadians through electrification by developing new energy infrastructure. Why is this happening now? The answer is that

the political will for energy infrastructure improvements is here and electricity companies are prepared to bring their expertise and geographic footprint to the table to make this happen.

These partnerships steer towards common goals, such as supporting the electrification of the transportation sector in pursuit of cleaner air quality, or the construction of transmission lines to improve reliability across the grid, or provide cleaner electricity to communities otherwise reliant on diesel in order to enhance their quality of life. Energy infrastructure is all about partnerships and this article will highlight two such innovative partnerships: the Wataynikaneyap Power Project and the Power Forward Challenge.

Historically, legal agreements such as Impact and Benefit Agreements (IBAs) have been used to formalize relations between Indigenous Peoples and industry regarding development projects that may impact nearby communities. These engagement efforts

go beyond project-specific consultations and are centered on the recognition and respect for the history, uniqueness, and traditional ways of Indigenous Peoples across Canada. IBAs are often employed to provide certainty for both parties to the agreement and are negotiated to ensure that Indigenous communities are protected from adverse impact and are able to participate in the employment, economic, and business developments stemming from project development, ensuring the involvement of the right people throughout the process. IBAs often include environmental protection provisions, such as the Lower Churchill Project Impact and Benefits Agreement between the Innu Nation and Nalcor Energy, which created a Joint Nalcor-Innu Environmental Management Committee to provide environmental oversight and stewardship.

Wataynikaneyap Power, formed by 24 Northern Ontario First Nations to connect



Partnerships in the energy sector are forming to work towards common goals, such as the electrification of the transportation sector using clean, renewable energy.

Nations of Wataynikaneyap.

FortisOntario was selected because they have experience building and operating a transmission line, they operate in the area, and the federal government was ready to commit funds to support significant quality of life improvements for First Nations peoples. Because Wataynikaneyap will transition to full ownership by the communities, it is innovative in that the project is truly by local communities and for local communities.

As with all good partnerships, the Wataynikaneyap project offers benefits to all parties. According to the Ontario Waterpower Association, there is 275 megawatts of new clean generation potential in the area (many times more than the surrounding communities require), which would not be economical to develop if not for the new transmission line to bring the electricity to the broader North American grid. This provides many opportunities for the communities that are part of the Wataynikaneyap Power project to develop the local job market and meaningfully contribute to Canada's clean energy future.

The Wataynikaneyap Power project is both

their communities to the North American grid, has taken a different route than prior Indigenous-utility partnerships and CEA believes that it represents a good example of partnership trends to follow in the future. Wataynikaneyap (line that brings light) Power initiated the partnership by hiring CEA member FortisOntario for the construction and project management of

the transmission lines, while the 24 First Nations of Wataynikaneyap maintained responsibility for community engagement and the company's ongoing governance. The 24 First Nations maintain a 61 per cent stake in the company, with FortisOntario owning the remaining 39 per cent and relinquishing this stake back over time until full ownership is returned to the 24 First




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a new and old idea. It is new in its use of deferred costs on future fuel consumption to determine the economic viability of the project, but old in the underlying message that power serves people. Community-owned and -operated power projects are as old as the large, complex, and often province-spanning utilities that tend to dominate public consciousness.

The electricity industry has struck other joint partnerships with Indigenous communities, allowing joint ownership of infrastructure projects. Brookfield Renewable (now Evolugen) and 'Namgis First Nation formed a joint partnership together under Kwagis Power LP, which allowed both parties to be equally involved in the planning, permitting, construction, and operation of the Kokish hydroelectric project, as well as revenue-sharing now that the facility is operational. It is our belief that the joint ownership model is a good one for working with communities to get energy infrastructure built.

Another example of a creative partnership where electricity companies are stepping up in is the Power Forward Challenge, in which electrical utilities in Canada and the UK

were asked by their respective governments to put forward a project that is:

“[...] disruptive, modular, scalable, and interoperable, and demonstrate clear value to the end user and the grid. Teams will have to be international and bring together various energy resources, as well as a variety of innovative software and hardware solutions.”

Electricity companies are tasked with being the glue that binds together partnerships of small/medium enterprises, non-profit organizations, Indigenous governments, and academic institutions. Because the projects canvassed are designed to enhance the grid, electricity companies represent the backbone of each team. The international requirement is unique and bolsters electricity sectors in Canada and the UK by facilitating knowledge-sharing on a common goal that the electricity sector in many countries face.

The Power Forward Challenge is one of the first to recognize that while the North American and European grids are separate, we are all facing similar challenges in our efforts to electrify our economies cleanly. In this way, partnerships under this initiative have funding

and political support (right time) to draw from a wide pool of experience (right people) to solve hard problems, which wouldn't be possible if the electrical utility grid was not a common ground (right place) for teams to try new things. (As a quick aside, CEA is also proud to say that many of our members were among the finalists announced, including ENMAX, ATCO, and Hydro Ottawa, as well as our corporate partners Opus One and Navigant.)

While the nature of our partnerships is evolving, the continued effort to work with all levels of government, as well as international colleagues, is helping to build a resilient energy grid that can provide for the future needs of our electricity sector. ♣



Alex Kent is a transmission and distribution policy advisor for the Canadian Electricity Association.

Joelle Lancaster is a reliability analyst for the Canadian Electricity Association.

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THE OVERLOOKED “P”



Frequent discussions among the contractors help to resolve emerging issues quickly, and help strengthen the partnership by having frequent, open communication.

The vital role of partnerships in P3 developments. *By Neeraj Mehra*

In a typical public-private partnership (P3) project, the project company (ProjectCo) enters into a project agreement (PA) with the public-sector counterparty (the Authority) to design, build, finance, operate, and/or maintain an asset for the duration of the PA. In turn, the ProjectCo typically contracts out most of its PA-related obligations to a constructor contractor(s) and service provider(s), as the ProjectCo has management expertise but often limited technical abilities. The individual contracts that are signed between the parties lay out the legal framework under which the P3 project will be completed. However, to say that a P3 is the sum of its

contracts omits an important element from the delivery framework: partnerships. In this commentary we will explore the contractual and informal relationships formed by the parties during the construction and operating phases, considering both the spirit and the letter of the documents.

Typical P3 risk-sharing mechanisms

A notable advantage of the P3 framework is the allocation of risk to the party that is best suited to manage it. To ensure effective project delivery, the PA should clearly and logically delineate the scope of responsibilities as between the

ProjectCo and the Authority.

In construction, the ProjectCo is responsible for most construction-related risks, including cost and time overruns, while land acquisition-related risks and unknown environmental risks typically come under the purview of the Authority. In a similar fashion, for P3s that feature an operating phase, the ProjectCo agrees to guarantee certain performance standards and to carry out operations and maintenance (O&M) and rehabilitation responsibilities, while the Authority will bear responsibility for things outside of the ProjectCo's control, such as insurance costs and industry-wide strikes. Some risks, such as energy risk, are

shared, with the ProjectCo typically being responsible for the volume of energy used, while the Authority insulates the ProjectCo from energy price risk. The ProjectCo in turn passes down most of its responsibility to the construction and service phase contractors through separate agreements, mirroring most sections of the PA.

Partnerships during the construction phase

Most of the ProjectCo's obligations related to design and construction are passed down to the construction contractors, usually through a fixed-price and date-certain contract that effectively carries the design and construction of the P3 project on a stand-alone basis for the public-sector counterparty. The construction contractors are held responsible to complete the project for the fixed fee and within stipulated timelines, and their expertise is critical for the success of a project to be completed on time and on budget.

Typically, two or more construction partners may form a design-build joint venture (DBJV) to undertake construction of the project. When jointly and severally liable, such partnerships are generally viewed positively, as it binds two or more parties to carry out the contractors' obligations. The project documents generally have replacement provisions that allow for a defaulted construction contractor/joint-venture party to be replaced or allow the remaining party(ies) to continue the work

undertaken in its jurisdiction. Furthermore, local firms may often have better real-time information regarding the pricing and availability of labour, permitting intricacies and material sourcing.

Contractual requirements aside, frequent interaction between parties and the transparent sharing of information can also greatly improve the chances that a project will be successful. Holding frequent meetings and keeping all stakeholders apprised helps in early detection of problems and engenders swift solutions to issues that may arise. A collaborative relationship with the public-sector counterparty at several levels is crucial for successful construction.

Partnerships during the operations phase

While the operations phase is generally considered less risky than the construction phase, it still involves assumptions with respect to how quickly projects will age and the timing and cost of major lifecycle interventions. Like the construction phase, on occasion, multiple parties will be involved in the provision of O&M services. Where this is the case, the partnership between the two or more O&M providers can generally be considered favourably, as it can result in a blending of ideas and approaches in the provision of services and lifecycle obligations. In the event of a default of one of the parties, one entity may be permitted to assume the obligations of another without the need to replace the defaulting party if

the parties. A well-informed public-sector counterparty can enhance the likelihood that the ProjectCo will have a receptive audience should disputes arise or in the event the project encounters difficulties. Moreover, a smooth working relationship can be of benefit during the lead-up to project hand-back, particularly with respect to hand-back inspections. Hand-back requirements may contain subjective elements, and an Authority is more likely to be receptive of a third-party assessor's determinations when the relationship with the ProjectCo has been inclusive and forthright.

