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THE INFRASTRUCTURE MAGAZINE

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## SPECIAL INSERT

### 2023 TOP100 PROJECTS



Our 17th annual report on Canada's biggest infrastructure projects can be found inserted into the centre of this issue.

For additional details on this year's Top100 report, visit, [www.top100projects.ca](http://www.top100projects.ca)

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The Réseau express métropolitain (REM) tunnel leading to the future station at Montréal-Trudeau International Airport was completed in July of 2022. Work installing the rails and equipment in the 3-km tunnel is currently underway. Photo credit: REM/NouvLR

# HEAD GAMES

by John Tenpenny

**HAS THE PUBLIC-PRIVATE PARTNERSHIP** or P3, become a four-letter word?

Recent news on a pair of transit projects in Ontario being delivered under the P3 model has been harsh in its criticism and even questioned whether governments should use the model at all.

First up is the 19-kilometre Eglinton Crosstown LRT project in Toronto, which was supposed to be finished by the end of 2022, but now won't be up and running until at least the end of 2023, according to Metrolinx.

"Unfortunately, while progress has been made, Crosslinx Transit Solutions have fallen behind schedule, are unable to finalize construction and testing, and therefore the system will not be operational on this timeline," said Metrolinx president and CEO Phil Verster in a statement.

According to a report from CBC News, confidential records "paint a picture of how unresolved issues between the two provincial agencies involved in the project and the consortium building it are contributing to delays. They outline concerns Metrolinx and Infrastructure Ontario (IO) have about the quality of some work completed, "over-ambitious" timelines and the lack of a plan to complete the LRT."

The recently released report from the Ottawa LRT Public Inquiry made similar statements in its findings, saying "there were persistent failures in leadership, partnership and communications in the construction and maintenance of the Ottawa LRT."

Commissioner Justice William Hourigan laid blame at the feet of both the private consortium, Rideau Transit Group (RTG), and the City of Ottawa, saying RTG lost sight of the public's best interest during the project and that Ottawa City Council was not told the testing criteria for the LRT was lowered to allow it to pass its final testing phase.

Justice Hourigan also said governments and public procurement agencies should examine whether to use a P3 or another model when building complex infrastructure projects.

Around the same time, the Canadian Council for Public-Private Partnerships (CCPPP) was celebrating the 30th edition of their P3 Conference in Toronto.

In her opening keynote address, CCCPP president and CEO Lisa Mitchell told the audience the model is still relevant.

"I believe not only in the viability but in the superiority of the P3 model," she stated. "And yeah, it's been knocked around a bit, but it hasn't been knocked down or knocked out."

Should a couple of bad experiences taint P3s going forward, or should the model have been given an opportunity, based on its 30-plus-year track record of producing many successful outcomes for both the public and private sectors? Many of the projects on this year's Top100 Projects report are tracking towards success using P3s (See article on page 12).

In the wake of these setbacks, all parties involved should take a step back and realize that collaboration and public interest should be at the heart of the relationship between the public entity and private-sector partners when building large infrastructure projects.

Don't hate the model. Hate the players. 🍀



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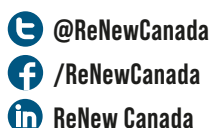
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# CIB INVESTS IN INDIGENOUS-OWNED WASTEWATER TREATMENT PLANT

The plant will be located on shíshálh Nation lands near Sechelt, B.C. and will play a critical role in enabling economic growth, protecting the coastal environment, and safeguarding public health through improving the outfall.



The CIB will lend more than \$6 million through its Indigenous Community Infrastructure Initiative to support a new Port Stalashen Wastewater Treatment Plant.

**THE CANADA INFRASTRUCTURE BANK (CIB)** and the shíshálh Nation Government District (sNGD) announced financial close on an agreement, which will see the CIB lend more than \$6 million to support a new Port Stalashen Wastewater Treatment Plant through its Indigenous Community Infrastructure Initiative.

The plant will be located on shíshálh Nation lands near Sechelt, B.C. and will play a critical role in enabling economic growth, protecting the coastal environment, and safeguarding public health through improving the outfall. The investment will serve the shíshálh Nation, which represents a population of more than 1,500 members, and lessees on shíshálh Nation Lands (Tsawcome) No. 1.

“Through our Indigenous Community Infrastructure Initiative, we are proud to partner with the shíshálh Nation to help close the infrastructure gap and invest in this important project. Our investment will accelerate the creation of a new community wastewater treatment plant,

providing infrastructure, economic, and environmental benefits to the Nation. We look forward to continuing to collaborate with First Nation, Métis and Inuit communities across Canada to enable inclusive and sustainable infrastructure projects,” said Ehren Cory, CEO, Canada Infrastructure Bank.

The current wastewater treatment plant, owned and operated by sNGD for the past 26 years, has reached its end of life and requires replacement. This new replacement plant and improved outfall will serve 91 connected residential units and support the conversion and connection of 88 buildings, which currently rely on septic wastewater systems.

“The agreement reminds me of why our Nation decided to go down the Self-Governing path in the first place. It shows how issues can be meaningfully addressed through a collaborative discussion and agreement. This bodes well for the future,” said Chief Henry Warren Paull, shíshálh Nation. 🍁





Federal, provincial and territorial Infrastructure ministers gathered in New Brunswick to discuss their shared priorities.

## INFRASTRUCTURE MINISTERS GATHER TO DISCUSS PRIORITIES

### MINISTER OF INFRASTRUCTURE

Dominic LeBlanc and Jeff Carr, New Brunswick's Minister of Transportation and Infrastructure, co-chaired a meeting of federal, provincial and territorial Infrastructure ministers to discuss their shared priorities and strengthen their collaboration.

"Collaboration is key to building the infrastructure our communities need to keep growing and be more resilient," said LeBlanc. "During [the] meeting, my counterparts and I discussed our shared goals and the next generation of infrastructure programs. With our partners from coast to coast to coast, our government will continue to deliver for Canadians."

Ministers shared ideas on the next iteration of cost-shared infrastructure programs, and how to ensure they will meet the challenges and the opportunities facing Canada in the coming years. Ministers also agreed on the importance of flexibility to ensure federal infrastructure funding supports regional, environmental, economic, and social priorities.

"Building on the shared priorities, the provincial and territorial ministers look forward to ongoing collaboration with our federal colleagues, towards stable and flexible long-term funding to assist with our respective infrastructure challenges including that of climate change and the growing need for infrastructure resiliency," said Carr. 🍁

## CANREA LAUNCHES ELECTRICITY TRANSITION HUB

**THE CANADIAN RENEWABLE ENERGY** Association (CanREA) announced the launch of the CanREA Electricity Transition Hub, supported by nearly \$1.6 million in funding from Natural Resources Canada. The announcement was made at the Electricity Transformation Canada conference in Toronto.

"This support for the Canadian Renewable Energy Association's Electricity Transition Hub is an important step on the path to a prosperous net-zero future," said Jonathan Wilkinson, Minister of Natural Resources.

The CanREA Electricity Transition Hub is a knowledge-transfer tool helping electricity utilities and system operators accelerate their decarbonization efforts. The Hub will equip participants to integrate the larger amounts of wind energy, solar energy and energy storage needed to support electrification and Canada's net-zero GHG-emission targets.

"During today's Electricity Transformation Conference in Toronto, I was pleased to announce that the Government of Canada is supporting our utilities and systems operators to deliver the clean technologies we need to reach net-zero," added Julie Dabrusin, Parliamentary Secretary to the Ministers of Natural Resources and Environment and Climate Change, and MP for Toronto-Danforth.

Federal funding for this project is provided by Natural Resources Canada's \$1.56-billion Smart Renewables and Electrification Pathways (SREPs) program, which aims to significantly reduce GHG emissions by enabling increased renewable energy capacity that will provide essential grid services while contributing to Canada's 2050 net-zero targets.

"We want to thank Natural Resources Canada for their generous support of CanREA's Electricity Transition Hub," said Robert Hornung, CanREA's president and CEO. "The renewable energy industry has a critical role to play in helping Canada meet its net-zero commitments."

Through developing a curated resource library, as well as sharing relevant knowledge and skills through a quarterly report, quarterly meetings and an annual Hub Summit event, the Hub will help participants build capacity to increase the deployment of wind energy, solar energy, energy storage and grid-modernization technologies.

The Hub has 13 founding participants, including Alberta Electric System Operator (AESO), BC Hydro, City of Medicine Hat, EPCOR, Essex Power Corporation, Fortis Inc., Manitoba Hydro, NB Power, Ontario



(L to R): Robert Hornung, CanREA's president and CEO; Julie Dabrusin, Parliamentary Secretary to the Minister of Natural Resources and to the Minister of Environment and Climate Change; and Phil McKay, CanREA's senior director, Electricity Transition Hub.

Power Generation, Quilliq Energy Corporation, SaskPower, Toronto Hydro and Utilities Kingston.

"CanREA is very excited to launch the Electricity Transition Hub. It is a unique entity that supports electricity system participants and helps them build capacity to accelerate the energy transition," said Phil McKay, CanREA's senior director, Electricity Transition Hub. "CanREA is uniquely positioned to gather global knowledge on wind energy, solar energy and energy storage integration, and then to translate these resources effectively to be relevant in all of Canada's different regions and electricity systems."

CanREA, utilities and system operators will also contribute to this project, bringing the total investment to over \$1.9 million.

"We must build new wind energy, solar energy and energy storage projects at an unprecedented pace," said Hornung. "Now is the right time to bring together Canada's electricity utilities, system operators and renewable energy industry for capacity-building activities related to the deployment and integration of these technologies within electricity grids. There is not a moment to waste." 🍁

"There are fissures in the system so when we're at the table we need to solve these problems in an intentional way."

Taneen Rudyk, president of the Federation of Canadian Municipalities.



## INTENTIONAL LEADERSHIP

For the FCM's Taneen Rudyk, now is the time to engage and empower Canadian municipalities

by Connie Vitello

**T**HE FEDERATION OF CANADIAN MUNICIPALITIES (FCM) brings together more than 2,000 municipalities of all sizes—representing 92 per cent of Canadians. Together with its members, the organization strives to help local leaders build better lives. One of these key leaders is FCM president Taneen Rudyk, a four-term councillor for the Town of Vegreville, Alberta.

