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September/October 2020

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The Infrastructure Magazine

- + Addressing Market Capacity
- + Securing Social License
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The Infrastructure Magazine

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View this year's Top100 report at top100projects.ca



See photos of the Key Players and Owners Dinner at top100projects.ca/celebrate



THE REBIRTH OF RAIL?

By Andrew Macklin

It looks like traditional rail could be making a significant comeback in Canada.

It started with the announcement that tens of billions of dollars would be invested in the expansion and modernization of the GO Rail Corridor serving residents of the Greater Toronto area and beyond. Since then, three key rail links have been discussed that could change the transit landscape in Canada: Ontario's proposed high-speed rail link from Toronto to Windsor, the new ultra-high-speed corridor from Vancouver to Seattle, and the recently-announced Calgary-Banff rail project.

In addition, we've also heard from VIA Rail during that time about the potential for high-frequency service along the Toronto-Ottawa-Montreal-Quebec City corridor, and the rail service leading to Churchill, Manitoba has been repaired.

High-speed rail is already established in other global jurisdictions, like Europe and Asia, but Canada has been slow to join the party. The established links are providing rapid service from city centres to airports, outlying communities, and business hubs. The business model has been established thanks to existing buy-in to rail use in many of those countries.

And that's the likely reason why Canada, and our neighbours to the south, have been slow to develop high speed and high frequency rail assets. Where rail travel has been a constant over decades, and even centuries, in the aforementioned regions, the automobile-based transportation system in Canada has made rail travel a low consideration for many people.

What's interesting about what is going on in Canada is that the growth in rail isn't serving a singular purpose across all proposed projects. The case for the Toronto to Windsor project in Ontario centres around business, providing

more efficient access to the economic centres in downtown Toronto and the Pearson business area, while also allowing regional economic hub growth in cities like Kitchener-Waterloo and London. This is a similar scenario to the opportunity that presents itself with the project in the Pacific Northwest, improving transportation access to major centres while promoting economic growth in additional stops along the way. But the Toronto-Windsor project also presents an opportunity to improve housing affordability, giving people who work in Toronto the chance to potentially buy housing in a less expensive market and commute to the office.

The Calgary-Banff project also has a housing hook, as Banff is unable to add additional accommodations, making it near impossible for service workers to live there, but also makes a case from the tourism perspective. Instead of having to rent a car to get to Banff, the train would allow for easier day trip access to the community.

And we have already seen the benefits of expedited rail access from city centre to the airport with the opening of the Union-Pearson Express a few years ago. Cities with airports well away from the city centre can use rail to avoid automobile congestion and provide faster travel times, similar to what is already in use in cities like Stockholm.

The economic cases for new rail lines are beginning to grow in Canada, and that's without even factoring in the dollar value of the environmental benefits of the service.

We could be seeing a new transportation renaissance playing out across this country. ✨

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Implementing new safety measures on jobsites is crucial in order to keep construction going during the pandemic. Learn more on page 14.

N.S. BREAKS GROUND ON TRANS-CANADA HIGHWAY PROJECT



The Quebec Ministry of Transportation has selected a consortium to rehabilitate the 1.5-kilometre Louis-Hippolyte-Lafontaine tunnel in Montreal.

The \$1.143 billion design-build-finance contract has been awarded to Renouveau La Fontaine, which consists of three companies: a 50-50 joint venture between France-based Vinci subsidiaries Eurovia and Dodin Campenon Bernard and Quebec-based Pomerleau.

The rehabilitation work aims to improve tunnel safety, optimize traffic, and promote car-sharing and public transport. The work will be carried out between early 2021 and July 2025 and will include the following:

Tunnel: Repairing the structure; installing new fire protection facings; landscaping and architectural finishes; modernizing all electrical, electromechanical, and supervisory infrastructure; and, deploying new technologies to increase operator and user safety.

Access roads: Widening the A20 motorway with the addition of a new bus and car-sharing lane, as well as rehabilitating 25 km of pavement (on the A25 and A20), and an interchange.

The financing package includes a bank loan from a syndicate of five Canadian banks and a Japanese bank. The federal government will contribute \$427 million to the project while the cities of Montreal and Boucherville are contributing \$3 million and \$1.1 million, respectively.

The tunnel was opened in 1967 and is the longest underwater structure in Canada, covering a distance of 1.5 km beneath the Saint-Lawrence River. It is a critical transport corridor for the Montreal area, linking the eastern part of the Island of Montreal to the city of Longueuil. Approximately 120,000 vehicles travel through the tunnel on a daily basis. 🍀



ACCELERATED BUILDS COMING TO ONTARIO

The Ontario government announced that a new long-term care home will be built at Lakeridge Health's Ajax Pickering Hospital site. The project is part of the province's Accelerated Build Pilot Program, which will work to build new facilities like this one in months rather than years. By working with Lakeridge Health and Infrastructure Ontario, the province intends to build up to 320 new long-term care beds by 2021 at this site.

The pilot program is part of the government's plan to create new long-term care beds across the province that include features such as air conditioning and private or semi-private rooms, beginning immediately.

Details about the new project were provided today by Premier Doug Ford who was joined by Dr. Merrilee Fullerton, Minister of Long-Term Care, Sharon Cochran, chair of the Lakeridge Health Board of Trustees, John Henry, regional chair and CEO for the Regional Municipality of Durham, and Shaun Collier, Mayor of Ajax.

"With our new modernized funding model and this innovative pilot program, we will get shovels in the ground faster on these critical projects and ensure more seniors get the quality care they deserve," said Premier Doug Ford.

Through the use of hospital lands, and a range of accelerating measures such as modular construction and rapid procurement, the government and its partners are targeting completion of the project in 2021, years faster than the traditional timeline. Lakeridge Health will work with Infrastructure Ontario to manage the day-to-day construction oversight, monitor commissioning, and provide timely status reporting on progress.

"This project is a key step towards repairing the cracks in our long-term care system, addressing our growing waitlist, building healthier communities, and ending hallway health care," said Minister of Long-Term Care Dr. Merrilee Fullerton. "Our government will continue to implement innovative ideas and modern solutions to provide our vulnerable seniors with a place to call home and the care they need." 🍀

NEXT ISSUE: NOVEMBER/DECEMBER THE PARTNERSHIPS ISSUE

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Credit: Government of Newfoundland and Labrador

Consortium Named for New Mental Health and Addictions Hospital

Newfoundland and Labrador Premier Dwight Ball announced that Avalon Healthcare Partnership has been selected to design, build, finance, and maintain a new adult mental health and addictions hospital in St. John's.

The project includes:

- 240,000 square foot, six-storey, 102-bed hospital.
- A parking garage with space for 1,000 vehicles.
- A new 60-bed hostel to replace the Agnes Cowan Hostel.

Early site work and demolition of the Agnes Cowan Hostel will start in the coming weeks and continue throughout the fall to make way for construction of the hospital

beginning next spring.