Co-operation between construction and O&M contractors

Public-private partnerships that have an operating phase usually feature an interface agreement, which is a sometimes overlooked but nonetheless very important document. The interface agreement outlines the framework within which the Construction and O&M contractors are expected to communicate and the delineation of responsibilities between the two entities. The spirit of the agreement is that the health of the project takes precedence; as such, the parties should act in such a manner as to insulate the project from any disputes that arise.

Considering the relatively stable infrastructure industry in Canada, the occurrence of defaulting project parties is generally rare. However, given the complexity and long tenure of such projects, the protection provided by having strong partners teaming up to provide construction or operational services does offer an effective line of defense for the project. An open and engaging relationship with the public-sector counterparty is equally important to the continuing success of the P3 project. The ideal P3 should be competitive enough to provide appropriate incentives to all project parties with the flexibility to replace a non-performing party to permit the project's recovery. Lastly, appropriate risk allocation between the P3 parties makes for better project delivery, as each party can concentrate on what it does best, which ultimately provides better services and good value to taxpayers. ✿

The protection provided by having strong partners teaming up to provide construction or operational services does offer an effective line of defense for the project.

(if technically and financially capable) before causing a PA default. The strengths of the partnerships at the DBJV level and how closely they were working will have a hand in shaping the success of a project should one DBJV member need replacing or other significant issues arise.

Often, one of the DBJV members is a local contractor. In conjunction with a larger partner having multinational experience and a strong balance sheet, a partner with local experience is a benefit, as it will often have a wealth of lessons learned from projects

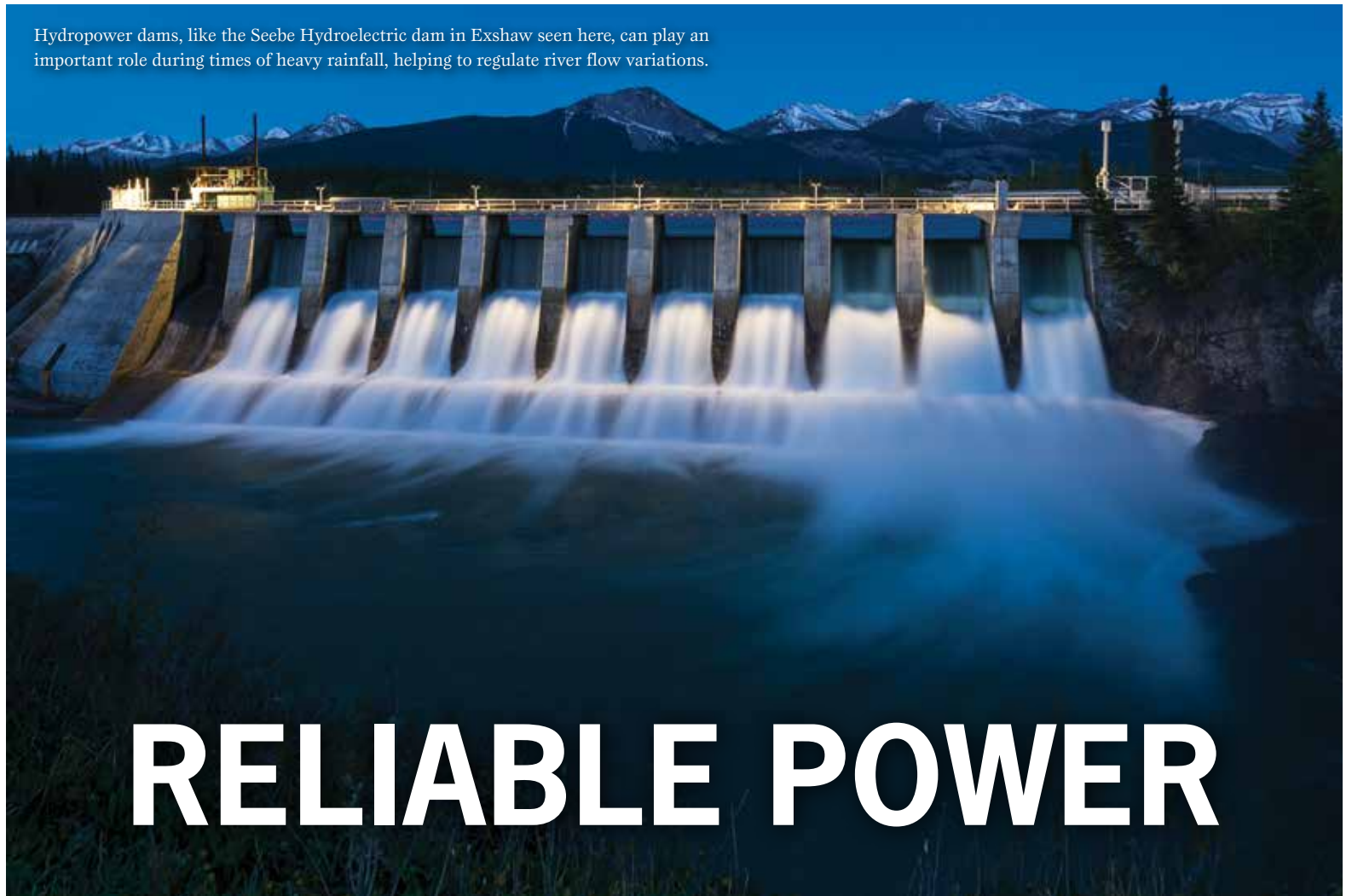
permitted by the project documents. Partners may also have complementary abilities that lend additional bench strength and depth, as is sometimes seen in toll road P3s where one party may have competency in road maintenance, while the other is experienced in tolling equipment and toll administration and collection.

As in the construction phase, communication is key to ensuring that the project's service phase goes smoothly. The ProjectCo should take the lead in fostering frequent and transparent dialogue between



Neeraj Mehra is a senior financial analyst with DBRS Limited.

Hydropower dams, like the Seebe Hydroelectric dam in Exshaw seen here, can play an important role during times of heavy rainfall, helping to regulate river flow variations.



RELIABLE POWER

Hydropower industry working to help Canada improve its climate resilience.

By Patrick Bateman

Adaptation to climate change should be a primary consideration for energy and infrastructure investments today. Atmospheric concentrations of greenhouse gases will bring profound impacts to our society and natural environment. The frequency, intensity and duration of extreme weather events is changing. The timing and location of the physical processes associated with the water cycle are shifting. This new paradigm will test Canada's climate resilience (i.e. our ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate).

Climate resilience and adapting to the impacts of climate change has been front of mind for Canada's hydroelectricity producers for some time. Water is effectively their fuel. Hydropower infrastructure is embedded in water security and flood control. The frequency, magnitude, and duration of floods and droughts define design, operation, and safety considerations. Hydroelectricity and hydropower projects play an integral role in our energy security and economy. Hydroelectricity is Canada's single largest source of clean energy representing

approximately 60 per cent of our total electricity production (three times more than that from fossil fuels). Hydropower projects are four of ReNew Canada's top seven "Top100 Projects" in 2019. In the coming decades, unprecedented capital investments in refurbishments will occur across the fleet of more than five hundred hydropower generation stations operating from coast-to-coast-to-coast.

The future availability of water for hydroelectricity production in Canada is generally secure and reservoir storage is well suited to manage the variability in flows. Modelling climate change at a regional level is complex and involves the integration of high-resolution climate data with hydrological models that generate river flows while considering precipitation, temperature, snow melt, evaporation and ground water absorption. Results indicate that, over the coming decades, Canada's water cycle will generally feature higher levels of precipitation, and a progressive shift away from more snowmelt-dominated regimes toward rainfall-dominated regimes, increased winter flows, and earlier spring

melts, and in some areas reduced summer flows. Where mountain glaciers play a role, increased melting can contribute to higher summer stream flows until the glaciers diminish. In any event, most hydropower facilities are designed to maintain operations during periods of extreme drought. In several Canadian provinces, hydropower fleets are designed to meet the overall electrical energy demand during extreme droughts (which results in additional energy in non-drought years). Also, the water stored in reservoirs (and the Great Lakes for Ontario and Québec to a lesser extent) further allows for the management of river flow variations that are expected with climate change.

Hydropower infrastructure is also designed to withstand floods, and often plays an important role in flood mitigation and management. Dam safety is an imperative. The Canadian Dam Association's design criteria and inspection requirements include that every dam must be able to accommodate an increase in water volume generated by upstream extreme-flood events. Large dams are required to safely accommodate an inflow equivalent to the probable maximum

flood. A recent Canadian study entitled *Probable Maximum Floods and Dam Safety in the 21st Century Climate* examines the methods used to estimate flood risk for dam design and applies a method to incorporate projected climate change impacts to flood risk and identify potential adaptation options for five watersheds across Canada. Studies like this ensure that climate change is fully considered and that dams remain safe. Also, hydropower reservoirs are often managed for multiple societal objectives. For example, the Ottawa River Regulation Planning Board was established to ensure the integrated management of reservoirs to minimize damage from flood and droughts. Reservoirs are managed to capture and store spring runoff and protect downstream communities from flooding. This collaboration with public authorities, by Hydro-Québec, Ontario Power Generation and other dam operators has considerably reduced the magnitude of flooding and has attenuated the impact of low water period with multiple benefits including the protection of fish.