Rudyk, who was first elected to council in 2010 and was elected to the FCM Board of Directors in 2017, has held several different positions—including co-chair of the Social Economic Development Committee, co-chair of the Conference Planning Committee as well as chair and vice-chair of the Increasing Women's Participation in Municipal Government committee. She has also served as the

governance representative for the Towards Parity in Municipal Politics initiative, and as FCM interim vice-president.

While demonstrating that she's a strong advocate for the vital role of Canada's small towns, she continues to be an active volunteer currently devoting her efforts towards supporting adults with exceptional needs as well as refugee sponsorship. She's also proud to have raised four children to be creative and kind citizens.

*ReNew Canada* spoke with Rudyk about a range of FCM's focus areas—including infrastructure, housing, sustainability, and inclusivity—and it quickly became apparent that her hard work and small-town values have led to a strong desire to support her members in making big municipal improvements across the country.



Connie Vitello is contributing editor of *ReNew Canada*.





L to R: A view of Edmonton, Alberta, in the winter from across the river valley, including the conservatory and many of the main buildings of the skyline. Like a perfectly placed park bench, intentional leadership takes consideration and careful planning. Taneen Rudyk delivers her inaugural speech as president at FCM's annual general meeting in June 2022, telling delegates that working together is the key to building strong communities.



**How did your educational background and work experience inform your current role as the president of FCM?**

I've always been interested in debating important issues that are close to the heart. One of the main things I learned from my education is to make sure to listen and understand where people are coming from and not to pre-judge. It's important to do your homework and find out about people's beliefs and try to anticipate their motivation for reacting and believing the way that they do.

The Alberta Elected Officials program was an excellent education in terms of providing me with the technical details that were important to understand—including the dichotomy of large urban centres versus suburban and rural centres and seeing how we can all work together as neighbours. The most important thing to keep in mind is that people are generally just looking for the best possible life, and we must help everyone achieve their goals.

**Who are some mentors that have inspired you on your career path in municipal governance and as Councillor for the Town of Vegreville?**

I was always interested in politics and community-building, and I was active as a vol-

unteer, spending a good portion of my weeks supporting the community at the school and local levels. The two mentors encouraged me to run had two different styles: one recommended I take the Alberta Elected Officials program. Another had a different approach that was no nonsense; they would rather miss an education course if it saved the taxpayers a penny. This was another lesson to me in how it takes different views to make a strong municipal government—both mentors were working on building community in their own ways.

**What are guiding principles that help you carry out your duties and bring out the best in your board of directors at FCM?**

Acting with integrity and making space to allow for differences is critical. And that is particularly important right now. People have gotten uncomfortable with disagreeing with each other in the right way. I've got a colleague who says: "Be hard on the issues and easy on the people." I like that. The board of directors is made up of amazing leaders and it is my job to allow them to shine, to use their strengths to the best effect. We need to provide a platform so that people see politics are still relevant and that we are a trustworthy board working everyday to

make their lives better. We have so many inspiring leaders across the country.

**How do you actively and inclusively shape policy priorities that reflect the concerns of municipal governments and affiliate members?**

FCM has a structure and an executive that is made up of representatives across the country. We've got provincial, territorial, and executive associations and representations from specialty caucuses, so we can have an accurate account of what's happening across the country. We also have the ability for members to attend executive meetings. Our staff are so incredibly competent at supporting members and vetting their initiatives. We also have workshops, for example, on how to apply for grants such as the Green Municipal Fund or to protect yourself on digital platforms and to encourage women to run for public office.

We're making sure we're relevant in terms of how we're shaping our initiatives, because the conversation changes and we need to capture key issues across the country so we can advocate to the federal government in a way that's meaningful. In fact, we actively adopted a statement in support of inclusivity at a recent board meeting.

**"Sustainable procurement is important; if we don't do it right the first time, it's a retrofit before it has even started."**

FCM's president Taneen Rudyk also serves as a councillor for the Town of Vegreville, Alta., home to the Vegreville egg, the world's second largest pysanka (Ukrainian Easter egg).



Our organization has been around for over 100 years, but we are evolving and demonstrating that we can show leadership. It's challenging because many of our members are small, and they have a handful of staff. We can only use the board that is elected so we need to encourage levers of powers to be accessed by a number of players. We're not there yet, but we're working to have multiple voices included around the table.

**What are the key municipal infrastructure issues that need more attention moving forward?**

Our towns and cities are growing quickly and that's a good thing, but infrastructure is having a tough time keeping up with that. We don't have enough affordable and high-density housing to keep up with demand so as a result we're facing a housing crisis that has been generations in the making. And that's happening while our public transit systems aren't developing fast enough to be able to connect people to the places that they need to get to, leaving roads congested and compromising our environment. Municipal hubs and communities centre and libraries are often small and old and can't keep up to rising demand. Also, it's a big country and we have several people in remote and rural areas and they need to be more connected. We need consistent sources

of core funding for all of that. Investing in infrastructure is more than just the roads and the buildings, it's the foundation on which every Canadian is built and how economy functions. And we need to get on that path to net zero.

We need to be more intentional in a number of different ways. So, we've been very active in our advocacy to the federal government with regard to key focus areas for infrastructure: we want a doubling of the Canada Community Building Fund; better climate resilience through \$2 billion for climate mitigation and \$1 billion annually for next 10 years to keep up with flood, fire and drought; an investment of \$1 billion annually for next 10 years municipal waste and water infrastructure; and some key design considerations for a permanent public transit fund.

We're at a critical time right now. A lot of these critical funding pockets are coming to an end. There are fissures in the system so when we're at the table we need to solve these problems in an intentional way.

**How could the Green Municipal Fund (GMF) have a greater impact, especially when it comes to critically needed climate adaptation?**

The FCM GMF is doing incredible work and it continually assesses the needs of the

federal government. We continue to find different ways to do what we do better. We're currently limited under the negotiations of this agreement and we're always looking to evolve so we can deliver the biggest impact. Sustainable procurement is important; if we don't do it right the first time, it's a retrofit before it's even started.

It's also important to undertake capacity building and make these funds more accessible for smaller communities. Our municipal asset management program manages the data and can advise on how to move forward. One size doesn't fit all and it's important to support the creativity and ingenuity of the various communities.

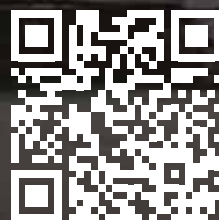
**Any final thoughts?**

There's nothing permanent in politics except change. It's a really important time for municipal government. It's through challenge that we find opportunity and at this precipice when people are feeling disheartened and disengaged, we offer an opportunity to be able to feel empowered and connected once again. I'm so proud of the work that we've been able to accomplish during the pandemic. In the next few years, it will be incredibly important that we get these conversations right and the only way we can do that is by having multiple voices involved. 🍁



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# GOING TO MARKET

Infrastructure Ontario is delivering bigger and better hospitals

by John Tenpenny

**I**N 2019, THE GOVERNMENT OF ONTARIO announced one of the biggest capital project pipelines, with 30 projects valued at \$65 billion and a significant portion of that in the healthcare space.

Not long after, as the COVID-19 pandemic gripped the world, Michael Lindsay was appointed president and CEO of Infrastructure Ontario (IO), the organization charged with seeing these projects through to completion. Having rejoined IO, a year earlier as president, project delivery, Lindsay and the organization he leads has, in his words, “been relentless in trying to bring these projects to market.” In particular, “building out the capacity and the resilience of Ontario’s healthcare system.”

And that has been accomplished in partnership with industry.

“Working with talented design firms and good construction firms we’ve accomplished much while evolving our approach to the way in which we think about the delivery of these projects and dealing with the constraints of the COVID-19 pandemic,” says Lindsay.

“I’m particularly proud of the fact that our organization has managed to bring several hospitals online, during the pandemic, such as the Cortellucci Vaughan Hospital, the first net new hospital in the province in decades.”

Lindsay also points to other hospital projects either in procurement or under construction, such as Michael Garron Hospital and West Park Healthcare Centre in Toronto—set for completion in 2023—South Niagara Hospital, West Lincoln Memorial Hospital, and the Weeneebayko Area Health Authority redevelopment.

“We’re gratified and grateful that, notwithstanding everything that we had to navigate with our partners and with government, that we’ve managed to bring those projects either to realization, or to push them forward.”

## Good alignment

Infrastructure Ontario, says Lindsay, are big believers in

public-private partnership (P3) structures.

“They are one of the best ways to align the incentives and designers, constructors, financiers, and those who ultimately maintain hospitals over the long-term.

“As owners we continue to believe that in the right places and spaces, securing outcomes against budget and cost through the use of private financing makes a lot of sense.”

The evolution of the P3 model has been necessary for a variety of reasons, including the size of some of the hospital projects, that weren’t anticipated, says Lindsay.

Projects like the New Ottawa Civic Hospital and the Trillium Health Partners Broader Redevelopment – The Peter Gilgan Mississauga Hospital are “massive in their total size, which is great,” he says.

“That is beds for regions that desperately need them, but it means that these projects have their own risk profile and that is somewhat different than when we used to, or still do, put a greenfield hospital down somewhere in a region outside of a major urban center.”

So, when he became Infrastructure Ontario CEO, Lindsay wanted to make sure that they were using the right model to ultimately deliver these larger urban hospital projects. And the adaptation, or evolution that they came up with is what he describes as a progressive form of Infrastructure Ontario’s DBF or DBFM models.

“So, what we do is get into a 12-to-18-month development agreement phase, with contractor involvement, where we work together, effectively, to progress the design of these hospitals and we use that as an opportunity to talk about key risks and risk transfer inherent in the contract. And, at the end of 12 to 18 months we fix the price for those works and we enter into a pretty well understood contract,” explains Lindsay.

## Limited resources

Over the next five to 10 years, Lindsay sees some trends and forces that will affect project procurement, such as inflation and the availability of skilled labour and trades.

“We’re going to continue to face, alongside the rising cost of things, sustained market capacity challenges in respect to the availability of labour and trades. And, I know the Government of Ontario is consumed with this question, as most jurisdictions are, but there’s a limited amount of people, ultimately, to build.”