During the construction phase, Avalon Healthcare Partnership will:

- Host a job fair for skilled labourers looking to work on the construction.
- Develop an apprenticeship training program for local apprentices.
- Develop a plan to assist with hiring tradeswomen to work on the construction site.

“We look forward to continuing discussions with Eastern Health, health care providers, persons with lived experience and their families, community-based agencies and organizations, members on the Recovery Council and the Mental Health and Addictions Advisory Council,

and the public to move this project forward,” said John Haggie, Minister of Health and Community Services.

The Avalon Healthcare Partnership includes: **Respondent Team Lead, Equity Provider:** Plenary Americas LP

Design-Builder: Marco Group Limited

Service Provider & Design Builder: G.J. Cahill (1979) Limited

Design Lead: B + H Architects Inc.

Construction on the parking garage will start this fall and will be completed in late 2021. Construction of the hospital will be completed in late 2024.

The estimated net present value of the new hospital contract is \$330 million. ♣



Credit: Bird Construction

Bird Construction Acquires Stuart Olson

Bird Construction Inc. has acquired Stuart Olson Inc. for \$96.5 million pending required approvals.

“The combination of our two businesses will create a company with substantially increased breadth and scale, diversified across services, end-markets, and geographies,” said Terrance L. McKibbin, president and CEO of Bird. “In addition to combining two strong, experienced workforces, customers will benefit from a dynamic, integrated suite of construction services.

The acquisition of Stuart Olson provides Bird with a more robust business in the Canadian market, including:

- Combined workforce of 5,000 people, with an established presence in a number of Canadian markets.
- Aggregate backlog of greater than \$3.0 billion plus more than \$1.0 billion of pending backlog.
- Increased diversification across services, end-markets and geographies.

“After a period of extensive review and consideration of the strategic and financial alternatives reasonably available to Stuart Olson, the Board determined that this Transaction is in the best interests of Stuart Olson and its shareholders given the current

and go forward balance sheet and leverage metrics challenges facing Stuart Olson,” said David LeMay, president and CEO of Stuart Olson.

The aggregate consideration of \$96.5 million will consist of \$30.0 million cash and \$66.5 million of the common shares of Bird, based on the five-day volume weighted average trading price of the common shares of Bird ending July 17, 2020, of \$6.32 per share.

The cash consideration will be funded through available capacity under Bird's existing revolving credit facility with the Bank of Montreal. ♣



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ACCELERATED CONSTRUCTION

Understanding how the Government of Ontario's new pilot program will function. *By Andrew Macklin*

In July, the Government of Ontario announced the launch of the Accelerated Build pilot program. At the time of the announcement, details of the program were sketchy, except for the fact that the program would, to start, involve the rapid construction of two long-term care (LTC) facilities in the province.

In an effort to better understand just what this new pilot program hopes to accomplish, ReNew Canada sat down with Infrastructure Ontario's (IO) President of Project Delivery Michael Lindsay.

What exactly is the Accelerated Build pilot program?

IO has been happy and honoured to work with the Ministry of Long-Term Care over the last year on what is a huge, pressing public policy question: how do we ultimately inset the creation of thousands of new LTC beds in the province of Ontario? One of the ways we had always thought about doing that in a multi-faceted strategy is making use of surplus lands or available lands at hospitals

to create built-for-purpose, reasonably-sized LTC facilities.

The Accelerated Build Pilot Program is just the realization of that impulse, having identified a couple of hospital partners with available land where test fits have been done for facilities of at least 320 beds.

I think a lot of people would see at first glance and think 'this is a reaction to COVID-19'. But based on the timeline you are suggesting, this has been in the works for months before the pandemic?

It's longer than a year that we have been working with (the Ministry of) Long-Term Care to think about, not only strategies like this one, [...] but also helping them with the support of feedback from the industry, thinking about the existing funding formula associated with getting these facilities built.

Obviously, the pandemic amplified the importance of this particular public policy objective. It has been a decade or more that we have had a real lack of supply in respect to LTC beds. And so, what it probably did do

was push us more into the space of thinking about what are the methods and means and mechanisms that we could use to accelerate the delivery of some of these facilities. And that meant some of our continual market research about what can modular approaches to construction ultimately give you in terms of time savings. And by modular construction I mean genuine volumetric modular construction: the assembly off-site of a set room. But equally I think we're talking about prefab approaches to construction as well.

How does procurement of a project in this program differ from a typical AFP or design-build project procurement?

This process is a new process, but it's one that draws heavily on established norms. It's an open, competitive pre-qualification process, followed by a competitive process with a shortlist which involves confidential meetings and negotiations leading to contract award.

That pre-qualification process actually



The use of modular or prefab construction will allow the long-term facilities to be built much quicker, with full construction expected to take less than one year.

Inset: Infrastructure Ontario's President of Project Delivery Michael Lindsay.

has two parallel processes playing out at the same time. One of which, on MERX, we call RFQSO (Request for Qualifications for Standing Offers). There what we are testing on an objective basis is: do you have the ability to build quickly using modular means or prefab means? Do you have the facilities? Do you have the agreements with labour? Can you demonstrate to us that you've deployed that capacity to do things? If people meet that bar, they're actually prequalified on an evergreen vendor of record at IO, to be ready for rapid construction mandates wheresoever we might actually deploy them.

The other part of it is an LTC-specific evaluation. What are your partnerships with designers? What access do you have to set designs for these facilities? What is your experience in building in the LTC space?

The results of those two objective pre-qualifications gives us a subset of people with whom we are going to have a competitive process and ultimate negotiation for the facilities at Trillium Health and Lakeridge.

And the response has been quite rigorous and robust. We knew quite a bit about some of the modular construction capacity that was out there and what people were putting in place. But we've already, in the time that the

procurement has been active, been learning quite a bit about just how many market players of various sizes have made investments in this type of capability. I think it gives us a great, competitive pool to ultimately select from for individual projects like this one.

At this point, are we only talking about LTC projects, or are there other types of infrastructure builds that could be part of a program like this?

I think this is why we designed the process the way that we did. We can foresee the use of this type of approach in other asset classes. Just to name a few, where there are examples close at hand: housing, education, the justice sector. We see other jurisdictions make use of these types of approaches in those spaces, and we are certainly going to explore what the potential for Ontario might be.

The use of the word 'accelerated' means that we can anticipate these buildings getting completed quicker than usual. At this stage, does IO have an appreciation for what that time savings might be?

The first thing I want to do is talk about some underlying assumptions associated with this process which are important to point out. The first of which is site selection. If we are handed a greenfield site that doesn't require the demolition of existing structures, located in an area of high LTC need, in close proximity to sufficient utilities, already we are ahead of the game. In both of these cases, this is precisely what we have.

Number two is assumptions around design. Our process is assuming that our counterparties are going to have access to reasonably off-the-shelf modular designs for LTC facilities that conform to current LTC standards and best practices that can be updated quite quickly to take account of any new guidance's associated with COVID-19. If you compare it to our traditional AFP or P3 procurement process [...] it's a time savings.