Canada's hydropower industry has been at the forefront of understanding climate change science through research, impact modelling and assessment, and adapting infrastructure and operating practices toward a wide range of plausible climate futures. Long-term planning is second nature in a sector whose assets have a lifespan of more than a century.

Hydro-Québec partnered with the Government of Québec, Environment & Climate Change Canada, and four universities to launch the Ouranos consortium in 2002. The consortium's objective is to provide information and expertise on climate change adaptation. Ouranos differs from most other climate service centers by merging operational climate modelling, impacts, and adaptation expertise and climate analysis services under one roof. After Ouranos was established, other Canadian hydropower companies such as Manitoba Hydro and Ontario Power Generation have also become involved. Hydro-Québec is also participating in the CQ2 project, a major initiative that aims to produce high-resolution projections of climate change impacts on hydrology and hydropower for the entire province of Québec. Results indicate an increase in mean annual streamflow for most watersheds, with the greatest changes in the northern part of the province (up to 15 per cent) as well as changes in seasonal contribution to annual streamflow. Hydrological projections are frequently updated with the most recent climate simulations and the latest methodologies. Hydro-Québec and Ouranos are also working together on several projects



The Fanshawe Dam in London, Ont. can help regulate water levels along the Thames River, helping to prevent flooding during extreme weather and quick snow melt events in the community.

focusing on climate change adaptation strategies for hydropower companies, including flood design values for dam construction and maintenance.

Manitoba Hydro is working with Ouranos, the University of Manitoba, and others on a number of initiatives to increase its knowledge of potential climate change impacts within the Nelson-Churchill watershed where hydropower generation in Manitoba is located. Results indicate an increase in precipitation, with projected increases of annual average runoff of between 7.3 per cent and 23.3 per cent across this watershed in 2050. The increase in precipitation is expected to occur primarily in winter months with little or no change during the summer.

Ontario Power Generation is also doing innovative work with partners such as Ouranos, Natural Resource Canada and the Universities of Winnipeg, Québec, and Sherbrooke. One project involves the reconstruction of long-term flood and drought conditions using data extracted from tree rings. Results will be used to better characterize extreme flow conditions and verify long-term changes in flow regimes. Increased knowledge of historic flood and drought conditions improve the understanding of the range of future conditions, thus providing a longer-term perspective when planning the design of

new hydropower stations and the operation of existing facilities.

In Canada, the average age of a hydropower site is more than 50 years. In the coming decades, the unprecedented period of capital investment in refurbishments will not only extend the lifespan of existing hydropower assets, it will also offer the opportunity to increase their capacity to generate more renewable electricity, and their flexibility, dependability, and energy storage capabilities that helps reliably integrate other renewable energy resources such as wind and solar energy. These investments can yield the lowest cost electricity of any available options without increasing the environmental footprint.

Canada's hydropower sector is using their extensive knowledge of potential future trends in water supply, extreme weather events, and energy demand to inform investment decisions, future-proofing Canada's largest source of clean energy, and demonstrating leadership on resilience to the impacts of climate change. ♣



Patrick Bateman is the vice president of government and regulatory affairs at WaterPower Canada.



Credit: William Conway, Progress Photography

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Panorama

New Kid on the Block

In the middle of an East York neighbourhood emerges the beginnings of the new \$498.2 million Michael Garron Hospital. —Staff



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IO has worked extensively with Metrolinx on the GO Transit On-Corridor project procurement to find ways to incorporate innovation into the project.



INNOVATION AT IO

Changing the way P3 projects are procured in Ontario. *By Ehren Cory*

This past September, we released Infrastructure Ontario's (IO) 2019 Fall Market Update. The pipeline of major infrastructure projects is our largest and confirms Ontario's leadership in building and renewing critical infrastructure. When complete, these investments in our transit, transportation, health, and justice infrastructure will transform Ontario. At the same time, these projects generate jobs in the skilled trades as well as the engineering, design and finance sectors.

To ensure success, we continuously look for ways to deliver these important public projects in ways that adapt lessons learned and recognize the changing nature of our projects and industry as a whole. In the last year, IO has made improvements to its project delivery approach to increase competition and innovation in Ontario's major infrastructure projects. The changes are the result of industry outreach by both the Minister of Infrastructure's Office and IO. Ultimately, the goals of these changes are to be more open to innovation, more open to competition and to deliver more value for taxpayers.

The improvements we have made include rebalancing the bid scoring system to better reward innovation. Also, we have moved

toward more outcome-based specifications versus output specifications that will help capitalize on private sector innovation. Finally, we have adjusted qualifications assessments to give fairer weight to international experience encouraging international investment and participation in the Ontario market.

Since their introduction, we have already been able to put these innovations to work. To provide an example of how this works in the real world, here are two examples, the Halton Region Consolidated Courthouse, and the GO Transit On-Corridor procurements.

The Halton Region Consolidated Courthouse is IO's seventh P3 courthouse. It will consolidate two existing facilities and will have 25 courtrooms. With five courthouses already complete and the New Toronto Courthouse project already under construction, we saw an opportunity to stretch the boundaries and challenge the market to deliver both the best design and the best value for money.

To drive innovation in the Halton Courthouse procurement, designers were empowered to give teams more freedom when organizing their Design Presentation Meetings (DPMs). Also, more interaction was encouraged with sponsors to help share

creativity and innovation during the DPM process, and solicit feedback fostering a holistic approach that integrated operational excellence and efficiency into the design. In the second phase of the RFP, we modified the prescriptiveness of design development agendas in our documents to allow for more innovative ideas, better in-market dialogue, and to create more opportunities for executive-level decision making.

All-day regular GO train service is a key component of provincial plans to improved regional transit in the GTHA. The GO Transit On-Corridor project procurements for the expansion and maintenance of large portions of the GO network will make this possible as the region continues to expand and demand increases.

Given the highly integrated nature of the network in design, construction, and operation, it was clear that a DBFOM model made the most sense. In essence, this requires us to think beyond delivering a project as we traditionally view them and more as providing a 'system.' We went beyond our usual 'Value for Money' analysis to select the appropriate delivery model based on benefit-based decision-making, as well as qualitative and quantitative analysis. This approach will allow for improved efficiency of the rail



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of creating and nurturing partnerships to build and upgrade energy infrastructure across Canada. These partnerships are with our clients, our communities and our Indigenous neighbours; the relationships that have developed are very valuable to us – they define how we do business.



In 2018, these beaded medallions were presented to Valard representatives to recognize Valard for engaging AND working with Indigenous communities.

The Fort McMurray West Project was delivered 91 days ahead of the target date, thanks to the efforts of all the partners within Valard and Quanta, at ATCO, and with assistance from all of the local Indigenous groups.



With Nextbridge as the client, Valard will continue to work closely with Supercom Industries, a 100% Aboriginal-owned joint venture by the six First Nations proximate to the East-West Tie transmission line, to complete the project.



Finding ways to integrate innovation into Infrastructure Ontario's P3 projects has been a key priority this past year.

Credit: PCL

system, cost reduction, and a reduction in the implementation by effectively managing the project's two greatest risks: systems integration risk, and the risk associated with implementing a large capital project using alternative train services on an active rail network.

That said, a 30-year P3 model for a project of this nature carries significant challenges. Most notably, the sheer size and financing requirements for a project of this scope

and team formations. IO worked with the Project Sponsors to develop a GO Expansion Rail List. Firms could be added to the list, provide contact information, as well as their capacity to participate in a bidding team. The list was updated and distributed to all parties monthly. Furthermore, several update packages were provided to demonstrate the Sponsors' openness to change to address major concerns raised by participants in the market.

process that we undertook was perhaps the most significant innovation, whereby we developed a P3 contract with minimal prescriptiveness. Unlike other contracts, the On-Corridor Works Project is a performance-based contract to deliver train service. Metrolinx and IO will outline the service requirements for the GO Transit system (for example, passenger capacity levels, comfort requirements, etc.) while the proponents bidding on the contract are to develop service plans that outline such items as time tables, fixed infrastructure, fleet and train crew, and maintenance strategy. New technologies and innovations allowed bidders the opportunity to test new ideas in their bid submissions. IO has undertaken a broader effort in the last year and continuing to standardize the drafting and approach to our project-specific output specifications—to make them less prescriptive and more open to new ideas.

We look forward to continuing to implement new and innovative ideas through the procurement of this project.