Lindsay points to Eastern Ontario as an example where among other projects, Infrastructure Ontario cur-



John Tenpenny is the editor of ReNew Canada.

**“As owners we continue to believe that in the right places and spaces, securing outcomes against budget and cost through the use of private financing makes a lot of sense.”**





L to R: The Trillium Health Partners long-term redevelopment project includes the new Peter Gilgan Mississauga Hospital; The six-storey Lakeridge Gardens Long-Term Care facility in Ajax, Ont. was built in under 18 months; Michael Lindsay, president and CEO, Infrastructure Ontario.

rently has numerous healthcare facilities in the pipeline, including the Children's Hospital of Eastern Ontario Integrated Treatment Centre, the New Ottawa Civic Hospital, Quinte Health Centre, the Stevenson Memorial Hospital redevelopment, "and I haven't even put on that list the Kemptville Correctional Facility and a couple of others, plus all the federal government is doing with every building in downtown Ottawa," he says.

As healthcare projects continue to get bigger in scope, Lindsay thinks they are beginning to experience some of the same risk characteristics seen in large linear projects, such as highways and transit.

"It's no longer just a greenfield parcel of land," he says. "Although we have a few of those in the pipeline, it's far more brownfield rehabilitation, refurbishment, reconstruction as operations are going on. Not only are they massive hospital projects, but they sit face-to-face with massive transit investments that are planned, so the

interactive effect of those works happening in the same corridor is new and novel. So, there's a whole bunch of those things that continue to condition the way in which we think about what it is we must do within the industry to deliver."

Finally, another pandemic-related trend Lindsay sees when it comes to building healthcare facilities is the sector's thinking around long-term care (LTC) homes and how they can be part of "a continuum of care or campus of care."

"We've built those four rapid-build LTC facilities in partnership with hospitals. And, they are long-term care beds, but they're also acute-care beds. And we were certain to ensure the behavioural units and dialysis units were a part of these LTC facilities, because the ability to take patients that are otherwise occupying hospital beds and to put them into proximate LTC facilities that allow for some synergies and respective operations cost, especially around clinical staff, is really powerful." 🍁

# INFRASTRUCTURE IN CANADA

## A look inside the 2023 Top100 Projects report

by John Tenpenny

**W**HILE THE COVID-19 pandemic eased, and life inched toward to normal, economic turmoil and rising inflation emerged as the next obstacle to overcome for Canada's public infrastructure sector over the past year. If the 2023 edition of the Top100 Projects Report is any indication, the country continued to get shovels in the ground to build important infrastructure projects despite the challenges.

Canada's Top100 Projects reached a total value of \$273 billion, unchanged from last year. The list turned over 11 projects, nine of which were due to substantial completion being reached, with one project—the Calgary Event Centre—being cancelled. Ten projects made their first

appearance in the report, while Metro Vancouver's North Shore Wastewater Treatment Plant returned after a one-year hiatus after enlisting a new construction management team.

In the 2023 version of the report, the 11 new projects totaled nearly \$10 billion, with eight of them falling under the buildings development sector, with the remaining projects falling under the water-wastewater (2) and transportation sectors.

Overall, the transit sector leads the 2023 Top100 Projects report with a quarter of the projects, valued at \$120.6 billion, followed by the energy sector (11 projects, \$50.7 billion), the buildings sector (30 projects, \$45.4 billion), the transportation sector (19 projects, \$28.2 billion), and the water-wastewater, communications,

and remediation sector (15 projects, \$28 billion).

Here is a look at some of the largest infrastructure projects from across Canada making their debut on the 2023 Top100 Projects report.

### Thunder Bay Correctional Complex

The Thunder Bay Correctional Complex project involves the replacement of an aging jail and correctional facility with a new, 345-bed, multipurpose complex. Both the

Thunder Bay Jail and Thunder Bay Correctional Facility are among the oldest provincially run adult correctional facilities, which were built in 1928 and 1965, respectively.

The new facility will update automation and technology to address issues of health, safety, and security. This includes the introduction of efficiencies related to design, technology, and the use of space. The rebuilt Thunder Bay Correctional Facility is designed to meet Leadership in Energy and Environmental Design ("LEED") certification by focusing on energy efficiency, healthy indoor environments, and reduced greenhouse gas emissions.

The facility will include a connection to an existing 50-inmate facility called the Thunder Bay Modular Built Facility (MBF), which is located to the southeast of TBCC and is currently under construction.

The project also involves the creation of a new access driveway from Highway 61 and the design and construction of a 4,000 sq. ft. wastewater treatment facility.

### Place du Portage III Renewal Project

The Place du Portage III complex, currently serving as Public Services and Procurement Canada's headquarters, is the largest of the four buildings that comprise the Place du Portage federal campus in Gatineau, Quebec. Built in the 1970s, the complex consists of: nine towers, commercial areas, four basement levels, and a three-level underground parking garage.

The renewal of Portage III encompasses a complete overhaul of both the inside and outside of the building, including modernized activity-based workplaces; a new energy-efficient building envelope and heating; (HVAC) system; a new accessible entrance and a completely revamped main entrance; and improved landscaping.

Before modernizing, the Portage III complex accommodated 4,773 full-time employees from PSPC and Shared Services Canada. The Portage III AWR project will transform the complex to accommodate at least 8,845 people and to meet the needs of a modern workplace.

The Portage III Asset and Workplace Renewal (AWR) Project is divided into two phases and will consist of renovations to the inside and the outside of the building.

### Arts Commons Transformation Project

Since Arts Commons opened in 1985, Calgary's population has nearly tripled and the amount of resident companies that call the complex home has doubled. With over 10 years

### OFF THE LIST

Here is the list of projects no longer listed as part of the Top100 Projects report:

- Romaine Complex
- Montreal Metro AZUR Car Purchase and Replacement
- CFB Trenton Expansion
- East-West Tie Transmission Project
- Travers Solar Project
- Calgary Event Centre
- Gordon M. Shrum Generating Station Refurbishment
- Library and Archives Canada Preservation Centre
- Cote-Vertu Station Underground Garage
- Royal Inland Hospital Patient Care Tower
- Gene Zwozdesky Centre at Norwood



John Tenpenny is the editor of ReNew Canada.





1

**1.** The Thunder Bay Correctional Complex project involves the replacement of an aging jail and correctional facility with a new, 345-bed, multipurpose complex.



2

**2.** The Place du Portage III Renewal Project will see a complete overhaul of both the inside and outside of the building, which serves as PSPC's headquarters in Gatineau, Que.



3

**3.** Vancouver's Broadway Subway project reached a critical phase of construction with the start of tunnel excavation to connect six new underground stations on the 5.7-km extension of the Millennium Line.

of research, development, and community-engagement behind it, the Arts Commons Transformation (ACT) project—led by the Calgary Municipal Land Corporation, a wholly owned subsidiary of The City of Calgary—includes two phases to achieve a new, vibrant campus in the heart of Calgary.

Phase one of the transformation will expand capacity at a new location called Arts Commons North, or The Road House, that will include three versatile, purpose-built venues, a connection to the existing building and supporting amenities. This 173,000 sq. ft. space will include a new 1,200 seat theatre, two smaller theatres, rehearsal space and an elevated corridor to the existing building and related amenities.

Phase two of the Arts Commons Transformation involves the revitalization of the existing facility. Arts Commons South or The Resident House will be redesigned and will create a civic arts centre that is more accessible, with upgraded amenities and technology. The Resident House is currently home to six resident companies.

#### **Fairbank Silverthorn Storm Trunk and Sewer System**

The City of Toronto, with support from the Government of Canada, is making a significant investment in storm water infrastructure to protect the Fairbank Silverthorn community from basement and surface flooding. The project will construct a three-kilometre long and 4.5-me-

#### **2023 TOP100 PROJECTS BY SECTOR**

SECTOR	# OF PROJECTS	TOTAL VALUE
ENERGY	11	\$50.7 billion
TRANSIT	25	\$120.6 billion
BUILDINGS	30	\$45.4 billion
TRANSPORTATION	19	\$28.2 billion
OTHER	15	\$28 billion

tre diameter storm trunk sewer, 17-km length of storm collector sewers and install 325 inlet control devices to control stormwater going to catch basins. When construction is complete in 2026, the new infrastructure will cut the amount of storm water flowing into Black Creek on the western edge of the community by approximately 40,000 cubic metres, reducing sewer backups and basement flooding for more than 4,645 homes and provide flood protection to a 140-hectare area. The first contract to construct the storm trunk sewer and some storm collector sewers is underway. Several shafts have been completed and others are being constructed in anticipation of tunneling work, set to commence in early 2023. 🍁



# STANDING THE TEST OF TIME

Library and Archives  
Canada's new Preservation  
Storage Facility is built  
to last by John Tenpenny

**T**HE PRESERVATION OF HISTORY is a task that never ends. But with the recent completion of Library and Archives Canada's (LAC) new state-of-the-art Preservation Storage Facility in Gatineau, Que.—a space that will provide the conditions required to preserve documents for 500 years—that job became just a little bit easier.

The facility is the first net-zero carbon archival preservation facility in the Americas, and the first special purpose federal facility built to meet the requirements of Canada's Greening Government Strategy, and the largest automated archival facility in the world.

Plenary Properties Gatineau (PPG)—made up of Plenary Americas, PCL and ENGIE Services, in partnership with B+H Architects, Stantec and Lapalme Rheault Architects—was chosen by the Government of Canada for a public-private partnership to design, build, finance, and maintain the new preservation facility, which was constructed adjacent to the LAC's existing preservation centre.

"This new, state-of-the-art preservation facility in the National Capital Region will help Canada remain a leader in the preservation and promotion of our invaluable documentary heritage. Our government is confident that this preservation centre will solidify Library and Archives Canada's place at the forefront of preservation throughout the world, for the benefit of present and future generations," said Pablo Rodriguez, Minister of Canadian Heritage and Multiculturalism at the facility's official opening.

The project has been recognized with a pair of awards from the Canadian Council for Public-Private Partnerships, winning the Silver Project Development Award in 2019, and the Gold for the Infrastructure category in 2022.