The third assumption I point to is around permits and approvals. Whether it's zoning, site plan approvals, building permits, expediting utility work: the ability to streamline all of that is an important embedded assumption associated with these projects.

The provincial government recently has given (some thought) as to how they would ultimately streamline some of these processes and the powers that they possess to be able to do so.

With those three assumptions in mind, in a traditional IO procurement, if we were given the mission to build a 320-bed facility, we might have spent close to half a year on

site selection. And we might spend another year on diligence and approvals and the procurement process itself, and getting to a reference concept design that we could ultimately work with our counterparties in procurement. There would then be an assumed portion of design within the P3 process as bid design became detailed design, where here we are presuming a set design. And then if you think about construction, commissioning, furniture fit-out, that could be as much as three years if we take a baseline hospital project as our illustrative timeline.

Because we have the sites, because diligence and approvals will be expedited, because procurement is a more qualifications-based one that steps far faster to negotiation and competitive selection. And because design is pretty locked, we expect to be in a place where we are beginning construction sometime in 2020, all subject to government approvals and what we find in the market. And then, based on what we understand of modular approaches and what the industry continues to educate us on, if you think about total timeline for construction, commissioning and furniture fit-out, it's not an atypical experience for that to take a year.

We feel pretty optimistic and pretty confident that these facilities will be available for the start of care in 2021.

What are the cost implications of an accelerated build versus a traditional build?

We can't confirm much in terms of total quantitative cost. The two trends and forces that we've pointed at, that we continue to discuss with government, are the possible efficiencies that are ultimately delivered by modular approaches to construction, and the fact that there is a value unto itself associated with these facilities being ready years ahead of schedule. In order to achieve that, there is a certain premium to be paid for speed.

When we get into the competitive selection negotiation, these are the things that are definitely going to be on our mind. But when it's all over, at the end of the day and we're actually to reflect on those variables, I [...] think it will be very instructive for all contracting authorities to think about, if you build in this way, what those trade-offs are.

Thank you very much to Michael Lindsay and his team at Infrastructure Ontario for providing us with your insight on this interesting new development in government asset procurement. ♣

Andrew Macklin is the managing editor of ReNew Canada.



Despite the financial losses during COVID-19, Halifax's municipal council continued to push forward with two of its most ambitious infrastructure projects in the city's history.

Inset: Mayor Mike Savage, Halifax.



STRUGGLING FOR FUNDING

COVID-19 causes municipalities to struggle to finance infrastructure.

By Andrew Macklin

Municipalities were struggling. Four months in to the COVID-19 pandemic, financial relief for cities still had not arrived. And even with significant layoffs to city staff, the crushing debt loads were causing communities to creep closer and closer to service shutdowns.

In May ReNew Canada worked in collaboration with Global Public Affairs to present a conversation with three of the country's big city mayors to learn about the struggles they were facing: Edmonton Mayor Don Iveson, Mississauga Mayor Bonnie Crombie, and Halifax Mayor Mike Savage. By mid-June, when the conversation occurred, the doom and gloom was already settling in.

"We are out of money. Infrastructure is my next cut," said Mayor Iveson, whose community was already facing a budgetary hole well north of \$150 million

As the mayors each painted the stark

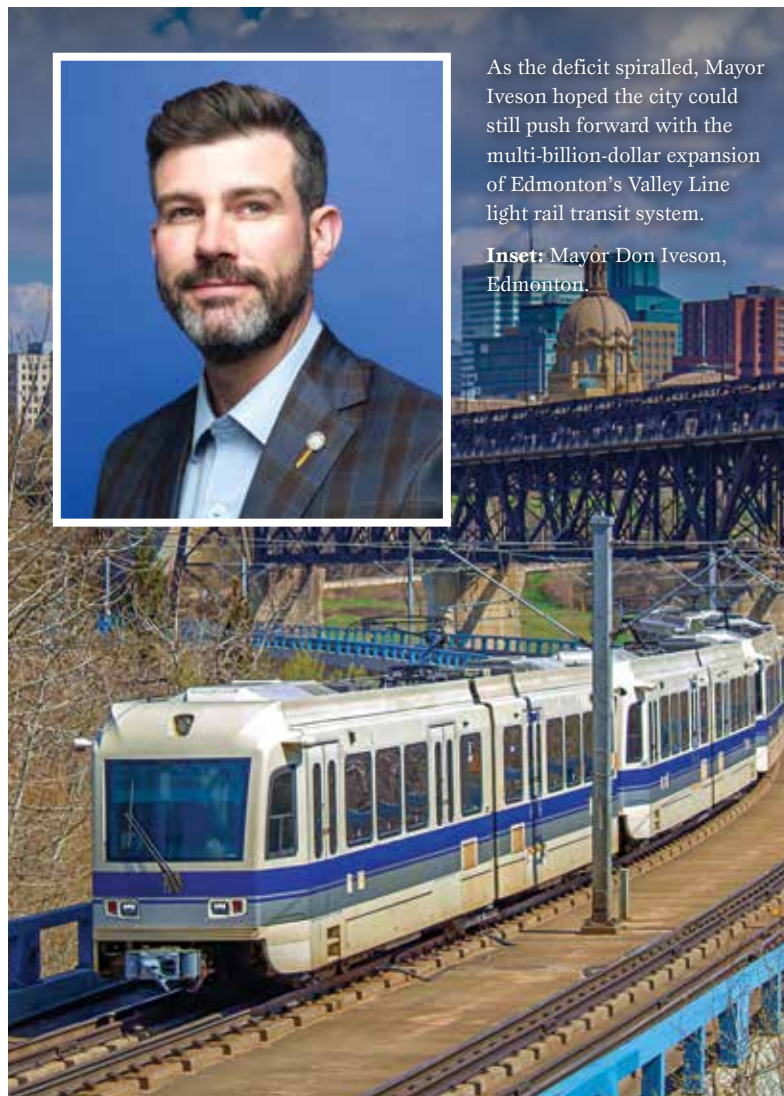
picture of the situation they were facing (budget losses in the tens or hundreds of millions along with layoffs in the thousands), they all still spoke to the need for continued infrastructure development. Mayor Savage noted that his council is in the midst of introducing two of the city's most ambitious infrastructure plans ever, and are doing so in the midst of the COVID-19 pandemic: a \$700-\$800 million transit plan, and HalifACT 2050 (focused on emissions reduction and climate adaptation). Mayor Crombie discussed the extensive transit portfolio in the works in her community, which includes rapid bus along the Dundas Street corridor, a Lakeshore Connector, and a downtown transit terminal. Each of these are still under some stage of development despite the pandemic. And in Edmonton, work continues on construction and procurement of multiple elements of the

Valley Line LRT despite the fiscal realities facing the city.

Keeping services operating

One of the biggest challenges that municipal officials have faced during the pandemic is the need to keep public sector infrastructure operations and maintenance functional despite rising costs for new health and safety measures and rapidly shrinking budgets.