As an international leader in public-private partnerships, IO believes it is critical to continue the evolution of the model to allow more innovation and competition to meet today's realities. These changes are being made to ensure that Ontario remains a destination for the global infrastructure community. 🍁

IO has undertaken a broader effort in the last year and continuing to standardize the drafting and approach to our project-specific output specifications.

and magnitude. And the fact it's a living, evolving network, unlikely to remain static for 30 years. There are significant elements of legacy infrastructure and rolling stock complex interactions with third parties. To address these issues, we had to look at ways to innovate and improve our procurement model. Before releasing the request for qualifications (RFQ) in 2018, IO and Metrolinx undertook a significant market sounding exercise. We consulted with more than 50 firms interested in participating in the GO Transit On-Corridor Project. We gathered feedback that would allow us to refine the project delivery model in advance of commencing the formal procurement process. One specific item that we heard from the market was to facilitate introductions

IO and Metrolinx facilitated commercially confidential meetings during the RFQ and provided detailed information to RFQ applicants—more than what we have typically done in previous procurements. The testing of ideas and commercial positions included the use of white papers as part of reference concept planning, on such topics as safety and regulatory principles, operations and passenger service requirements. For the first time, we also facilitated site tours to allow bidding teams to visit various Metrolinx facilities, including Willowbrook, and Whitby maintenance facilities, as well as Union Station and its signal towers so that they could familiarize themselves with the GO Transit system.

The GO Transit On-Corridor RFP



Ehren Cory is the president and CEO of Infrastructure Ontario.



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Specifying Certification is a Critical Part of The National Building Code

Which is Even More Important Now in an Age of Climate Change

Climate change has already had far-reaching impacts on our above and below ground infrastructure and can put its performance and reliability at risk. This trend is likely to accelerate in the coming decades. The main threats to infrastructure assets are many but include first and foremost damage or destruction caused by extreme weather events. These threats have led to Infrastructure Canada's Climate-Resilient Buildings and Core Public Infrastructure Initiative. Led by the National Research Council of Canada (NRC) this "ground-breaking work focuses on integrating climate resiliency into building and infrastructure design, guides, certification and codes." (infrastructure.gc.ca/plan/crbcp-irrcipb-eng.html)

According to Infrastructure Canada "this initiative is intended to develop capacity in Canada's construction industries to adapt to the increasing demands on our built infrastructure attributed to climate change. It is driving innovation and providing partners with the science-based knowledge and tools they need to make sound decisions about how to design, operate, and maintain their infrastructure assets. This supports Infrastructure Canada's commitment to outcome-based programming.

The work undertaken by the NRC and the Canadian Construction Industries will contribute to an infrastructure landscape that can keep Canadian communities safer from extreme weather and the effects of climate change".

Certification means that an independent third-party organization has reviewed the manufacturing process of a product and determined that the final product complies with National safety, quality and performance standards.

The general public relies on professionals to design and build structures that are safe, not only during construction, but throughout service life and even during deconstruction. In the age of climate change this is more essential than ever before. To remain vital in the face of coming climate change challenges, the construction industry will need better, safer, more durable and longer-lasting construction materials that can maintain or improve lifespan expectations for buildings and core infrastructure.

How do we ensure a structure is built with products in accordance with National standards? The answer is certification and Quality Assurance. Quality Assurance applies to the production process and ensuring

that all safety and quality standards are met for a particular product, and can extend to aesthetics, durability, and performance. These are vital components to building a safe structure.

When it comes to purchasing certified building and above and below ground infrastructure products, value comprises a system that provides the right durability and resilience to safely and sufficiently service needs for its entire lifecycle. So how do you as an owner, agency, or specifier achieve good value for your investment?

We know that specifying products that meet the right building code standard is a minimum first step.

Specifying products that meet a certification program built on superior quality assurance processes and results, above and beyond the minimum building code standards, is a wise and value-adding step to protect your investment, manage risk, and provide safety assurance to your end users, tax payers, and/or service community.

Precast Concrete Certification Background

In late 2017, Canada's two leading precast concrete associations, the Canadian Precast/Prestressed



Concrete Institute (CPCI) and the Canadian Concrete Pipe and Precast Association (CCPPA) announced a new joint venture to establish an independent entity for administering, enhancing and expanding a third-party certification program for prestressed and non-prestressed precast concrete manufacturing facilities across Canada.

CPCI and CCPPA recognized the benefit for owners, contractors, and the precast concrete industry by combining the strengths of two well-established plant certification programs, CPCI Certification Program for Structural, Architectural and Specialty Products and Production Processes (CPCI Certification) and the Plant Prequalification Program for Precast Concrete Drainage Products (PPP), into the new Canadian Precast Concrete Quality Assurance (CPCQA) Certification Program.

The CPCQA Certification Program is an impartially-operated, not-for-profit corporation, governed by its own Board of Directors, advised by a new multi-stakeholder Quality Assurance Council (QAC), and managed by an independent Managing Director.

The Accredited Certification Organization (ACO)—engineering firms contracted to provide the plant auditing services reports directly to the QAC, which is a diverse group comprised of representatives from provincial and municipal levels of government, consulting and architectural firms, precast concrete manufacturers, and other industry experts.

Why Certification?

Communities rely on construction professionals to design and build infrastructure systems that are safe and durable throughout the system's service life. The systems must be built and must perform as designed. Otherwise

safety, along with the probability of a construction project's success, can be adversely affected. Knowing that there is always some degree of risk associated with any project, the key aspect of lowering that risk is through quality assurance.

Why the CPCQA?

Here are just a few of the many ways owners have indicated that specifying CPCQA supports their goal of delivering top value for their project dollar:

CPCQA Fundamentals for Structural/Architectural Precast Plants

The national and provincial building codes require conformance to the standard CSA A23.4 for precast concrete materials and construction when it comes to structural and architectural precast concrete.

CPCQA is a nationally recognized and accepted certification program that provides an independent third-party certification of conformance to the CSA A23.4 standard.

The CPCQA certification program requires precast concrete manufacturers to meet the requirements of the latest editions of CSA Standard A23.4 and the PCI Quality Control Manuals MNL-116 and 117 (US equivalent), with the more stringent requirements being the governing criteria.

Manufacturers are audited to all the requirements in CSA A23.4, as well as the applicable material and production requirements in CSA A23.1 and CSA A23.2 that apply to precast concrete.

Certified plants are **audited annually with at least two unannounced** audits. Strict compliance with published standards is necessary to maintain certification. Certification confirms a manufacturer's capability to produce quality products and systems.

AT PRESENT THE CANADIAN PRECAST CONCRETE QUALITY ASSURANCE PROGRAM (CPCQA) CERTIFIES OVER 80% OF THE PRECAST CONCRETE PRODUCTION IN CANADA.

THE CANADIAN PRECAST CONCRETE QUALITY ASSURANCE PROGRAM

(CPCQA) IS ENDORSED BY CANADIAN PRECAST/PRESTRESSED CONCRETE INSTITUTE (CPCI) AND CANADIAN CONCRETE PIPE AND PRECAST ASSOCIATION (CCPPA) IS THE ONLY CERTIFICATION PROGRAM IN CANADA THAT HAS AN OFFICIAL QUALITY ASSURANCE REPORTING PROGRAM AND QUALITY CONFLICT RESOLUTION MECHANISM.