According to Paul Marion of PCL Construction—the design-build lead for the project—one of the major challenges was



## LAC PRESERVATION STORAGE FACILITY QUICK FACTS

- The vaults have storage space equivalent to eight and a half Olympic-size swimming pools.
- More than 590,000 containers of published and archival materials (hard copy), microfilms and motion-picture films are being moved into the facility.
- Construction of the new facility began in August 2019 and was completed in June 2022.
- The texture of the 416 concrete panels that cover the facility represents the geological composition of the ground on which the building sits.
- The cost of the implementation of the Gatineau 2 project and the construction of the Preservation Storage Facility and maintenance and management of both buildings for 30 years is estimated at \$580 million.

meeting the requirements from the National Capital Commission when it came to the exterior of the building

"The building had to be designed around a form that lent itself well to storage and retrieval. And that really informed the form of the building," says Marion.

The new archive had to complement rather than overshadow the architecturally significant Preservation Centre, which is now connected to the new Preservation Storage Facility.

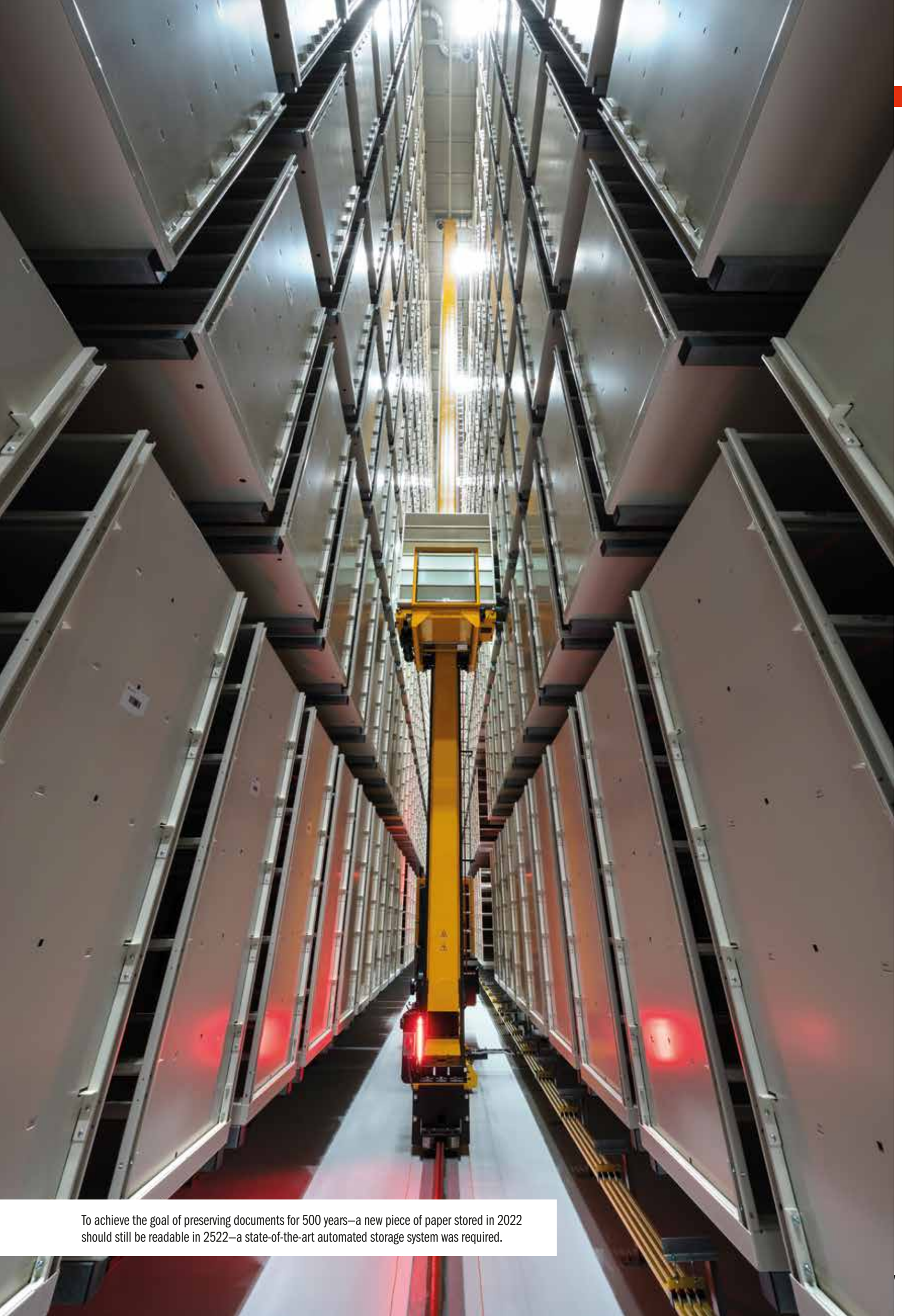
"The exterior of the building had to be energy efficient. It had to be something that allowed us to meet all the stringent consumption restrictions that we had for electricity. And had to be aesthetically pleasing—sufficiently pleasing for the NCC to approve the

facility in its location," says Marion.

To achieve the architect's vision for the façade, which features textures of granite, limestone, sandstone, clay and glacial till, PCL collaborated with the digital media laboratory at Carleton University to develop digital models of the stone textures which were later fabricated into custom molds for the 416 precast concrete panels.

"In an innovative approach, our team worked with the formwork contractor to develop a productive method of using back-to-back blindside foundation formwork to pour large sections of wall, which form the 28-metre-tall archival vaults," explains Marion. "The insulated precast panels created an energy-efficient environmental barrier from the exterior elements."





To achieve the goal of preserving documents for 500 years—a new piece of paper stored in 2022 should still be readable in 2522—a state-of-the-art automated storage system was required.



To achieve the goal of preserving documents for 500 years—a new piece of paper stored in 2022 should still be readable in 2522—a state-of-the-art automated storage system was required.

Each of the six 90-foot-tall vaults is equipped with an automated storage and retrieval system, supplied by Dematic. This system consists of a lift and a crane, and it ensures that the archival containers being removed or returned are safe, secure, and accessible.

“There were a number of technical challenges, such as the unique environmental tolerances required for the storage of the archived materials and the need for highly limited noise and vibration levels,” says Marion.

Prior to construction, PCL conducted in-depth research into robotic automatic storage and retrieval systems (ASRS) and reviewed case studies from around the world for various forms of archival storage facilities to familiarize themselves with best practices in their design and construction.

“The research we conducted allowed us to partner with Dematic, the subcontractor

for the system. The two protective enclosures surrounding the archival storage spaces were a requirement of the contract and prescribed by LAC,” explains Marion. “Strict temperature and humidity controls were designed to maximize the collection’s storage life. These set points were achieved using dedicated systems that had more than enough backup capacity to maintain the archival environment in case of equipment failure or temporary power outage.”

Some key benefits of the ASRS system included significantly reduced risk of material damage, improved tracking and decreased energy consumption using the highly advanced technology.

“In optimizing our storage space, the ASRS supports our commitment to providing the best preservation conditions for Canada’s documentary heritage, while embracing the challenge of being energy efficient, resilient and sustainable,” said Leslie Weir, Librarian and Archivist of Canada.

When complete, the archival facility will boast a storage capacity of 21,500 cubic

metres—almost nine Olympic swimming pools—and provide the facility with the highest level of protection possible. Six ASRS robots will move archival collections between the storage area and the user area, handling them with minimal disruption to the vault’s environment.

That workplace environment during construction was also very challenging, points out Marion.

To mitigate the amount of time workers had to spend working at high levels in constrained space—the vaults measured 90-feet tall and only 30-feet wide—PCL used prefabrication.

“We erected temporary buildings and a roller system that allowed us to assemble the steel rack components and the majority of the sprinkler system in a more productive and safe manner. Then we would transport them to the vaults, roll them in, and flip them up into place.”

Together with LAC’s Preservation Centre, the new Preservation Storage Facility will help to effectively preserve Canada’s significant documents for current and future generations. 🍁



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## A GRAND PROJECT

The Grandview Children's Treatment Centre in Ajax, Ont. will serve as the new headquarters for Grandview Kids, which specializes in care and support for children and youth with physical, communication and developmental needs, and their families. The project, led by Infrastructure Ontario, was recognized with a 2022 National Award of Merit—Project Development by the Canadian Council for Public-Private Partnerships. The new four-storey facility, currently under construction by the Children First Consortium (Amico Design Build Inc. and Sacyr Construction S.A), is expected to be complete in 2024. 🍁



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# JUST ON TIME

Despite numerous obstacles, Royal Inland Hospital's new patient care tower was delivered on time

by John Tenpenny

**W**HEN IT COMES TO dealing with a pandemic, hospitals play a vital role. When the construction of a healthcare facility occurs during that same pandemic, the policies and collaboration between parties become paramount in making sure that the project is completed on time, on budget, and safely.

Completed in July 2022, the Phil & Jennie Gagliardi Tower at Royal Inland Hospital (RIH) serves residents in Kamloops, but just as importantly, the surrounding region as well.

"Royal Inland is an acute care site that services Kamloops, but also all of the Thompson Cariboo Shuswap area—all of the smaller towns that feed into it," says Michael Morton, project owner Interior Health's (IH) director of major capital projects. "The main need for this [project] was an update to meet the clinical standard of care, giving residents improved access to healthcare services in a modern, state-of-the-art facility."

Designed with direct input from local health-care workers, the nine-storey tower helps streamline the way people access services in the hospital. There is one main entrance and a spacious facility that will allow staff to provide care in a space designed to modern standards. The tower includes single-patient rooms with their own washrooms, large spaces for families to gather and the ability for Indigenous smudging practices to occur in patient rooms.

There are also new operating rooms and surgical services suites, more beds, medical surgical inpatient units, respiratory therapy services and a new rooftop helipad provides a more direct access to trauma care for patients that arrive at the hospital via helicopter.

As well, the tower includes a mental-health and substance-use inpatient unit, child and adolescent mental-health services, obstetrical services, labour, delivery and a neo-natal intensive-care unit, a first-floor atrium and patient registration area.