Transit, in many communities, caused the biggest hit to the bottom line. Massive cuts to ridership demand led to severe funding shortfalls, funding desperately needed to help pay for public works priorities, not to mention the operation and maintenance of the transit system itself. Some cities struggled with the difficult decision to shut down transit services entirely during the pandemic, as was the case for the City of Windsor, Ontario, which shut down transit



As the deficit spiralled, Mayor Iveson hoped the city could still push forward with the multi-billion-dollar expansion of Edmonton's Valley Line light rail transit system.

Inset: Mayor Don Iveson, Edmonton.



Transit plans in Mississauga remained on track during the pandemic, recognizing that the need would still exist despite a severe drop in ridership across the country.

Inset: Mayor Bonnie Crombie, Mississauga.

for more than a month before re-opening on a variation of a Sunday schedule. But as Mayor Savage stated, “the new essential workers couldn't get to work” if you cancelled transit to stem the losses.

Instead, as indicated earlier, municipalities were forced into huge layoffs in an attempt to reduce the overall financial losses, with most cutting around 20-to-30 per cent of their teams on a temporary basis.

Funding the transition

Without funding support from the provincial and/or federal governments, municipalities face tough decisions for making up the lost revenue, and how to move forward with big ticket expenditures such as infrastructure projects.

As municipalities cannot, by law, go into debt, one-time tax increases in 2021 may be the only option for re-capturing the lost revenue. Reports from across the country have suggested that increase is likely to be in the double-digits, putting a significant strain on the municipal taxpayer at a time that they themselves are struggling to pay their own bills. But the municipalities, without a significant package from the provincial/territorial or federal governments, will be left with no choice.

Without that funding solution in calendar

2020, it could interfere with government investments in infrastructure. There are no hard statistics available in Canada regarding the impact of COVID-19 on a community's ability to continue with capital projects, but a survey released in July 2020 by the National League of Cities in the United States, 65 per cent of the 1,100 cities, towns, and villages surveyed in the 50 states, District of Columbia, and Puerto Rico said that the delay or cancel of capital outlays/infrastructure projects was one of the most significant spending adjustments they are making as a result of the pandemic. That ranked second behind only cuts to summer-specific programming.

“I need an operating solution from the provincial and federal government,” said Iveson, who also suggested that, without such a solution, the City would risk undermining federal investment in infrastructure.

If municipalities are unable to support significant new investments in infrastructure, the federal government would have to adjust in funding strategy, looking for ways to invest that would not include the traditional municipal funding component.

In July, the federal government announced the \$19 billion Safe Restart Agreement, providing municipalities with some release

to pay for a specific list of key services, including things like public transit, childcare, and costs associated with COVID-19 products and services. Whether or not this will make up all of the deficit faced by municipalities is unclear, but it is a positive step forward for chas-strapped cities.

FEDERAL INFRASTRUCTURE FUNDING

On August 4, the Government of Canada announced the new \$3 billion COVID-19 Community Resilience stream, which provides 80 per cent of the cost of infrastructure projects valued at \$10 million or less and can be completed by the end of 2021. Projects eligible to receive funding including municipal building repairs and upgrades, active transportation, disaster mitigation and adaptation, and measures to support physical distancing.

FACTORS FOR MUNICIPAL INVESTMENT

What type of infrastructure investment should municipalities focus on post-COVID-19?

- Transit 36%**
- Water/Wastewater 29%**
- Transportation 8%**
- Parks and Recreation 5%**
- Other 22%**

Should municipalities have full control over how they spend infrastructure stimulus dollars?

- Yes 57%**
- No 43%**

What is the greatest infrastructure vulnerability exposed during the pandemic?

- Broadband 42%**
- Health care 26%**
- Green 15%**
- Water/Wastewater 9%**
- Other 8%**

There is also the question of the role that can be played by the private sector for infrastructure investment during the recovery. Is there an opportunity to encourage private sector investment, through public-private partnerships (P3s), the Canada Infrastructure Bank (CIB), or other resources, in order to help drive infrastructure invest?

savings to the city. Strategic light rail vehicle procurement, potentially on a life cycle basis, would also be a potential area for private sector capital to step in and still create a worthwhile investment for Canada's larger cities. Lastly, Mayor Iveson wondered about the possibility of using private money to finance district-level energy systems, which are already successfully operating in some

Massive cuts to ridership demand led to severe funding shortfalls, funding desperately needed to help pay for public works priorities

At this point, there may not be a role for P3s, at least in the municipal context. None of the three mayors felt like there was an opportunity within their community right now that warranted consideration, although they pointed to the P3 considerations at the provincial level. Mayor Iveson, for his part, seemed intrigued by the chance to work with the CIB on a project, although he admitted that such an opportunity was not present at this moment.

All three recognized the opportunities that private sector investment plays in transit development. Continued federal commitments to funding transit initiatives could see even greater private sector investment in those communities.

Mayor Iveson did however, point to a few different areas where private capital could be utilized with great benefit to Canada's urban centres. Zero emissions vehicles, hydrogen and battery-powered units, cost more to buy, but less to operate and fix. Using private capital to replace a city's fleet could cost a similar amount to the current budget depending on the financing terms, but provide a significant environmental

Canadian municipalities such as Prince George, Markham, Vancouver, and London.

How the private sector will be engaged by the federal government through infrastructure stimulus is yet to be seen, but P3s and the CIB could certainly be involved depending on the direction taken with the pending investment.

Setting priorities

Mayor Crombie suggested that a different focus from that of the last federal stimulus is needed.

"Let's focus on the needs list, not the want list. Not the new shiny object," she suggested, adding that, while it's nice to get a shiny new thing to cut a ribbon on, focusing on the state of good repair.

Mayor Savage agreed that such a focus was needed, stating that "there is a deferred infrastructure crisis in this country." Funding from the federal government to address aging asset needs would be valuable for the cities, allowing them to get back up and running quickly.

However, there are other pressing needs for community infrastructure that would involve

new projects, project needs that have emerged as a result of COVID-19. Gaps in active transportation opportunities have been exposed during the pandemic, with some urban municipalities choosing to shut down some roads to automotive traffic in order to create more space for pedestrian movement, ensuring that physical distancing requirements can be met. Another need clearly demonstrated during the pandemic is for greater broadband resources, as communities struggled to connect as resources were maxed out by the number of people online using video conference systems for meetings. And as Mayor Crombie pointed out, broadband isn't just a problem in remote communities; there are suburbs of major cities, such as Caledon, that suffer from poor connectivity. Mayor Savage noted that broadband issues have also emerged in communities around Halifax.

All three mayors are pointed to the need for further investments in infrastructure that would reduce their city's climate footprint. "As we deal with the COVID crisis, we can't forget about the climate crisis," said Mayor Savage, who suggested that his city may look to accelerate the transition to electric buses as a way to further targeted investments in transit and environment priorities. Mayor Crombie noted that building green is a priority in Mississauga on several different fronts, including for transit and municipal buildings. Mayor Iveson pointed to the federal government's Disaster Mitigation and Adaptation Fund, suggesting that as an avenue for greater investment that would allow cities to address climate issues.