Brian J Hall, B. B. A., MBA

Managing Director,
Canadian Precast Prestressed
Concrete Institute

Vice Chair, Royal Architectural
Institute of Canada Foundation

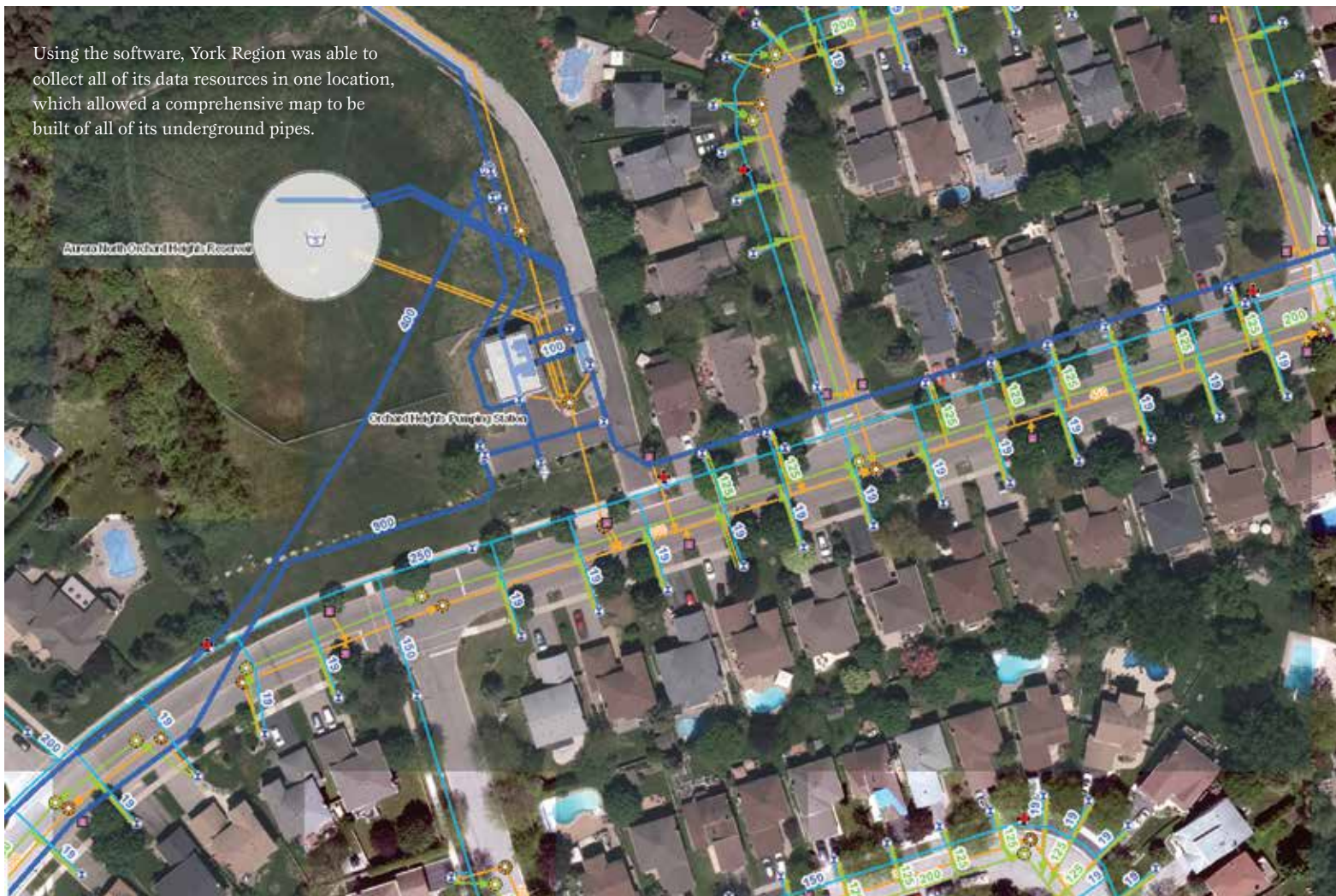
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(CPCQA) CANADIAN
PRECAST CONCRETE
QUALITY ASSURANCE
CERTIFICATION PROGRAM

Using the software, York Region was able to collect all of its data resources in one location, which allowed a comprehensive map to be built of all of its underground pipes.



Credit: ESRI

ALL PIPES

Solving an underground problem with an above-ground solution. *By Jennifer Chung*

They say you know a hit song because the first time you hear it you feel like you've heard it before. Some ideas are the same; so good that when they are finally put into practice you can't believe anyone even hesitated. York Region's All Pipes solution is that kind of idea.

Here it is: through collaboration between York Region and our nine local municipalities, we maintain a single common standardized schema and water/wastewater utility dataset, accessible to all partners.

We knew we had to track and be ready to update our system and assumed money, time, and effort would be saved if we partnered with others.

In 2011, we knew York Region was going to start developing faster. This growth turned out to be explosive. We knew our infrastructure had to be ready for this, but infrastructure maintenance is expensive. Our water-wastewater projects costing \$4.8 billion to 2031 jumps up to \$6.6 billion to 2051. But in 2011 there was no common,

complete system, or database for all the data about the Region's pipes, positioning, ownership, or material type. We needed to save money while preparing for the future.

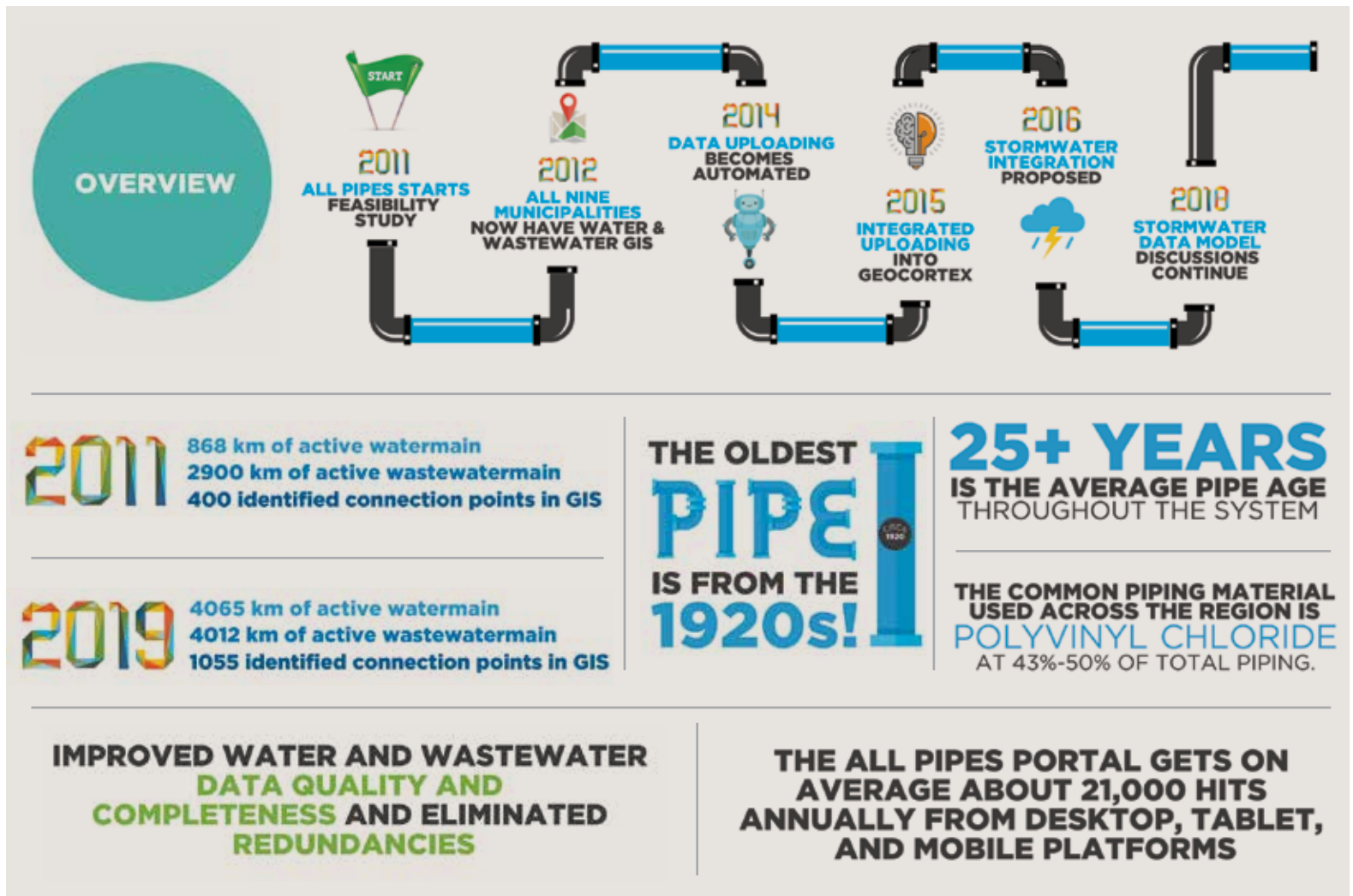
Through the All Pipes solution's architecture, we now have a database to support planning, emergency management, and other business and operational needs. We established 'meet points' where regional and local pipes join, enabling easier identification of asset ownership, as well as supporting analysis and reporting. This also enables an automated ETL (data manipulation—extract, transform, load) process to accept local municipal data, and automatically integrate it within a common regional database, without making local municipalities change their own approach to data collection and storage.

There was also a legislative drive behind this idea. The provincial government requested every Ontario municipality to build a hydraulic water model of their water and wastewater pipes via an asset

management plan, so they would know if—among other things—there was enough pipe capacity for projected growth.

Three of the nine partners had no data in a GIS system for, as an example, their water pipes. They knew they had to prepare the model, and this was going to be a big change. To reduce resistance and speed up compliance, we financially supported our partners to convert their CAD drawings and as-built construction drawings to digital, easily shared data. This meant the municipalities also had to organize their assets. While this is a huge undertaking, there was an understanding that while each municipality and utility may be unique, everyone shares the obligations and regulatory requirements.

Recognizing that, to a certain extent, information management strategies can be standardized and shared has enabled each municipality to save money and inter-operate their pipe systems more effectively. This resulted in immediate savings because



the municipalities did not have to pay a consultant to set this up independently. We had a system they could easily plug into and they knew if the projected growth was accurate they would also realize more taxes.

Not every municipality in York Region has the same projected explosive growth but they all want to save taxpayer's money. Georgina, Ontario, which borders Lake Simcoe, has

we had extensive resources to do." However, Georgina's mayor and regional councillor, who represent the Town at York Regional Council, endorsed it for Georgina when they heard about it and the advantages were quickly realized. Scherbarth said that now "we use this data on a daily basis" and the many sources of asset data now go directly into the communal GIS database.

management actions is essential. It's also essential to have the right tools and mechanisms to consolidate and organize that authoritative content."