EllisDon was selected by IH in 2018 to design, build, partially finance and maintain the tower in a public-private partnership (P3). Facilities maintenance at RIH has transitioned to EllisDon Facilities Services Inc., which will provide maintenance services at RIH for 30 years.



John Tenpenny is the editor of ReNew Canada. john@actualmedia.ca



## Patience required

You can forgive Jordan Highton for thinking he was living in different times.

EllisDon's senior superintendent on the project, who oversaw up to 500 workers on site at any time, says it wasn't just the pandemic that affected the project, but also natural disasters.

"This project was largely built during the pandemic, which wasn't unique, but what made it unique was not only did we have the pandemic, but we also had two seasons of wildfires in Kamloops and then flooding as well. It was almost Biblical, in that we had fires, floods and the pandemic."

The creation of an employee mapping system was key to knowing how workers were housed and with whom,





#### ROYAL INLAND HOSPITAL PATIENT CARE TOWER PROJECT

**EllisDon Infrastructure Team**

**Respondent team lead:** EllisDon Capital Inc.

**Equity providers:** EllisDon Capital Inc.

**Design-Builder:** EllisDon Infrastructure

**Architect:** Parkin Architects Ltd./Kasian Architects

**Service Provider:** EllisDon Facility Services Inc.

**Total Cost:** \$417.2 million

- **Ministry of Health and Interior Health:** \$225.2 million
- **Thompson Regional Hospital District:** \$172 million
- **Royal Inland Hospital Foundation:** \$20 million

Completed in July 2022, the Phil & Jennie Gaglardi Tower at Royal Inland Hospital serves residents in Kamloops, but just as importantly, the surrounding region as well.

along with commuting partners, since so many workers traveled from outside the Kamloops area, mostly from B.C.'s lower mainland and Alberta.

"If one worker tested positive, we knew not only the people he worked with, but who he lived with, which really allowed us to navigate the pandemic because we had people commuting together. So, we had to really understand exactly our employees lives during the construction process to limit major outbreaks on the project," says Highton.

"When the fires happened there was a desperate need for housing for evacuees, so we asked our workers to free up the accommodations that they were in to house people displaced by the fires, which again led to manpower challenges, but all of which we were able to work through."

**"The main need for this [project] was an update to meet the clinical standard of care, giving residents improved access to health-care services in a modern, state-of-the-art facility."**



B.C. Health Minister Adrian Dix (centre) and Andrea Gaglardi pose for a group photo with the key to Royal Inland Hospital's new patient care tower.

### Pandemic planning

The triple threat of the pandemic, wildfires and flooding impacted not only workers getting to the site, but also construction materials.

At the onset of COVID-19, teams from EllisDon and Interior Health sat down to come up with a plan. The options were to deal with things as they came up and adapt deadlines accordingly or keep to the original completion deadline by any means necessary.

Both partners went with the latter, "which allowed us to do a lot of things outside the box to keep the project moving," says Highton.

"And we just really made a commitment between us and them that we needed to do basically whatever we reasonably could to make sure we brought this project in on schedule and within budget," adds Morton.

"We worked with [EllisDon] on an ongoing basis to support them in making sure they could get the materials and the labour and everything that they needed to keep to the schedule."

That included early procurement, says Highton. "We procured major mechanical equipment and electrical devices very early on in the project, and we brokered offsite storage agreements."

These arrangements were atypical, according to Highton.

"We had all these things in place where

we could accept this material well ahead of installation and have it at the ready, which isn't typical. Very few owners or very few partners will agree to offsite storage, but IH really stepped up to the plate and were a partner in every sense of the word to help us make this project a success."

### Offsite mock-ups

Another unique component of the project was the use of full-scale mock-ups of a number of the rooms in the tower's design—including a single-patient room, an operating room and a birthing room—constructed in a rented warehouse in Kamloops.

The mock-ups were fully finished and included functioning lights and security systems, according to Highton.

The main benefit of this process was to allow user groups such as the clinical and care teams to interact in the rooms with the design, construction and IH teams present.

"The main thing is to be able to physically bring these teams in and physically stand in the space, wheel equipment around, run through scenarios and make sure that physically, those rooms, the way they're configured is going to meet their needs," says Morton. "And to try and catch things that potentially are going to be an issue in the real build before the design is complete."

And it was not just the nurses and physicians, says Morton. "We brought all of the

support groups through there, including housekeeping, food services, logistics, all of those groups to make sure that the room was going to work for everyone. And we solicit all that input and then that goes into the finalized design."

Being able to take proof of concept to actual construction and execution prior to beginning construction saved time, explains Highton.

"It really allowed us to create a benchmark for quality assurance and quality control as well as this is everything that we expect. We expect all these joints calked, we expect this level of paint finished, we expect this level of floor finished. And all those benchmarks were set prior to construction, which really streamlined the turnover process."

Now that the patient care tower is open, Phase 2 has begun, which will include renovation and expansion to the emergency department at the hospital as well as enhancements to pediatrics, the morgue, public concourse, daycare surgery, and the post-anesthetic recovery department.

According to Morton, those renovations are underway now. "We started them shortly after the tower opened and they run until 2026 because it's a multi-phased renovation to keep the emergency department open. It's called Phase 2 of the project, but ultimately it is part of the main project that is the Patient Care Tower." ❁



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# FUTURE-PROOFING

Asset management practices are foundational for building resilient communities

by Benjamin Koczwarski

**I**N INNISFAIL, ALTA., the problem is rain. Specifically, too much rain: the number of “major” rain events of more than 10 mm has increased in recent years, engineering coordinator Curtis Hoffman says, causing issues with inflow and infiltration into the sanitary sewer system. Innisfail is a small municipality of 7,655 residents and doesn’t treat its own sewage, Hoffman points out. Instead, they pump it to the City of Red Deer for treatment and pay for this service based on volume. “After major rainfall events, we see a spike in that volume,” he says. “That’s unnecessary groundwater that we’re paying to treat.”

Heavy rain. Hurricanes. Floods. Wildfires. Heat waves. They’re not new issues for municipalities to cope with. But what is new is their increased frequency—and their severity. Like Innisfail, towns and cities across Canada are facing increased stress on their infrastructure as the consequences of climate change escalate. At the same time, they are looking for effective (and cost-effective) ways to cut emissions and take action to help keep global temperature increases as low as possible.

These challenges call for a new diligence when it comes to maintaining, repairing, and replacing municipal assets. In an altered and still-changing climate, old assumptions about infrastructure no longer hold water. Long-term planning needs to take climate change into account, whether it’s prepping for higher storm surges or dealing with buckling sidewalks caused by excess heat. That’s why Innisfail and other communities are developing asset management (AM) systems that are proactive on climate change, thanks in part to funding, training, and resources from the Municipal Asset Management Program (MAMP) delivered by the Federation of Canadian Municipalities (FCM) and funded by the Government of Canada. By integrating climate action into their asset management systems, these municipalities are stepping up to prepare for an uncertain future.



Benjamin Koczwarski is the sector lead for FCM’s Municipal Asset Management Program.

## Partners for climate

One of these is Quispamsis, N.B., a town of about 19,000 in the Kennebecasis River valley. For this riverfront commu-



nity, high water levels and floods are a risk, notes Gary Losier, who is the municipality’s director of engineering and works as well as president-elect of the American Public Works Association. While they’ve been lucky so far to avoid the extreme flooding that’s been experienced recently in many other parts of Canada, staff are keenly aware that their turn could come, and thus are building climate change predictions into their planning. “When it comes time to upgrade or adapt an asset designed back in the day for a 20- or 50-year storm, we look at how those [flood risk] scenarios have changed,” Losier says. “Replacing something like a pump station, we look at the material being chosen, the efficiency of the engines or the motors. Does it have to be designed with additional buffers or flow protection?”





Towns and cities across Canada are facing increased stress on their infrastructure as the consequences of climate change escalate.

Quispamsis was one of the original adopters of FCM and ICLEI Canada's Partners for Climate Protection program, a national network of municipalities learning how to fight climate change and reduce GHG emissions and has also received support from MAMP. Therefore, Losier says, it was a natural fit for them to look at their asset management plans with a climate lens in addition to financial and operational perspectives. "That informed our decision in our initial request for proposals for asset management consultants," he says. "It should be clear that climate change would affect how we want to deal with our different assets."

Asset management is about "getting the most out of everything," says Hoffman, and as such, it's only logical to ensure that municipal plans consider a range of possible

**"Having a solid asset management program in place gives us the ability to make data-driven decisions, so when someone challenges us on why, we have that information."**





Climate change is not a new issue for municipalities to cope with. But what is new is the increased frequency and severity of weather-related events. The Partners for Climate Protection program is a national network of municipalities learning how to fight climate change and reduce GHG emissions.

futures. Maximizing the lifespan and utility of infrastructure requires making the right purchasing and maintenance decisions, and AM systems that incorporate good data—including climate-related information—make that decision-making process more straightforward and transparent. “In the past, decisions have been made about infrastructure and facilities because a long-time employee said so, or a resident insists that the water pressure on his road is bad, says Hoffman. “Having a solid asset management program in place gives us the ability to make data-driven decisions, so when someone challenges us on why, we have that information.”

#### Getting started

That doesn't mean the path is easy, though. There are several barriers to overcome to build climate-proactive asset management systems into the municipal day-to-day. One of these, of course, is the power of habit: it can be hard to overcome the inertia of established processes and to change the behaviour of staff and management accustomed to doing things a certain way, even if they're on board in theory. Another is simply knowing where to start. The future effects of climate change are simultaneously predictable and uncertain and pose myriad new threats to municipal infrastructure. It can be challenging to know the risks and how they should affect approaches to asset management. In addition, public awareness and political support are crucial, and can't be taken for granted. It's important to explain how systemic improvements to asset management can save the community money and lower risks in the long term.

One method to smooth the transition is by having an asset management champion in place who can lead the charge. In Quispamsis, this is Losier, who completed an asset management course from NAMS Canada that he subsequently had two staff members take as well, with financial assistance from MAMP “You establish yourself as someone who understands the purpose of the asset management plan,” he says of the unofficial role. “You must be that point of contact for the policymakers and the operational people. You keep people moving—that goes a long way.” Hoffman agrees, and adds: “Anytime someone starts anything, it's easy to fall back to how we were doing it before. The champion helps us keep people focusing on what's important.”