"The adaptation challenge is about water. Either there's too much of it when you don't need it, or there is not enough of it when you do need it." National investment around that kind of 'unsexy' infrastructure is definitely needed, he noted.

Cities know that federal investment in infrastructure is coming, but what the priorities will be, and how much of the share of the cost they will be expected to pay, is not yet clear. With significant deficits precipitating the need for property tax increases and the potential for cuts to infrastructure spending, the solution for how to bail out fiscally-strapped cities could be just as important as the looming infrastructure stimulus. ♣

Note: This article includes content previously written by the same author.

Andrew Macklin is the managing editor of ReNew Canada.



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Physical distancing is a challenge on construction, especially when multiple people are needed to perform a task in a small space, such as work conducted on a hoist.

KEEPING EVERYONE SAFE



The COVID-19 health and safety strategy focuses on protecting people.

By Andrew Macklin

It was St. Patrick's Day, a day usually reserved for celebrations and shenanigans. A day when many people across Canada are celebrating their Irish heritage (no matter how much or little they have), and others join them arm-in-arm to have fun alongside them.

Instead, most of the province stood by to listen as Ontario Premier Doug Ford came to the podium to announce a provincial State of Emergency. And just a few hours later, Ontario would declare its first COVID-19-related death, a 77-year-old man from Barrie who had passed six days earlier.

The declaration, along with the swirl of constant news reports providing different information about a virus that few knew much of anything about, created a sense of confusion throughout the Canadian infrastructure industry. Workers and the managers they work for scrambled to figure out what happens next; how it will affect the day-to-day business of construction.

Thankfully, it didn't take long for the industry to react.

In an effort to understand how the sector

responded to the coronavirus in the early days of the spread of the disease, along with the actions that will need to be taken in the months ahead, ReNew Canada worked with the Residential Construction Council of Ontario (RESCON), the Infrastructure Health and Safety Association (IHSA), and LiUNA Local 183 on an interactive conversation on construction's new health and safety regime.

"It was all hands on deck!"

"We needed to gather as much information as possible," said Andrew Pariser, vice president of RESCON, as he described how his organization first started reacting to the state of emergency declared as a result of the rapid growth of the virus.

Pariser and his team went to work immediately on the 17th, realizing that contractors would be looking to industry leadership to understand how jobsites would be affected by COVID-19. Thankfully, the construction industry already had an engaged network of labour and management groups to begin working with in order to

best solve the issue at hand. That included organizations like the IHSA, led by executive director Enzo Garritano, and industry partners like the LiUNA 183 training centre, led by Sandro Pinto. It was vital in the early going to ensure that everyone had a seat at the table and were sharing resources in order to start attacking the issue from all sides.

Garritano and his team tried to ensure that information, when it became available, was quickly communicated to everyone through a top-down approach; getting to the head contractors and project managers first, who could then trickle the information down to the service and product suppliers on the jobsites. From his standpoint, a lot of the early communication started with a focus on hygiene, ensuring that jobsites had the resources in place to facilitate frequent handwashing and a more stringent sanitization regime.

From Pinto's standpoint, running the training necessary to allow the industry to do the job, the early days focused on the three P's: protect, plan, and prioritize. The first P focused on who or what needed to be

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CONSTRUCTION HEALTH AND SAFETY



Establishing the use of PPE and sanitization practices on the jobsite, including wearing masks, is vital to ensuring that COVID-19 has minimal chance of spreading on a jobsite.

During our discussion, we asked some attendees for their thoughts on some of the key issues around keeping jobsites safe during the pandemic. Here are a few of the key results from the polls we conducted:

What do you perceive as the biggest challenge to jobsite health and safety?

- Inability to maintain physical distancing **68%**
- Lack of understanding of protocols **20%**
- Access to personal protective equipment (PPE) **12%**

Do you believe the construction industry should use tracking and tracing?

- Yes **73.3%**
- No **26.7%**

What is the best system for testing construction workers?

- Drive-thru testing sites **68.8%**
- Hospital tests like everyone else **18.8%**
- Random jobsite testing **6.3%**
- Mandatory onsite testing **6.3%**

protected, which meant protecting everyone coming in and out of the training centre. The second P focused on planning, appreciating the best way protect people in the training centre environment, including the use of physical distancing, limiting the number of people in each enclosed room, the type of materials being used during training, and strengthened protocols around sanitization measures. The third P focused on prioritizing, understanding which industry needs should be addressed first, shifting the focus to helping workers understand the new jobsite health and safety demands.

Overcoming the early challenges

Pariser eloquently used a boxing analogy to suggest that the construction industry “got knocked down in the first round, but got back up quickly,” when describing how the industry reacted to the COVID-19 in the early days.

There were no shortages of issues in the early days of COVID-19. As mentioned previously, significant confusion caused by inconsistent reporting left people with far more questions than answers. And as Pariser

pointed, the change from ‘social distancing’ to ‘physical distancing’ didn’t help make things any easier. But it was also the appreciation for how to implement some of the new protocols that made things difficult for the industry.

“Physical distancing was a huge one,” explained Garritano. “Whether it’s a construction site with areas where people gather, or it’s a personnel hoist, or it’s entrances and exits to the site; how do you keep that physical distancing in place certainly was one of the big questions.”

There were many other important questions being asked as well:

- What do you do when you can’t have that physical distancing in place?
- How do I keep my staff from all eating lunch at the same time?
- How do I stagger the starts and finishes?
- How do I manage my schedule?

And these were just the challenges faced on the jobsite. For many, there was significant concern over whether work would stop for days, weeks, or months, and how that would

affect people’s ability to pay their bills and support their family.

Quick to react

To its credit, the construction industry in Ontario was the first sector with COVID-19 work guidelines, according to Pariser, guidelines that were endorsed by both labour and management. Garritano noted that the process actually took longer than they had hoped, but wanted to ensure that guidelines were properly vetted through provincial labour and health officials.

At first, the guidelines created by the industry were text heavy, making communication with the industry a challenge. Thankfully, the industry had the support of the Ministry of Labour (MoL). Garritano noted that MoL did an excellent job in working with companies to help ensure understanding of the new guidelines through site visits. Instead of focusing on enforcement, site visits from MoL concentrated on consultation, ensuring industry questions could be answered regarding the implementation of the new measures.

The IHSA has since been working to provide simpler ways to digest the best practices being implemented. In May, the organization released a series of short videos, providing information on new jobsite practices that can be quickly digested before anyone returned to the jobsite for the first time. Such as how to properly don and doff gloves and how to properly clean a vehicle. Those videos have become a valuable resource across the province, the country, and around the world.

With the best practices in place for how to prevent the spread of the coronavirus on the jobsite, the focus turns from being reactive to being proactive, searching for the best way to ensure that any contact with the virus is contained. This involves the three Ts, as Pariser put it: testing, tracking, and tracing. Testing is the obvious one, ensuring that anyone from the jobsite showing symptoms of the disease goes and gets tested for the virus. But then what happens if a positive test result comes back and you have to figure out who may have been infected? That’s when tracking and tracing comes in. Garritano noted that it is important for jobsites should be diligent in tracking who enters and exits the jobsite, and where they are working during the time they are on site.