It certainly is. We had to easily convert shared data into information so that it was available to all our partners, providing crucial support in a variety of situations. The software was the glue that made that possible.

Data files from different areas are entered via Geocortex and then go on an ETL data management platform. Because all our GIS information is in Esri software, it can read all the data coming in and works well with the Esri GIS architecture. It is displayed to all the partners on an Esri map.

York Region, its constituents and local municipalities are all saving money by coordinating their data sharing practices around industry best practices and standards, enabling them all to do more with both their own information and that of their peers.

This article originally appeared in the July/August edition of Water Canada. ♣

As our buried infrastructure ages, having a better understanding of the risk and consequences of our asset management actions is essential.

a population of approximately 50,000 and operates as a town that includes a variety of small communities, many of whose population booms in the summer. Although its infrastructure isn't under immediate threat, it is also not as interconnected as with other municipalities in the Region. It's a strong structural base as David Scherbarth, operations analyst with the Operations and Infrastructure Department for Georgina, explained. "Leveraging tech is not something

Through non-duplication of efforts, partners save an estimated \$445,000 annually.

Sharing pipe information is more than just responding to growth. It is a safety issue too, said Brian Bell, director for utilities with Esri Canada. "As our buried infrastructure ages, and the interconnections between companies and municipalities become more complex, having a better understanding of the risk and consequences of our asset



Jennifer Chung is a GIS technologist with The Regional Municipality of York.

The 36-acre site under redevelopment, 2017.

Credit: City of Orillia

THE BROWNFIELD CHALLENGE

There is much to be gained from brownfield redevelopment. *By Carroll McCormick*

Smack in the downtown of Orillia, Ontario a shuttered foundry squatted on 36 acres of what would otherwise have been regarded as prime real estate. But in a bold move, city council chose the site as its first brownfield redevelopment. The result after more than four years of work? A new recreational facility that will be opening soon.

“City council set a strategy to redevelop brownfield as a council priority. It set an example by selecting a giant. This represents the largest facility construction project - \$55 million - undertaken by the city, and the first brownfield project. In years past the city would avoid that corridor with delegations of potential developers. But now it has really changed how we market our city,” says Renee Recoskie, City of Orillia Manager of Environmental Compliance.

That success stories such as this exist are, in broad terms, the end result of decades of evolution in governments’ thinking about how to approach such sites. “Early efforts

to address contaminated sites in the 1980s, particularly in the United States, focused more aggressively on requiring owners of contaminated sites and other potentially responsible parties to clean up their properties. This approach resulted in a lot of litigation and inaction because it scared the market away (and even municipalities) from any property remotely suspected of contamination, putting a “chill” on investment,” says Chris De Sousa, a professor in the School of Urban and Regional Planning at Ryerson University and the new president of the Canadian Brownfields Network.

But with a shift to less aggressive and more co-operative tactics in the mid 1990s, property owners and municipalities and cities could either let the market decide whether to redevelop contaminated sites or even choose to make the conditions more favourable—changing bylaws and taxes, for example—to their redevelopment. And around that time the

scary term “contaminated” was replaced by “brownfield.”

“Cleanup programs created typically by state and provincial governments were developed to provide an approach wherein potentially contaminated sites could be assessed and, if necessary, remediated to meet accepted standards of safety,” De Sousa explains. “The process made it easier for prospective purchasers and governments to get involved in the brownfields redevelopment process and gave them legal protection if they followed the assessment and cleanup policies and procedures outlined by the government.

“Governments also began to facilitate redevelopment indirectly and directly by providing technical support, planning support, financial incentives. This move from regulator to facilitator has had much more significant results in moving brownfields from sites of liability to opportunity. Changing from a culture of regulation to one of facilitation is important.”

The same site, 2018, with the recreational facility under construction.



De Sousa offers an example of how cities can create market conditions that cause developers to act: “What is a viable use that attracts people to these areas? Residential [is one]. Rezoning can really jack up the value of the land. Suddenly, the \$80,000 cleanup cost

sense across financial, environmental and social metrics,” Recoskie explains. Benefits to a city, such as more taxes, valuing of quality of life, and bringing in development are not available to most private developers.

“It is a huge benefit to the municipality

example, has several starter documents, so to speak, to help interested municipalities get off on the right foot. Take, for example, their “Leadership in Brownfield Renewal Program: Best Practices Framework.” Distilling best practices from municipalities that have achieved successes, the framework lists seven key steps municipalities should follow. They include commit to action, build partnerships, devise a strategy and manage programs and projects.

Other guides include “Getting started on your brownfield sites: committing to action,” and several case studies, all available on their website. They cover topics such as barriers to making brownfield properties the priority for redevelopment, why these properties should be front of mind for redevelopment, added costs and grants that are available, and key steps municipalities can take to champion brownfield redevelopment in their communities.

According to De Sousa, Canada has been a relatively good place for brownfield development. “Urban cores in Canada have retained a strong market due to good

All the physical challenges can be distilled into one theme: risk versus reward. If you don’t bring qualified teams to the project you will reduce their reward.

can be managed by the new development.”

In Orillia, Recoskie says, “We are getting ready to develop a comprehensive brownfield tax assistance program.”

A nuance though is that what is necessary motivation for a private developer to act (turning a profit) is not the same as what can constitute a sufficient benefit for a city or town. “When a public agency is involved it is not just about a profit margin, but making

to see brownfields redeveloped for productive uses. I think this is why so many municipalities have skin in the game,” Recoskie says.

There are resources available, beyond the sharing of notes between city staff, which offer guidance on how to carry out brownfield redevelopments, from conception to shouting one’s success from the rooftops. The Federation of Municipalities, for

Credit: City of Oshawa



Otaco Industries, 1965.

planning, strong immigration, an interest in urban living, and fewer issues related to racial segregation as compared with the U.S. As such, our old industrial and commercial areas with potential contamination have been addressed by the market with some support from government, largely allowing for more height, density, profitable residential uses (condos), with some financial supports depending on municipal policy and the market. The problem intensifies in weaker market areas, [such as] inner suburbs or poorer communities.”

“Still, reasons remain not to develop brownfield sites, even in the downtown areas of cities with sky-high real estate values,” De Sousa says. “There are sites in inner Toronto that I have been looking at since I was a kid. A developer is still inclined to choose a clean site next door to a brownfield or a greenfield a little further away because these properties do not involve (trigger) a longer process



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and additional costs and risks associated with brownfields.”

Too, he adds, “From a market perspective, there are brownfields too expensive to clean up and develop. There are mothballed sites. Some of these are complicated, big-ticket items that require a lot more than local support. If you want to get into weaker markets, you need more help. That is what we are starting to hear from private developers. They understand the projects, but it is coming to the point where the easier projects have been done.”

Recoskie, who not only has the perspective gained from working on the old foundry site, but also from her pre-Orillia career, offers these observations. “All the physical challenges can be distilled into one theme: risk versus reward. If you don’t bring qualified teams to the project you will reduce their reward. One challenge is the stigma that they are unsafe, dangerous and costly. Being more open and transparent regarding the site helps you.”

The stigma around brownfield sites must be addressed. “In our community that stigma grew from a lack of understanding. Distill [the project] into understandable language,” Recoskie says. “There is that fear that I’ve seen, of sharing information. I believe you should share that information, invest the time to explain the information.

“We are now in the disposition process for some brownfield waterfront lands for development. We share all our environmental reports on our website. We invested in completing high quality environmental due diligence work. It is in the City’s best interest for the environmental conditions of the property to be well-known and understood.”

Finally, Recoskie says, “There is a theme for projects that go well: have very realistic and transparent procedures. It will not go well if, for example, the time frame is unrealistic. I’m starting to see developers very educated in brownfield development, and the education of [city] staff in what brownfield developments is risky, and the reward at the end. Embrace it, put together the right team, and ultimately achieve financial, environmental and social benefits.” ❁



Carroll McCormick is a freelance writer based in Montreal, Quebec.

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ASSET MANAGEMENT: ROCK SOLID!

Stay tuned for CNAM's Call for Presentations to be issued in Fall 2019. We are looking for your presentations, case studies, and workshops that showcase how asset management has enabled delivery of the infrastructure services that Canadians enjoy!

Credit: TK Credit, Government of B.C./Fraser Health



The British Columbia government has continued to spend money on its infrastructure priorities, including new health care, transit, and transportation assets.



Credit: Infrastructure Ontario

The release of the Infrastructure Ontario P3 Project Pipeline provided a \$65 billion boost to infrastructure megaprojects development in the province.



2020 TOP100 PREVIEW

The discussions and trends shaping the 2020 report. *By Andrew Macklin*

It started at 240. From there, it was narrowed down, project by project. And by the time this article is released, it will be down to the final 100.

Each year, the ReNew Canada team spends hundreds of hours researching, fact-checking, discussing, and confirming the status of the projects that appear in the annual Top100 Projects report, attempting to build an accurate and comprehensive list to present to you, the reader.