For municipalities who want to act, the process starts with building a foundation of policies and documented practices. Establishing a cross-functional team is key, as is training them on risks and actions. And it's important to be continually communicating and establishing means for formal communication on risk-based asset management decisions. With all of this in place, not only will communities better understand the future conditions that will affect asset performance and municipal services, but they will understand how climate change poses new threats to infrastructure and services, and better adapt their operations and investments to anticipate and limit negative effects.

For municipalities just starting with asset management, Hoffman points out that getting buy-in from the local council needs to be a priority. “It's a long process,” he says. “The day-to-day results don't look like they

add up to a lot sometimes, but when you step back and look at two months' worth of work, there's progress made. If you're just starting out, having that buy-in at the upper level is critical.” Getting involved in training programs in your region and communicating with neighbouring municipalities is a huge benefit, he adds: “Being able to talk to people and find out where they've stumbled and where they've had their successes, it's been a benefit for the morale of our asset management program.”

Integrating climate-informed asset management is a journey, not a destination, notes Losier. “It's ongoing. It doesn't stop. Don't think it's a one and done.” He adds that every action and decision is a chance for education and to relate the process back to asset management. “Anything you do, say that it's covered under the asset management plan or it's part of our long-term budget. Any decisions you make, link it back to your document and your plan.” In fact, Losier was pleasantly surprised by how little push-back he and his team have received as they've gone through the asset management process. “If you take the time to set policies and have it on paper and explain it, it makes it a heck of a lot easier to go through,” he says.

That's important, because the changing climate poses new risks to infrastructure, and municipalities need to be ready. The new reality will affect how assets perform in different operating conditions, presenting new hazards, and demanding that municipalities reduce their emissions from operations. This calls for changes in the data municipalities collect, the way they process it, and the decisions they make based on their understanding of the future operating environment. Innisfail, for example, is looking at ways to mitigate the effects of major rain events on their sewer infrastructure — a goal that has buy-in for several reasons. “It's directly climate related, we're paying extra, we're using extra electricity. It hits a lot of boxes,” says Hoffman. “It's dollar driven, which is easy to present to council.”

From an asset management point of view, Hoffman notes, “Climate change is going to affect everything.” That's going to require not just updated asset management plans, but also a renewed focus on collaboration among municipalities across the country, with support from organizations like FCM and provincial and territorial municipal associations. “We're leaning on other municipalities for some of the things we're doing,” he says. “And if we can get out ahead of the curve and others can depend on us, we're more than happy and excited to do so.”





# Toronto and Area Road Builders Association



## NEW RESEARCH ON THE BENEFITS OF BUILDING WITH RECYCLED CRUSHED AGGREGATE (RCA)

When governments renew their roads, highways, sidewalks and other infrastructure, the concrete 'waste' generated ends up in recycling yards with the intent of being used in other construction projects. But the opportunity to reuse these RCAs is often neglected in tender documents when planning to build or rehabilitate infrastructure.

Structurally sound RCAs are often preferable to primary or virgin aggregates in road and infrastructure projects due to their economic and environmental benefits:

- Reuses a valuable, non-renewable resource
- Expands the life of existing pits and quarries and reduces demand for more
- Lowers the cost of transporting virgin aggregates to project sites and reduces traffic
- Diverts aggregates from landfill
- Reduces energy use and GHG emissions from the extraction and hauling processes
- Aligns with sustainability and circular economy initiatives and objectives

A new report commissioned by the Toronto and Area Road Builders Association (TARBA) confirms the benefits of RCAs and provides case studies demonstrating the long-term effectiveness of RCAs, including adoption by the Ontario Ministry of Transportation in building and maintaining the 400-series highways.

## Good Roads



Read the full report: **[www.tarba.org](http://www.tarba.org)**.

# GETTING PAID

## The migration of prompt payment and adjudication across Canada

by James K. Little and Natasha R. Rodrigues

**T**ARGETED AT IMPROVING SYSTEMIC late payment and dispute resolution problems in the construction industry, security of payment legislation (focused on prompt payment and adjudication) has been either tabled or enacted in various provinces across Canada following its introduction in Ontario in 2016. Below we provide a brief status update of the development of prompt payment and adjudication legislation in various Canadian provinces.

### ONTARIO



Ontario was the first province to enact prompt payment and adjudication legislation, which came into force on October 1, 2019. The amendments to the former *Construction Lien Act* “modernize the construction lien and holdback rules; help make sure that workers and businesses get paid on time for their work; [and] help make sure payment disputes are addressed quickly and painlessly.” This legislation was built upon foundations from the security for payment legislative movement that has blossomed across the world in countries such as the United Kingdom, Australia, New Zealand, Singapore, Malaysia and others.

Ontario’s legislation introduces adjudication and prompt payment in conjunction with construction lien-based security—a novel approach as compared to other jurisdictions. Ontario set the tone for prompt payment by requiring payment within 28 calendar days of receipt of a “proper invoice.” The legislation also has flow down payment requirements (e.g., within seven calendar days) as well as statutory requirements for delivering a notice of non-payment prior to set off. It includes detailed adjudication provisions that work in conjunction with prompt payment in an effort to streamline resolution of construction disputes of all sizes.

While in place in since October 2019, it is still in a nascent stage. Time will tell how adjudications develop and whether they become more prominent in Ontario. We can expect more details on this development from the Ontario Dispute Adjudication for Construction Contracts (ODACC).



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### MANITOBA



Manitoba developed Bill 28: *The Prompt Payment for Construction Act*, which received its first reading on March 16, 2022. This bill adopts a number of provisions from Ontario’s *Construction Act*.

Bill 28 introduces prompt payment and adjudication provisions requiring an owner to pay a contractor no later than 20 days after a contractor’s proper invoice is approved. A contractor would then subsequently be required to pay its subcontractors and suppliers within seven days of receiving payment from the owner or 27 days after the subcontractor’s proper invoice is approved. If an owner or general contractor defaults on a payment by the prescribed deadline, the party who is owed the money (the contractor or subcontractor) may suspend the work 10 days after it has provided written notice. Bill 28 in its current form also includes an interim adjudication regime in accordance with regulations. As currently drafted, Bill 28 contains one of the most aggressive timelines for payment across Canada.

### SASKATCHEWAN



On March 1, 2022, *The Builders’ Lien (Prompt Payment) Amendment Act, 2019* in the province of Saskatchewan came into force, introducing prompt payment and adjudication regimes which, like Ontario, coexist with the province’s lien regime.

There, the trigger for payment is the submission of a “proper invoice” to the owner, which requires an owner to pay a contractor within 28 days unless the owner submits a notice of non-payment in the prescribed form within 14 days. Once a contractor receives payment, the contractor must then provide payment to its subcontractors within seven days of receiving payment.

*The Builders’ Lien (Prompt Payment) Amendment Act, 2019* also introduces an adjudication regime overseen by the Saskatchewan Construction Dispute Resolution Office. The new legislation sets out the matters that may be adjudicated, including: the valuation of services or materials provided under the contract; payment under the contract, including in relation to a change order; failure or refusal to certify substantial performance; and any other matters that the parties agree to.





## ALBERTA



On August 29, 2022, Bill 37: *Builders Lien (Prompt Payment) Amendment Act 2020* came into force, which prescribes timelines and rules for payment and liens in the construction industry and introduces the province's new *Prompt Payment and Construction Lien Act*. Alberta's new legislation provides a 28-calendar day timeline for an owner to pay a contractor after receiving a proper invoice. However, if an owner disputes a proper invoice, the owner may provide notice of dispute, which includes reasons for non-payment to the contractor within 14 calendar days after receiving the invoice. After it receives the funds from the owner, the contractor is then required to pay its subcontractors within seven days.

Alberta's new legislation also introduces streamlined adjudication governed by a yet to be named or assigned Nominating Authority. The *Prompt Payment and Construction Lien Act* permits a party to a contract or subcontract to refer a dispute to adjudication, so long as no party has commenced an action in court with respect to a dispute. The new regulations detail the matters that can be adjudicated, including valuation of services under a contract, including a proposed change order; payment under the contract or subcontract; and disputes that are subject to a notice of non-payment.

## NOVA SCOTIA



In Nova Scotia, though it received royal assent on April 12, 2019, Bill 119: *Builders' Lien Act (Amended)* never came into force. Most recently on October 18, 2022, the province of Nova Scotia introduced new legislation, which is aimed at "making sure that members of the construction industry are paid promptly for the work they do." As of the time of writing, the further amended *Builders' Lien Act* passed its Second Reading on October 19, 2022 and is scheduled to appear before the Law Amendments Committee and Committee of the Whole House before it proceeds to Third Reading.

## NEW BRUNSWICK



Despite the public and industry interest in prompt payment legislation, the province of New Brunswick has yet to introduce prompt payment or adjudication legislation to the province.

In July 2019 and April 2020, the Legislative Services Branch of the Office of the Attorney General of New Brunswick issued law reform notes targeted at possible reform of the *Mechanics' Lien Act* by modernizing the existing legislation as well as introducing prompt payment and adjudication mechanisms in two distinct phases. In the first of these two phases, the *Construction Remedies Act* as well as the related Regulation 2021-81 came into force on November 1, 2021, and include modernization of lien, holdback, and substantial performance provisions of the existing legislation.

## FEDERAL



At the federal level, though not yet in force, the *Federal Prompt Payment for Construction Work Act* received royal assent on June 21, 2019. This federal legislation creates a prompt payment regime for public construction projects at the federal level. This is substantively similar to those in the province of Ontario, by using receipt of a "proper invoice" as the trigger for the payment scheme, which is enforced by adjudication. The regulations related to this legislation are still under development.