This is where tracing could come in, however it isn’t without its objections. Using tracing can improve the speed at which the virus could spread, as a tracing app would be able to track your movements to see if you have come in contact with any potentially-infected areas, or have come within six

feet of the infected individual. However, there are clear privacy concerns with the use of tracing, as it means an app on your smartphone would have data on your daily movements. It's not a perfect solution, but certainly has value if people are willing to utilize the technology.

Next steps

On July 31st, the Government of Canada released its COVID Alert app to the country, asking citizens to considering downloading the app “to help stop the spread of the disease. Within the first two days, over 1.18 million Canadians had already chosen to download the app on their smartphone. Depending on the buy-in on each individual jobsite, this could make it easier for jobsites to quickly react to an outbreak should one occur.

It's up to the industry to stay diligent, continuing to ensure that best practices are followed even as the number of cases in the country projects steadily downward.

“We can't let complacency work its way into the industry over the next few months because [...] if (the second wave) potentially hits in the fall, we've got to remember how this all got started: it started with just a few people and it spread like crazy,” explained Garritano. “That can happen again, and the worst thing we could do is to be satisfied that it's gone and do the things as we did pre-COVID.”

Habit building is key for the industry: wearing the masks when physical distancing isn't an option, proper hand washing and sanitization. Employers must be diligent in monitoring, evaluating, and enforcing the practices needed to ensure that the disease is not spread within a construction site.

Pariser recommended that we learn from other industry campaigns that humanized the issue in order to drive the point home. That has been done effectively in Western Canada on road construction sites, using signs with phrases like “please slow down, my mom/dad works here.” A similar approach, humanizing the impacts of COVID-19, can provide a clear reminder to workers that wearing a mask and washing their hands isn't for them, it's for, as an example, the co-worker whose child has an existing condition that makes them vulnerable to respiratory illnesses.

By working together, as an industry, we can keep people happy, healthy, and on the jobsite. ♣

Andrew Macklin is the managing editor of ReNew Canada.

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Exposing all secondary students in Canada to the skilled trades would help to solve impending issues around market capacity in the national infrastructure industry.

ADDRESSING MARKET CAPACITY

Does Canada have the human resources needed to support further infrastructure development? *By Andrew Macklin*

Concerns over the Canadian construction labour pool have been an ongoing story for years. Much of the workforce is set to retire. Not enough young people are looking at the trades as a real career option. Where will all the workers come from?

As municipalities, provinces, territories, and the federal government increase their investment in infrastructure, this issue has been exacerbated, with industry associations and stakeholder groups scrambling to find the right solution for ensuring that the pipeline of projects has the workforce needed to get built.

To understand just how much of an issue market capacity currently is in this country, ReNew Canada brought together a panel of experts for an open discussion on the issue: Canadian Construction Association President Mary Van Buren, BuildForce Canada Executive Director Bill Ferreira, and Infrastructure Ontario's President of Project Delivery Michael Lindsay.

Before COVID-19

Before the pandemic hit Canada in March, market capacity in the Canadian infrastructure industry was an issue that needed to be watched in certain parts of the country, but there were no immediate concerns.

"If you look at Canada prior to COVID-19 we had some pockets, particularly Vancouver and Toronto, and other areas where there was an abundance of work such as Alberta," said Van Buren, pointing to the areas of the country where a spike in new project development could cause a strain on the workforce. She noted that there are several other markets that would also qualify if the billions of dollars in federal infrastructure funding that was on the table had been successfully leveraged by provincial governments across the country.

Ferreira pointed to British Columbia, Ontario, and Quebec as the markets that looked to be robust in the early stages of 2020, and that softening markets in other western provinces were helping to feed the labour market in British Columbia.

He also noted that, prior to the outbreak of COVID-19, one of the biggest issues affecting local labour markets was affordability. As infrastructure investments continue to grow in some of Canada's largest centres, real estate prices are growing as well, making it harder to attract skilled labour to some regions.

Lindsay noted that, realizing the potential for creating market capacity issues in Ontario, and especially in the Greater Toronto Area, Infrastructure Ontario was trying to be very careful with how it rolled out all elements of the \$60 billion project

pipeline. This includes understanding for the timing of all project roles, not just core construction of the projects themselves.

Then COVID-19 hit

When the pandemic hit Canadian soil in March, the concerns surrounding market capacity evolved. No longer was the issue simply about whether or not there were enough workers to get the job done.

The strain of municipal budgets was the first point raised during the discussion, concerned about how the loss of funds would impact project development in communities across the country.

"It is so critical to Canada's well-being that we continue these investments," said Van Buren. "We are a trade country. We need to be competitive. Stalling investments in infrastructure will hurt our economy."

Lindsay and Ferreira were quick to voice concerns over how the rollout of stimulus funding could impact the industry. Lindsay suggested that governments need to balance the desire to invest in projects that are shovel-ready just to get the market up and running again, as it could take away funding from the projects that are actually shovel-worthy. Ferreira pointed to the system of deadlines used for past infrastructure stimulus funding, suggesting that with the need for flexibility during the pandemic,



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MARKET CAPACITY ISSUES

We asked participants about some of the key issues surrounding market capacity issues in Canada. Here is what they had to say:

Do you believe that market capacity is an issue in the Canadian infrastructure sector?

Yes **70.4%**

Yes, but only in certain parts of the country **22.2%**

Not right now, but it will be in the future **7.4%**

Has your company had difficulties filling positions in the past 12 months?

Yes **60%**

No **40%**

Are CBAs part of the solution for addressing market capacity?

Yes **30%**

No **70%**

out across Canada, companies should be willing to invest in people, training, and equipment. But that will take ensuring that the financial resources are available to do so. With the federal government's announcement of \$3.3 billion for the COVID-19 Resilience funding stream, as well as monies at the provincial and federal level to support ailing municipalities, should provide enough certainty within the industry to make financial resources available to infrastructure industry firms.

Creating a bright future

There may not be notable market capacity issues in regions of Canada right now, but that could change quickly without action from the industry.

Right now, the Canadian labour market has the ability to make adjustments based on the ebbs and flows in other supporting industries.

"The industry is very adaptable," noted Ferreira. "The construction workforce is mobile; it is used to moving around to where the work is. Typically, when we start experiencing tight labour markets in a given region, it's usually because that's

strict deadlines could cause unnecessary stress within the industry.

Van Buren also stressed concern over investor confidence, making sure that the funding needed would still be available. In addition to the concerns over private sector construction deferrals caused by the work-from-home regime created as a result of the pandemic, capital availability could become a significant issue for the industry.

"Our biggest concern right now is financial capacity; that credit is available, that liquidity remains. Many of our firms have had a period of several months of not-full payment if any payment, and that means that many of them won't get paid for another two-to-three months. So, we need to make sure that they've got that funding in the near-term, and also as they are ramping up."