If you're not familiar with the process, there are a distinct set of criteria that must be met in order for a project to be included:

- The project must be considered public sector infrastructure, even if it is built entirely by the private sector;
- The project must have a defined scope of work and overall cost;
- The project must have at least one company currently working, or having worked, on the defined scope of work;
- The project must still be in active procurement or construction; and

- Full funding for the project must be in place.

Each project must meet all of the criteria, which we have determined are the factors necessary for a project to be in active procurement.

Every year, there are a handful of key issues that dictate what projects land on our list, (government investments, weather delays, material shortages, and political fallout to name a few), and 2019 has been no different. Here's a look at the issues that impacted megaproject development in Canada in 2019.

The IO market update

The industry waited almost 15 months after the Ford government was elected, and nearly two years in total, for Infrastructure Ontario to be in a position to release a P3 Market Update. The update was solid (see page 6 for details), with 32 projects valued at an estimated \$65 billion included, along with nine others in the very early planning stages.

For companies in the health care and transit space, there was a lot to get excited about with the release, especially since it included procurement timelines for many of the projects either in active

or pre-procurement. That list, and the government funding commitments already announced for several of the projects, had a direct impact on our 2020 report.

Stalled federal funding

Say what you will for the spending commitments announced during the Trudeau government's mandate from 2015-2019. The fact remains that we saw the largest federal investment to date, and that included support for several megaprojects across Canada.

The federal election will be decided at the same time that this magazine is at the printer, so we can't comment on whether or not the Liberals won a second mandate. But the bigger point is, based on the recent rollout of infrastructure funding by the federal government, if the election was not in the fall of 2019, would more money have been announced for megaprojects across Canada? Based on our assessment, we believe the answer is yes, and that it has prevented a few projects from being included in the 2020 edition of the report.

Quebec's spending priorities

This past year also gave us a better understanding of the infrastructure priorities of Quebec Premier Francois Legault. The final project we added to last year's report was the Blue Line Extension, and this year we will be looking to La Belle Province for late additions to the list once again.

The 2019-2029 Quebec Infrastructure Plan update, the first update of Legault's mandate, shows a continued commitment to improving the province's vast highway network, including expansion projects along several key trade routes. There are also several health care projects in the works, although many are in the design phase, lacking a clear appreciation for what the overall cost of the project will be.

Look to the north

This year saw a significant uptick in conversations around infrastructure megaproject development in the north. This was a result of two primary emerging issues: unstable freeze/thaw cycles necessitating the need for all-season roads, and efforts to remove diesel reliance from northern communities.

A few of these projects made progress in the procurement process thanks to investments from the federal government, especially on the transportation side. There is also talk of investments through secondary funding sources, such as the Canadian Infrastructure Bank. That investment could help vault further megaprojects, largely from the energy sector, on to future Top100 lists.

B.C. continues to build

There continues to be no shortage of opportunities in British Columbia, as Premier John Horgan continued to roll out significant investments for infrastructure throughout the province.

In 2018, the highlight of the B.C. commitments was in transportation (the \$1.377-billion Pattullo Bridge replacement) and we expected more of the same in 2019. But consensus still hasn't happened on how to repair or replace the George Massey tunnel.

Instead, the government has focused its funding on transit and health care, with the latter taking centre stage for much of the year, as the province's made a strong commitment to replacing and upgrading several out-dated hospitals.

What about Alberta?

A resounding spring election win for Premier Jason Kenney and the United Conservative Party has caused a shift in the dialogue around infrastructure in the second half of 2019. The government has been so focused on the development of pipelines for sale and distribution of its vast oil resources that public sector infrastructure has taken a back seat.

We expected that this government could vault a few infrastructure priorities to the front of the line, picking up a few quick wins with the voting public along the way. But that hasn't happened yet. ❄️

Andrew Macklin is the managing editor of ReNew Canada magazine and author of the Top100 Projects report.



The **2020 Top100 Projects report** will be available with the **January/February 2020 edition of ReNew Canada**. For information about the report, please reach out to me at any time at andrew@actualmedia.ca.



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Top100
Canada's Biggest
Infrastructure Projects

For additional details on this year's Top100 report, visit top100projects.ca

Broadway Subway project
2019 Top100 Project Rank: #20
Value: \$2.83 billion

Station locations chosen for Broadway Subway project

The B.C. government has unveiled station locations for the Broadway Subway Project, a 5.7-kilometre extension of the Millennium Line from VCC-Clark Station to Broadway and Arbutus.

The station entrance locations were based on technical analysis and input from project partners. They are:

Great Northern Way: On the east side of Thornton Street, just north of Great Northern Way. This station creates better access to Emily Carr University of Art and Design's Great Northern Way Campus and the emerging creative economy hub in the False Creek Flats.

Mount Pleasant: At the southwest corner of Broadway and Main Street, for

connectivity to the growing business and residential community in Mount Pleasant.

Broadway-City Hall: Will use the existing entrance to the Canada Line at the southeast corner of Broadway and Cambie Street to ensure a convenient underground connection between the Millennium and Canada lines.

Fairview-VGH: On the southwest corner of Broadway and Laurel Street, near Oak Street. This location will provide better access to Vancouver General Hospital and the rest of the medical district.

South Granville: On the northeast corner of Broadway and Granville Street near the South Granville, Burrard Slopes, and Granville Island neighbourhoods.

Arbutus: At the northeast corner of Broadway and Arbutus Street. This station and bus loop will connect passengers destined for the University of British Columbia (UBC), with B-Line bus service between Arbutus and UBC. It will connect with the Arbutus Greenway.

The interim station names were chosen for wayfinding purposes and are not considered final at this time.

To view a detailed map showing station entrances, as well as nearby properties that will be used as construction storage and staging areas, visit engage.gov.bc.ca/broadwaysubway/stations

Construction is scheduled to start in 2020, with the line going into service in 2025. ♣



Hurontario LRT
2019 Top100 Project Rank: #41
Value: \$1.4 billion

Mobilinx named preferred proponent for Hurontario LRT

Infrastructure Ontario (IO) and Metrolinx are pleased to announce Mobilinx as the preferred proponent to design, build, finance, operate, and maintain the Hurontario Light Rail Transit project.

Members of the Mobilinx team include:

Applicant Lead: John Laing, Astaldi, Hitachi, Transdev, Amico Concessions, Salini Impregilo

Construction: Astaldi, Hitachi, Amico, Bot, Salini Impregilo

Design: IBI Group, Hitachi, Morrison Hershfield, Arcadis, Daoust Lestage, EXP

Operation Maintenance & Rehabilitation Provider: Transdev, Hitachi, Astaldi, Salini Impregilo

Financial Advisor: National Bank, HSBC

The selection of Mobilinx is the result of an open, fair and competitive procurement process overseen by a third party fairness monitor.

IO and Metrolinx expect to award the contract in fall 2019, with design work to

begin shortly thereafter.

The Hurontario LRT project includes:

- 18 kilometres of new dedicated rapid transit between Port Credit GO Station in Mississauga to the Gateway Terminal at Steeles Avenue in Brampton;
- 19 stops with connections to GO Transit's Milton and Lakeshore West rail lines; and
- A maintenance and storage facility for the light rail vehicles located south of Highway 407 and west of Kennedy Road. ♣

Top100

Canada's Biggest
Infrastructure Projects

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APPOINTED



Frederic Bettez

The Canada Infrastructure Bank has announced the hiring of **Frederic Bettez** as its managing director of investments.

Bettez brings to the role 15 years of experience in the infrastructure and renewable energy sectors. During those years he led financing, acquisition, development, and contract negotiations for a number of sizeable projects. Most recently, he served as president of Cosime Infrastructure and Energy Inc., and previously as vice president at Cosime Inc., as well as vice president at Macquarie Capital Markets Canada.

Bettez has led teams involved in setting up consortiums and partnerships, negotiating and structuring various design, build, finance, operate, and maintain (DBFOM) projects, developing financial models, and managing the financing of infrastructure and renewable energy projects that generated billions of dollars in financial commitments.



Mary Rowe

Mary Rowe has been named as the president and chief executive officer of the Canadian Urban Institute. (CUI)

Rowe is a urban advocate and civil society leader who has worked in cities across Canada and the United States. She comes to CUI with several years of experience as an urban advocate and community leader, including serving as executive vice president of the Municipal Art Society of New York (MASNYC), one of America's oldest civic advocacy organizations focused on the built environment.

Rowe has been a frequent contributor to national and international city-building programs, including UN Habitat and the World Urban Forum. She brings an extensive international network of practitioners from government, industry, community activism, and the city-building professions to strengthen CUI under her leadership.

Rowe holds Senior Fellowships with Evergreen and Future Cities Canada, Shorefast, PlacemakingX, and Massey College. She is lead facilitator with the Urban Project, an initiative of the Federation of Canadian Municipalities and Maytree. She serves on the board of directors of the Bentway (Toronto) and the Nature of Cities (New York City).



Daniel Firth

WSP Canada has announced the appointment of **Daniel Firth** in the new role of principal consultant for the company's National Transportation Business

Line's Planning and Advisory practice.