## Conclusion

Various provinces across Canada have, or are in the process of, implementing prompt payment and adjudication regimes in an effort to facilitate timely payment throughout the construction pyramid. It is increasingly clear that prompt payment and adjudication mechanisms are changing the construction landscape in Canada, and we look forward to continuing to follow the progressive change to our industry. 🌱



# AN EMERGING RESOURCE

## Hydrogen's important role in Canada's energy transition

by Satvinder Flore



Prime Minister Justin Trudeau and German Chancellor Olaf Scholz (left) recently signed onto a major energy project that will see a green energy hydrogen project, powered by wind turbines, built in Western Newfoundland.

**C**ANADA IS FACING PRESSURE to reduce its reliance on fossil fuels, and quickly. Like the rest of the world, we are facing a climate reality that will have devastating future consequences if we do not take serious steps towards drastically reducing our overall carbon footprint.

The success of this transition depends on us making a difference by using the technologies we have available to us today, while continuing to develop future energy solutions that can further lower our emissions in the years and decades ahead. It is a balance, but a very important one, as we can't rely on a 'silver bullet'-low-emissions technology that will eliminate the need for fossil fuels.

This is why the burgeoning hydrogen economy is such a valuable part of the energy transition. It is not a solution that will eliminate our reliance on carbon-emitting fuels, but it is one of the solutions that can help us with significant emissions reductions.

But before we go too far into the weeds on how we embrace and ramp up hydrogen, let's take a moment to appreciate the challenge we're up against.

### The challenge

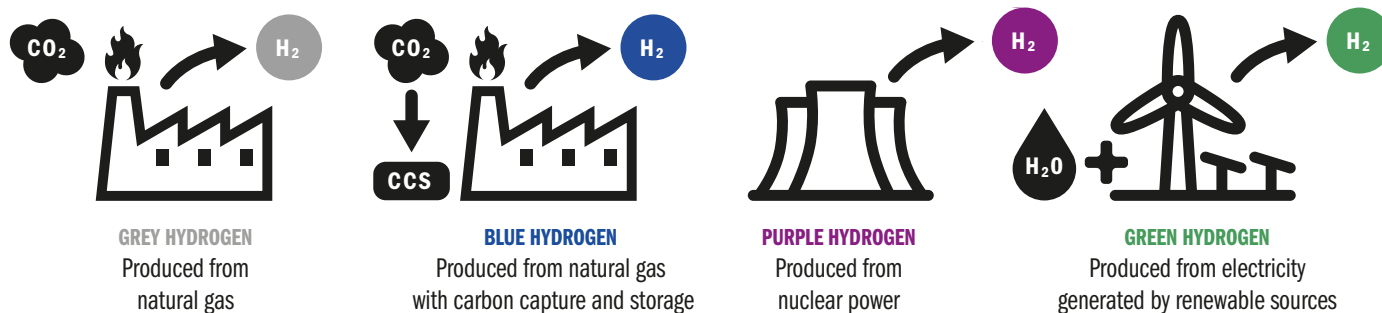
In advance of 2021's COP26 in Glasgow, Scotland, which I had the good fortune of attending, the International Energy Association stated that 25 per cent of our global energy production needs to come from hydrogen for us to meet our Paris and post-Glasgow targets. That is a huge undertaking. Here's why.

According to statistics released by the U.S. Energy Information Administration in August 2022, global oil production currently sits at just over 100 million barrels of oil per day. That translates to roughly 1200 barrels per second. Based on the COP26 target, if oil production doesn't increase in the next 13 years, that means we would need to produce the equivalent of 300 barrels of oil, per second, worth of hydrogen just to replace oil. To put this in perspective, the equivalent displaced barrels currently being produced by commercial hydrogen are precisely zero.

Consider the development of green hydrogen. Green hydrogen is, for the most part, derived from solar and wind production. Those two technologies, which represent



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two of the lowest-cost forms of energy production in the world, represent just 9.5 per cent of global energy production. And that is after 25 years of intense investments in markets that are large consumers of energy.

So, while hydrogen may be able to replace that 25 per cent of global energy demand in the next 13 years, it won't simply come from hydrogen produced using wind and solar. Certainly, some of Canada's own hydrogen production will come because of new investments in wind and solar.

#### Evolving the hydrogen conversation

To be successful in integrating a large volume of hydrogen production into our energy mix, we will have to take a

step back from the politics associated with the colour classification system and focus on the production opportunities that align with the resources available in each region.

That starts with blue hydrogen, which in some circles, is seen as quite controversial. There are three primary reasons for this, all of which, I believe, can be overcome.

First, there is the fugitive emissions from the source gas. However, the technology is there to be able to capture these emissions. And, in addition, we can use satellite tracking to appreciate the emissions volumes and identify where we need to address them.

Second, there is an issue around the capture rate. Right now, the conversion rate is about 90 per cent. That rate is



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**"So, while hydrogen may be able to replace that 25 per cent of global energy demand in the next 13 years, it won't simply come from hydrogen produced using wind and solar."**

pretty good but, most importantly, is steadily improving. As we develop more hydrogen infrastructure, there is industry confidence that the continued refinement of the technology will continue to improve that conversion rate.

Third, there is a social concern that this is a 'hoodwinking', a ploy by the oil and gas industry to continue to burn fossil fuels but in a greener way. This is a real red herring. The fact is, there is a need for the major energy companies involved in, what is, the largest energy transition in global history. Having them involved is inevitable. Their decades of innovation and technical knowledge is invaluable to not only a successful energy transition but the continuity of modern society—from agriculture to electronics. Major energy companies create products that end up touching every aspect of our lives, not just with electrons and

molecules. Cleaner fossil fuels like natural gas are needed to bridge the decades we need to understand how to work with cleaner, greener fuels and products.

#### **Building our hydrogen mix**

Blue hydrogen, and green hydrogen, aren't the only types that needs to play a role in the overall mix. Pink hydrogen (produced using nuclear energy) will also factor into the hydrogen mix, both nationally and globally, depending on the resources available in that region. In the future, we could also see the development of turquoise hydrogen, made through methane pyrolysis to produce hydrogen and solid carbon, but this technology has yet to be proven at scale.

Again, it will really come down to feedstock availability. Some regions, both in Canada and around the world, will have the resources to best utilize some form of hydrogen as their primary source of green energy production. But in other jurisdictions, it will be a ramping up of some other form of renewable energy resource, such as nuclear, hydroelectric, wind or solar, that will provide the localized solution for the green energy transition.

We've yet to discover a panacea for transitioning off of fossil fuels globally. But we do know that hydrogen is a key resource that must be as part of our green energy mix. ♣

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#### Michael McSweeney

The Ontario Road Builders' Association (ORBA) announced the appointment of **Michael McSweeney** as its new CEO. The former president and CEO of the Cement Association of Canada (2010-22) has worked in the private and public sector for over 35 years, including being elected as City and Regional Councillor in Ottawa, CEO of the Standards Council of Canada, vice president of Business Development with Archer Daniels Midland, and vice president Environment and Public Affairs at Bennett Environmental.



#### Tim Stanley

The Association of Consulting Engineering Companies—Canada (ACEC) announced **Tim Stanley, P.Eng.**, president at Stratice Consulting Inc., as the 2022-23 chair of ACEC's Board of Directors. "It's a true honour to take on this role to promote the incredible work that consulting engineers do every single day," said Stanley. "Over the coming year, I will strive to further educate elected officials and all Canadians about our industry's unparalleled ability to build a strong and sustainable economy."



#### Jason Idler

PCL Construction announced that **Jason Idler** has been promoted to chief operating officer and will lead the organization's heavy industrial sector. Idler is responsible for PCL's portfolio of work in the oil and gas, power, renewables, chemical and petrochemical markets. He works with a team of regional executives to oversee all aspects of project planning and delivery including oversight of engineering, project controls, quality, procurement, construction execution, risk management, and health, safety, and environment (HSE).



#### Vittoria Bellissimo

The Canadian Renewable Energy Association (CanREA) named **Vittoria Bellissimo** as its incoming president and CEO, replacing Robert Hornung who is retiring from the role. Vittoria comes to CanREA after more than 10 years of working with electricity customers as the executive director of the Industrial Power Consumers Association of Alberta and almost 20 years in the electricity sector. Previously, she worked in renewable energy procurement at both the Ontario Ministry of Energy and the Ontario Power Authority.



#### Kelly Skeith

Infrastructure Ontario (IO) announced **Kelly Skeith** as its senior vice president, Development, Transit-Oriented Communities. Skeith has 20 years of experience in residential and land development, land use policy planning, socio-economic impact assessment, and public engagement. She joins IO from the Toronto Community Housing Corporation (TCHC).



#### David Bowcott, Adrian Pellen

NFP announced the hiring of **David Bowcott** and **Adrian Pellen**, who will co-lead the company's North America Construction & Infrastructure Group, providing clients with comprehensive construction and surety services designed specifically for complex national and cross-border projects. Bowcott, based in Toronto, joined NFP from Aon, where he oversaw growth, innovation and insights for their Global Construction and Infrastructure Group. Pellen, based in Chicago, joined from Marsh, where as a senior liaison to clients, he delivered risk and insurance solutions for complex construction and infrastructure projects.



#### Michelle Coates Mather

The Board of Directors of The Canadian Transportation Alliance announced the appointment of **Michelle Coates Mather** as executive director, with a mandate to help expand the Alliance's profile, advance its research agenda, and broaden its membership. Coates Mather has a breadth of professional experience working in the energy, infrastructure, non-profit and association management space. As a former political staffer and public service professional turned private-sector consultant, she brings her political insight and first-hand experience working within government machinery.



#### Nick Radford

Turner & Townsend appointed **Nick Radford** as the cost centre leader for the Vancouver office. Radford has been based in the Toronto office for over four years. He has previously worked in the UK, Middle East, and Asia in a career spanning nearly 25 years leading teams across many real estate sectors. "Nick's strong track record and experience working in complex business environments will only strengthen Turner & Townsends' growing business in Vancouver," said managing director Gerard McCabe.



#### Kathy Baig

Stantec welcomed **Kathy Baig, Eng., FIC, MBA** to its Quebec team as vice president, positioning and business development. She will oversee the operations of a major transportation group that is working to improve mobility in the greater Montreal area. With nearly 20 years of engineering and team management experience, Baig is known for her strong leadership and her commitment to diversity in the profession, particularly among women and the next generation of engineers.