With a robust pipeline of projects, spread

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where there is a glut of projects that hit the street all at once, and it takes a little bit of time for the labour market to adjust.”

He cited the example of Alberta in the early 2000s, when there was a boom in the oil and gas industry. The sector was able to pull from other provinces who were not experiencing strong investment in construction and resource development.

Lindsay noted that work is being done at the provincial level in Ontario to determine what barriers exist that prevent companies and workers from participating in the project pipeline, and eliminating those barriers. That includes working with the Ministry of Labour on policy mechanisms to make sure the right shape of the workforce, including things like apprenticeship rates.

Apprenticeships continue to provide a strong opportunity for developing a skilled labour force, but there is a need to develop this further according to Ferreira. He suggested that more needed to be done to provide funding mechanisms that would allow smaller companies the ability to take on apprentices, giving those operations a labour pool to pull talent from, but to also help continue the growth of the workforce overall.

There is also the consideration of further use of Community Benefits Agreements (CBAs) to growth the pool of skilled labour, especially on bigger projects in major centres. We’ve seen this utilized on the Eglinton Crosstown light rail transit project, and the B.C. Government has started using CBAs on its recent transportation megaprojects including the Pattullo Bridge Replacement project and the Kicking Horse Canyon project.

Lindsay suggested that government discussion is ongoing to try and determine what the correct mechanism is for delivering community benefits. The question is whether the model prescribed on previous projects is still the right program to put in place.

While there are some definite advantages to using CBAs, they can have some unintended consequences as Van Buren pointed out. Not every community has the right makeup of individuals to be able to best utilize the CBA. Also, CBAs limit workforce mobility, and those who come into the program may not have the resources available to take work outside of their immediate surroundings.

The question becomes where best to direct resources to engage under-represented

groups in the industry. And the consensus in the discussion is that the opportunity best lies within secondary schools. That is where students are thinking about their career choices, and being presented with unbiased, accurate information about opportunities in the skilled labour force can lead to greater knowledge of the industry for under-represented groups, such as women, Indigenous youth, and new Canadians.

“It (growing the industry) has a lot of pieces to it that we need to work on together,” Van Buren said. “It’s not just one thing that’s going to change it, it’s a whole mindset around working in construction, working in skilled trades, for the under-represented groups.”

By further educating young people about the significant benefits of joining the skilled labour workforce, conversations like this one, being concerned about market capacity, may no longer be necessary. 🍁

Andrew Macklin is the managing editor of ReNew Canada.



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THE EVOLUTION OF AN INDUSTRY

Reflecting on 15 projects, policies, and priorities that have changed Canadian infrastructure since 2005. *By Andrew Macklin*

What a difference 15 years makes. Few sectors in Canada have undergone the kind of monumental change that the infrastructure industry has during the last decade and a half. Many projects are built differently, financed differently, and operated and maintained differently than they were in 2004. Beyond the land, steel, concrete, and wood needed to build the projects, much of the ‘infrastructure of infrastructure’ has undergone some sort of transformation.

It would be impossible to create a definitive list of the fifteen things that have had the biggest impact on the industry over the past 15 years, but that isn’t going to stop us from trying. We thought it would be fun to try and capture the biggest developments in the infrastructure landscape since the release of our first issue in the fall of 2005.

So, in no particular order, here are the projects, policies, and priorities that we think have changed the infrastructure industry, and the country.

A partnership like no other

We have seen a real evolution in the types of partnerships coming together to take on the country’s most complex projects, with

hundreds of public-private partnerships (P3s) being rolled out by provincial governments over the years, but one in particular stands out from the rest.

The Wataynikaneyap Transmission Project involves 24 First Nations communities that have come together to form Wataynikaneyap Power, joining forces with FortisOntario RES Canada for the construction of an 1,800-kilometre transmission line that will provide clean, reliable, renewable power from remote First Nations communities in northern Ontario.

A partnership that was more than a decade in the making, this innovative relationship has resulted in a new model for building complex infrastructure projects with direct involvement and ownership from remote communities in the north, leading to new opportunities for infrastructure development that directly benefits all parties involved.

Robust provincial pipelines

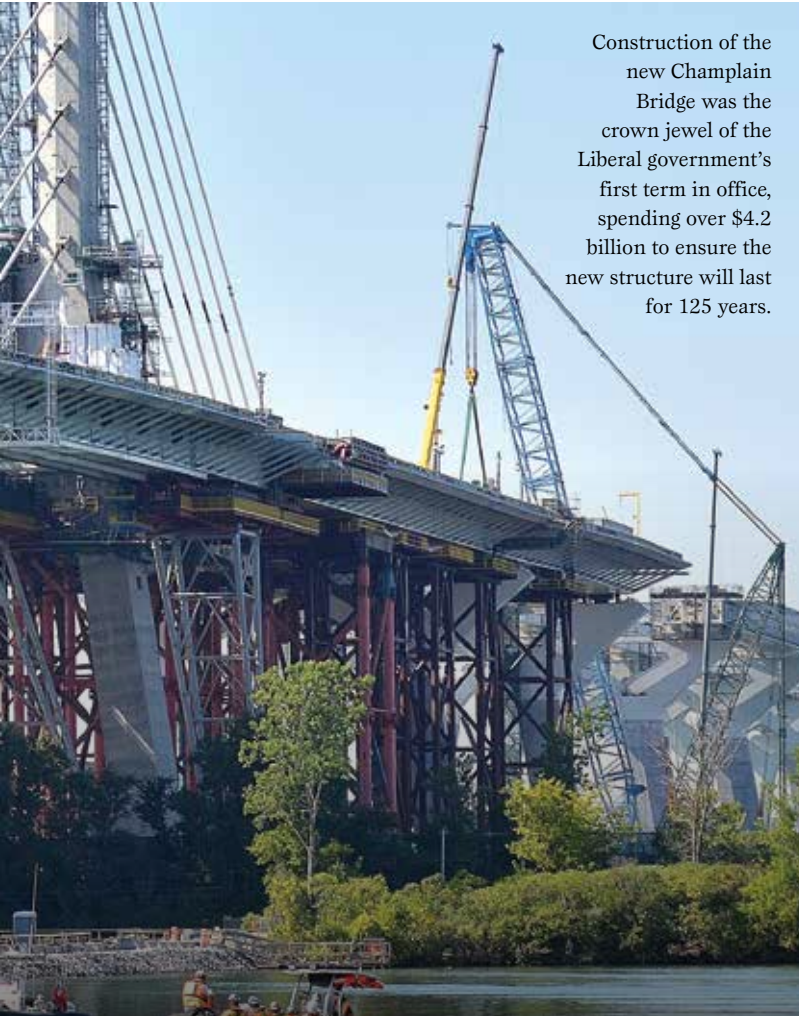
The development of multi-billion-dollar project pipelines in multiple provinces, by several of the country’s larger project owners (especially in the transit space), has helped Canadian companies better plan their operational needs for the decade ahead.

These project pipelines, such as Ontario’s P3 Market Update and Quebec’s 10-year infrastructure plan, also provide clear understanding of provincial priorities, and the potential for further residential and commercial construction through transit-oriented development.