Firth brings 20 years of urban planning experience in North America and Europe with a focus on strategy, research, programming, congestion management, and implementing sustainable urban transportation. In his role, he will support WSP's efforts in Canada and Sweden relating to strategic planning and policy, including congestion pricing, Vision Zero, and transportation and street management.

Prior to joining WSP Canada, Firth was the executive director at the Metro Vancouver Mobility Pricing Independent Commission, where he managed a research study and public engagement process on the pricing of urban mobility in Vancouver.



Matthew Eades

The Consulting Engineers of Ontario added two new members to its board of directors: **Matthew Eades** and **Christopher George**.

Eades is the vice president and general manager of Associated Engineering's Ontario operation. In his role, he manages project delivery, business development, and staff development. George is a principal, regional manager at R.V. Anderson Associates Ltd. George was promoted to his current position in August 2018, and has been with R.V. Anderson for over 14 years.



Christopher George

Christine Hill, business development leader of infrastructure planning at Cole Engineering Group Ltd., will serve as board chair for a second year running. Hill was chair-elect when the previous chairman, **Jeremy Carkner**, had to step-down last November leading to Hill serving as chair for the remainder of the term. **Rex Meadley**, chairman at Tatham Engineering Limited, will continue on the board as past chair.



Zvonko Trajkovic

Arup announced that **Zvonko Trajkovic** has joined the Toronto office to spearhead the growth of the company's rail systems engineering practice in the Americas. He will lead Arup's rail systems engineering team to

broaden its regional offering in rail systems implementation, which encompasses systems design, assurance, and integration.

Trajkovic has spent the past two decades developing and managing complex rail projects in Canada and internationally. His expertise spans regional, commuter, metro, light-rail, monorail, and automated people mover projects and technologies. He comes to Arup from Aecon, where he served as the vice president of rail systems in Toronto, overseeing projects such as the Waterloo, Crosstown, and Finch West light-rail systems.

EllisDon announced the appointment of **Chris Lane** to the role of area manager for the Edmonton Buildings Group.

"I'm incredibly excited to be given this fantastic opportunity in Edmonton," said Chris Lane, Edmonton Area Manager, EllisDon. "We are on the cusp of great things here in Edmonton, with several large projects on our books that are currently sitting in pre-construction, which will be converted into construction projects soon."

Lane moved from the UK to Edmonton in 2014, bringing with him 15 years of construction experience working for a large UK based contractor. During his time with EllisDon, he has held several positions starting as a project manager, and then progressing into senior project manager, and most recently as construction manager.

Over the last five years, Lane has managed many projects for a range of clients, including key clients such as the City of Edmonton, Strathcona County, Leduc County, Defense Construction Canada, ONE Properties, Wexford Developments, and ProCura.

In 2015, he led the design and construction on two of the first Modified Design-Build projects awarded in Western Canada for Defense Construction Canada. The first of these projects was the Tactical Armoured Patrol Vehicles (TAPV) facility followed by Cold Lake Healthcare Facility which was awarded as a result of the successful design phase and relationships established during the TAPV project. In 2018, he also played a key role as construction manager on EllisDon's first residential high-rise project in Edmonton.



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Premier Doug Ford addresses the delegates at the 2019 AMO Conference.



Interim Liberal Leader John Fraser addresses the media following Premier Ford's presentation.



Caledon Mayor Allan Thompson with Cement Association of Canada President and CEO Michael McSweeney.

2019 AMO ANNUAL CONFERENCE OTTAWA, ONT.

Over 2,400 participants from hundreds of municipalities and organizations across Ontario who attended the Association of Municipalities of Ontario's (AMO) 2019 AMO Conference, August 18 to 21 in Ottawa. The campaign-style keynote from **Doug Ford**, Premier of Ontario, was preceded by a strong message from AMO President **Jamie McGarvey** who spoke of the unnecessary frustrations of municipalities dealing with red tape, funding constraints, and the downloading

of services. He called upon the Premier, and the many provincial ministers in attendance, including Ontario's Minister of Municipal Affairs and Housing **Steve Clark**, to "fix it!"

Conference topics included cyber security, cannabis legalization, changes to the health care system, recycling and the rise of plastics, affordable housing, rural economic development, and climate change. Some of the most interesting sessions included "A New Page: Municipal/Conservation

Authority MOUs" and a Hydro-One dominated breakout called "A Framework for Municipal Governments to Grow and Attract Business through Electricity Infrastructure." There was also ample dialogue about water infrastructure, fast-tracking the planning process and building an "asset management culture."

The 2020 AMO Annual Conference will take place in Ottawa from August 16-19. For more information, visit amo.on.ca/Events/AMOCongress.



Bruce Power CEO Mike Rencheck, second from right, discusses the next generation of infrastructure.



Montreal Councillor Robert Beaudry talks about how his community is working to become a smart city.

2019 TORONTO GLOBAL FORUM TORONTO, ONT.

The 13th edition of the International Forum of the Americas' Toronto Global Forum focused its discussion on Leading the New Economy. That included a full day of keynotes and panel discussions on energy, infrastructure, and sustainable development.

One of the key discussions on infrastructure centered around the ongoing transformation of today's urban centres into the smart cities of tomorrow. **Steve Morriss**, group president of design and consulting services in the Americas for AECOM, talked about helping companies like his are working to help communities see how they can future proof their assets, an important

step in building future cities.

Data is key in the development of smart cities, and how that data is collected, and whether it is consensual. **Tara Pham**, chief executive officer of Numina, discussed the need to control the ethical use of data in cities. She cited how people walking down the street, and their movements in doing so, is not an opt-in for data collection. That sort of non-consensual data collection would need to be prevented by a policy or governance measure put in place.

Pham also suggested that urban markets are far too dynamic, so we can't just rely on car sensors to make vehicles fully autonomous.

There will need to be infrastructure in urban centres that can work with sensors inside the vehicle in order to ensure that vehicles can remain autonomous. The hubs that vehicle sensors will rely on could shut down or malfunction, so infrastructure in the city core would also be necessary to ensure functionality at all times.

Attendees to the session were left with one very important question, one vital to understanding the role that mobility must serve in smart cities: is the end goal autonomous travel or is it a positive mobility experience?

For more information, visit forum-americas.org/toronto.

TRUTH IN TRAINING



By Chris Gardner

There are three kinds of lies: lies, damned lies, and statistics. Decades after Mark Twain popularized this remark, the building trades unions in B.C. have breathed new life into his observation.

Only 15 per cent of B.C.'s 250,000 construction workers are affiliated with the traditional building trades unions. While the rest of the men and women in construction have moved onto more flexible models that give workers greater choice, better career options and participation in profit-sharing and bonus plans, the building trades cling to old-school hiring halls, rewarding seniority over skill, rigid rules, and antiquated business practices that hurt workers and are financially unsustainable.

Desperate to turn back the clock and to justify to their members—and government—that they remain relevant, the building trades have adopted apprenticeship training as their last line of defence. Unfortunately for them, neither the facts nor the statistics back up their sanctimony.

Learning a skill and mastering a craft happens on the job working side-by-side with colleagues who have the experience and expertise to pass on to those following in their footsteps. What is learned in the classroom is enhanced and refined on the job, and then practiced in building the infrastructure Canada depends on.

It should then come as no surprise that the building trades train only 15 per cent of the construction workforce—that's the percentage of the workforce they represent. The remaining 85 per cent of construction workers who are members of employee associations and progressive unions or who work for construction companies not affiliated with the building trades unions are trained in classrooms by instructors and on the job by their colleagues, just like their building trades counterparts.

In fact, statistics obtained from the Industry Training Authority (ITA) through a Freedom of Information request shows that 23,172 of the province's 28,432 registered construction apprentices are not affiliated with any union. That means that 81.5 per cent of construction apprentices are not sponsored by the building trades, or any other union, including progressive ones like the Christian Labour Association of Canada (CLAC).

The vast majority of apprenticeship sponsorship in this province is done by Independent Contractors and Businesses Association (ICBA) and open shop companies—not the traditional building trades unions. It's not even close.

That ICBA sponsors more construction apprentices than any other entity in B.C. is an ever-present uncomfortable reality for unions who collect millions in "training"

funds from their workers.

Combined, ICBA and non-union companies sponsor 10,329 construction and industrial electrician, plumber, sprinkler fitter, steamfitter-pipefitter, and welder apprentices. The unions train 2,073. That's a margin of five-to-one for the open shop.

All of this makes the NDP Government's move to building trades union-only monopolies on major infrastructure projects so offensive. By forcing all workers on the Pattullo Bridge to join a building trades union and to become an employee of a new crown corporation is a sop to the building trades unions who happened to have donated \$2.5 million to the NDP over the past few elections.

Money talks, folks. This gift to the friends and insiders of the NDP Government is not about training or hiring more young people or providing more opportunities for women—indeed, the statistics prove non-union apprenticeship is thriving. It's money at the heart of one of the most offensive backroom deals to come out of Victoria in decades. ♣



Chris Gardner is the president of the Independent Contractors and Businesses Association.



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