#### Monique Lal

**Monique Lal, P.Eng., PMP**, has been promoted from manager of project management to director of project delivery at RAM Consulting. "We're excited to have Monique bring her breadth of experience and knowledge, while leveraging her business acumen," said RAM president Joe Di Placito. "Her promotion builds on her success growing our Project Management department."



#### Doug DeRabbie

The Association of Consulting Engineering Companies – Ontario (ACEC-Ontario) announced **Doug DeRabbie** as its new director, government and stakeholder relations. DeRabbie began his career working for a Member of Parliament in Ottawa. Since then, he has worked for Natural Resources Canada and Infrastructure Ontario, where he was instrumental in setting up the agency's stakeholder relations strategy and consultations on its procurement documents.



#### Kirsten Watson

AECOM announced the appointment of **Kirsten Watson** as vice president of government relations and transit market sector leader for its Canadian transportation business. Watson brings a wealth of experience to this position, most recently as deputy chief executive officer of the Toronto Transit Commission. In addition to her transit responsibilities, she will work across all business lines to increase AECOM's profile in Canada. She will also lead growth initiatives with transit agencies and service providers while supporting AECOM's growth agenda in the global transit market.

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# HOUSING SUPPLY SUMMIT 2.0: PROGRESS REPORT, TORONTO, ON by Grant Cameron

## COORDINATION, COLLABORATION, AND COOPERATION

are key to producing more housing in Ontario. That was the consensus of speakers, industry stakeholders, analysts and panelists who presented at a recent virtual event—Housing Supply Summit 2.0: Progress Report—sponsored by the Residential Construction Council of Ontario (RESCON). It was the second that the group has hosted on the issue.

“For the first time, all political parties and stakeholders fully accept that there is a supply crisis,” RESCON president Richard Lyall explained in opening remarks at the event. “We need all three levels of government to be all in. If we can achieve this kind of commitment, we can now work together to meet our housing affordability and supply crisis with a reasonable prospect of success.”

Lyall said that RESCON has developed a 15-point action plan that outlines five specific measures that each level of government—federal, provincial, and municipal—can take to help remedy the problem.

“Half measures will avail us nothing and it is definitely

not the time for weak or unfocussed action,” he said.

Municipal Affairs and Housing Minister Steve Clark provided an update on three provincial initiatives aimed at increasing supply, including the Strong Mayors, Building Homes Act, which gives mayors of Toronto and Ottawa new tools to advance housing priorities and cut through red tape.

A shortage in supply and strong demand has been driving homes out of reach for many people, he said, and the government is committed to adopting measures that will end bureaucratic inefficiencies.

He said the industry saw an uptick in new housing builds after the More Homes, More Choice legislation was introduced in 2019, with more than 100,000 starts in 2021—the highest since 1987.

But he promised “bold action” is on the way for housing as the government knows it’s not enough.

Jason Mercer, chief market analyst at the Toronto Regional Real Estate Board, indicated the housing market is still constrained and will be for years, with families now looking further afield for homes. Going forward, he expects there will be a low inventory of homes for sale with fewer listings.

Ted Tsiakopoulos, senior economist/specialist at the Canada Mortgage and Housing Corporation, highlighted how co-ordination between transit and land use policies can help fill housing supply gaps.

He said there is a need for 3.5 million homes to be built in Canada over and above the current production level while in Ontario about 430,000 new listings, or 19 per cent more, are needed by 2030.

“Barriers can be overcome if we take a one-team, one-vision approach,” he said.

Separate panels at the event tackled what reforms are needed to improve housing supply and how to achieve widespread choice in housing. The consensus was that changes are needed and that all decisions which are made by governments should be made with housing supply in mind.

Arash Shahi, CEO of AEEO Innovation Lab, stressed the importance of digitizing the development approvals process and that it must be a collaboration between government, industry, and academic institutions.

He said CMHC recently announced \$2.35 million for a proof-of-concept pilot in Simcoe County that could be used as a model for a more streamlined development review process across Ontario.

AEEO, RESCON and organizations in the One Ontario initiative have long maintained that there is a need for a connected and integrated approvals system at the regional and provincial level in the province. 🍁

Grant Cameron is senior director of public affairs at RESCON.

A shortage in supply and strong demand has been driving homes out of reach for many people, says Ontario Minister of Municipal Affairs and Housing, Steve Clark (inset).





Panel discussion on the shifts in the engineering consulting sector. (L to R) Allan Russell, McElhanny; Caterina Milioto, interview; Saverio Parrotta, JL Richards; Marie-Claude Dumas, WSP Canada; and Richard Bush, Binnie.

## ACEC-CANADA LEADERSHIP CONFERENCE, OTTAWA, ON

### THE ASSOCIATION OF CONSULTING ENGINEERING

Companies—Canada hosted their annual Leadership Conference at the Ottawa Art Gallery, returning to an in-person event after a one-year hiatus due to COVID-19.

The two-day event featured panels discussing the future of Canadian engineering consulting firms, achieving net-zero, creating an integrated environmental and economic vision and keynote speeches from CIBC's chief economist Benjamin Tal and Globe and Mail political columnist Andre Coyne.

One of the most popular panels discussed major shifts in the consulting engineering sector since last year and looked ahead to what the future may hold for the industry. The big question was how have firms adapted after the pandemic upended conventional office work and how have they handled the full or part-time return of their employees.

According to Marie-Claude Dumas, president and CEO of WSP Canada, as staff returned on a part-time basis over the past year, she noticed colleagues reengaging with one another and noted that this kind of interaction is essential to rebuild team relationships as a run-up to face-to-face meetings with clients.

"If we don't even talk to each other as employees, then how do we connect with the client, how do we really understand what's on their mind and what are their main challenges coming ahead," she said.

ACEC—Canada also handed out the 54th annual Canadian Consulting Engineering Awards that included

five Special Achievement Awards, singled out from among the Top 20 Award of Excellence winners.

"Consulting engineers have the remarkable opportunity and responsibility of shaping Canada's future," said John Gamble, president and CEO of ACEC—Canada. "Their work greatly contributes to a growing economy and thriving neighbourhoods in every corner of this country—as celebrated members, this year's award winners are doing just that. Their achievements are a testament to their unparalleled ingenuity, as well as their dedication to building stronger and more sustainable communities."

The top prize, the Schreyer Award, went to Stantec for the Calgary International Airport East Deicing Apron.

Three other special awards were announced at the celebration for four projects:

- Engineering a Better Canada Award – Hedgehog Technologies for the Fort Severn First Nation Solar Array in Northern Ontario.
- Tree for Life Award – Associated Engineering (AE) for Phase 1 of the Blatchford District Energy System in Edmonton.
- Ambassador Award – AECOM for the Gordie Howe International Bridge Environmental Management Program; and Entuitive, for the Buddy Holly Hall of Performing Arts and Sciences in Lubbock, Texas.

ACEC-Canada also presented the 2022 Beaubien Award to Richard Tiller, CEO of Tiller Engineering, for his lifetime contributions to consulting engineering, and the 2022 Allen D. Williams Scholarship to Tia Hill of AE. ♣



# THE CONSTRUCTION LIFECYCLE

by Dwayne Torrey

**A** CROSS CANADA, our cities continue to grow and expand with new and exciting innovations, but with this growth comes the question of what to do with older buildings and materials after they reach the end of their lifecycle.

Traditionally in North America, we have largely practiced a linear 'take-make-waste' approach in our economy where natural resources are used to create something of value. When we're done with something we often throw it away without taking full advantage of the available recycling opportunities. This approach continues to put strain on the earth's ecosystems. Beyond this, when we fail to recapture and reuse valuable materials, we are neglecting to take advantage of untapped economic opportunities.

According to Delphi Group's 2021 report *Circular Economy & The Built Environment Sector in Canada*, globally, more than 100 billion U.S. tons of raw material are turned into new products annually but only 8.6 per cent of these materials are cycled back into the economy after they are used. Two-thirds of these materials end up as "unrecoverable waste," in other words, it becomes garbage in our landfills, plastics in our oceans and carbon dioxide in our atmosphere.

This linear model for our economy simply isn't sustainable. We need to reassess not just what we make, but also what quality of materials we use and what we do with them once they have completed their intended use. The solution to this issue is not found down a straight and narrow path, but in fact a circular one.

A circular economy is where we look beyond using resources to simply create a product, but plan for every stage of its lifecycle, including what we do after it has fulfilled its original purpose. One of the most impactful places to make this transition is in the construction sector.

The construction sector, a key pillar of Canada's economy, generated \$141 billion in GDP in 2020, according to the Delphi report, but this also came at the cost of four million tonnes of waste each year—one-third of Canada's total solid waste and a source of significant greenhouse gas emissions. With great challenge comes great opportunity. The significant numbers illustrate the opportunity to make a real impact in both material recovery and GHG reduction for construction. To do this requires collaboration of experts on this topic and standards to support implementation.

CSA Group has developed standards to help move the construction sector towards a circular economy. These standards stress the importance of:

- **DISASSEMBLY AND ADAPTABILITY** to ensure the buildings we create today consider how the materials and components can be recovered and repurposed at the end of their useful life.



A circular economy is where we look beyond using resources to simply create a product, but plan for every stage of its lifecycle, including what we do after it has fulfilled its original purpose.

- **DURABILITY** by constructing with materials and elements that are selected to prevent premature degradation through the intended life of the building.

- **DECONSTRUCTION** to recover materials when buildings are being torn down so that they can be reused with minimal reprocessing.

By applying these circular economy principles to our construction sector, we can begin to reduce its environmental footprint and support responsible use of natural resources. In Canada, we are seeing impressive examples of circularity in construction. Deconstruction demonstrations are being carried out to realize material value in cities like Vancouver and Guelph, and design for disassembly principles are being applied by owners and their design teams across Canada.

Upscaling circular construction in Canada will require collaboration of many stakeholders, the expansion of material networks to support deconstruction and re-use, and standards to create consistent approaches. By utilizing principles such as design for disassembly, deconstruction, and durability, we can begin to shift our construction sector to a circular economy, helping Canada take large strides to reduce waste and carbon emissions. 🍁



Dwayne Torrey, is director, Construction and Infrastructure Standards at CSA Group.



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