The Olympic legacy

The building priorities of the 2010 Winter Olympics Games in Vancouver are still being appreciated a decade later, and transportation routes and new building stock have provided significant benefits in and around the Greater Vancouver Area. The \$600 million upgrade of the Sea to Sky Highway has created a much safer route for locals and tourists to access destinations farther inland such as Whistler and its ski resorts, as well as improve travel to the interior to cities such as Merritt and Kamloops.

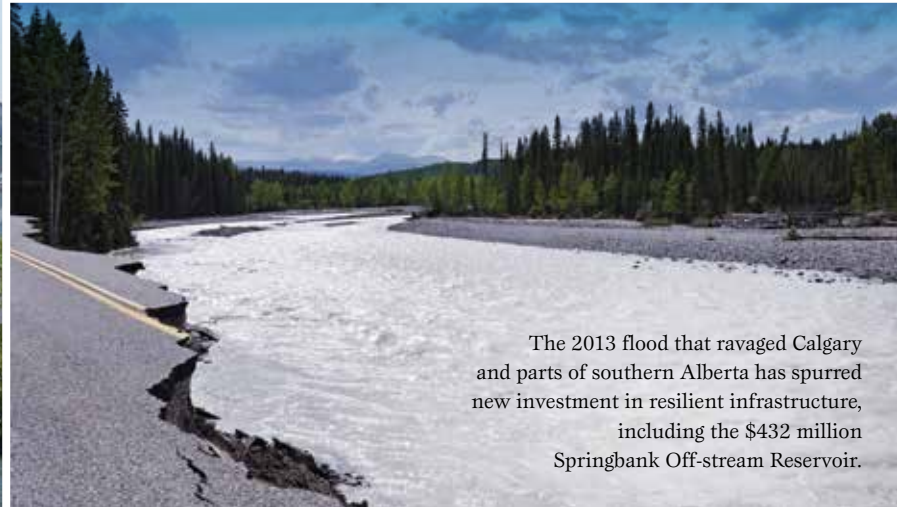
The Canada Line may be the greatest Olympic legacy for Vancouver itself, shuttling thousands of people each and every day to work, home, and many sports and cultural destinations. TransLink also introduced the 400-passenger SeaBus ferry, as well SkyTrain cars with enhanced fuel efficiency and diesel-electric hybrid buses



Construction of the new Champlain Bridge was the crown jewel of the Liberal government's first term in office, spending over \$4.2 billion to ensure the new structure will last for 125 years.



It may not look like much, but this permanent highway linking Inuvik to Tuktoyaktuk in the Northwest Territories was one of the most significant infrastructure projects of the past 15 years, providing all-season road access to the Arctic Ocean for the first time in Canadian history.



The 2013 flood that ravaged Calgary and parts of southern Alberta has spurred new investment in resilient infrastructure, including the \$432 million Springbank Off-stream Reservoir.

that improved the environmental footprint of Vancouver's transit fleet.

The six new competition venues, as well as upgrades to Canada Hockey Place (now Scotiabank Arena) and the Pacific Coliseum, have developed and expanded opportunities to attract new competitions to the communities, creating additional economic benefits.

Take a drive to the Arctic Ocean

When you look at the landscape of projects completed in the past 15 years and discuss which ones would be considered as 'nation-building,' the Inuvik to Tuktoyaktuk Highway project should rise to the top of the list.

For the first time in our country's history, people are now able to drive a permanent road network all the way to the Arctic Ocean, connecting Canada's three ocean coasts, a feat that was accomplished with the construction of the 138-kilometre highway.

A priority since the late 1960s, the transportation link has expanded economic opportunities in the northern-most communities in our country, and could lead to more significant development in the territories. In terms of helping connect more communities in the north, we hope to see broadband network projects expand in the coming years.

Infrastructure as stimulus

Following the 2008 recession, the federal government under Prime Minister Stephen Harper made a multi-billion-dollar investment in public sector infrastructure, investments that helped our economy rebound in 2009/10 and continue to provide significant benefit to communities across Canada more than a decade later.

The stimulus effort showed the country that infrastructure investment is an important tool for helping to spur economic recovery. And the lessons learned from the money spent, and how it was delivered to communities, has formed an important base for understanding how infrastructure stimulus can be executed in the recovery period following the COVID-19 pandemic. An important lesson learned was that 'shovel-ready' projects do not necessarily mean 'shovel-worthy', so more consideration of asset management principles and environmental impacts are required lenses for stimulus allocation.

Record provincial/territorial spending

We can't talk about investment in infrastructure without tipping our caps to provincial and territorial governments from coast-to-coast-to-coast. From 2005 to 2020,

we saw record spending across the country, as provinces and territories invest heavily in the infrastructure that helps move people and goods more efficiently, create new spaces for indoor and outdoor activities, and provide the essential services that citizens depend on. This record spending also shows an increase in the political will required to make these decisions which bodes well for future budgets and infrastructure policy.

The age of asset management

The introduction of PSAB 3150, ISO 55000, and many provincial regulations and standards for asset management over the last fifteen years has been a game-changer for public sector infrastructure at the local level. New software, sensor technology, and other innovations transformed municipal engineering and capital planning has had a positive ripple effect on procurement, service delivery, and O&M. The profession of asset management ensures that the prioritization of municipal infrastructure funding is evidence-based, rather than being influenced by politics or 'pet projects.'

The application of asset management practices across the country has helped build a true appreciation of the state of Canadian infrastructure, (as evidenced in Infrastructure Report Cards being



Solar and wind renewable power resources have grown exponentially since 2005, as the country moves to drastically reduce its carbon footprint by producing power through non-carbon-emitting generation.

infrastructure, as well as an adaptation in the manner certain assets are built.

In larger cities, green infrastructure and stormwater retention systems are being installed to mitigate the impacts of severe storms, thanks in part to investments from senior levels of government. But we have also seen progress on massive flood prevention projects at the provincial level, namely the Springbank Off-stream Reservoir in Alberta and the Lake Manitoba-Lake St. Martin Outlet Channels Project. And in provinces like Ontario and New Brunswick, where several flooding events caused millions of dollars in damage last year, we can expect to see strong investments in additional flood protection and prevention.

The race for renewables

Canada has experienced rapid growth of renewable energy assets that feed power to the grid for use in our communities, thanks to concentrated efforts to reduce GHG emissions from energy production. From 2006 to 2017, Natural Resource Canada data show that renewable energy generation grew by more than 20 per cent, from just under 80,000 Megawatts (MW) to just under 100,000 MW.

In the past few years, we have seen the scale of renewable operations grow even further, including the current construction of the country's largest solar farm (#88 on our Top100 Projects list), but also an expanded use of renewables in remote communities such as the Inuvik Wind Project. Several new and refurbished hydroelectric stations have either come online or are in the midst of construction, and the development of new systems like Enwave's deep lake cooling and technologies such as battery storage are providing exciting new opportunities for the future.

A bridge with lofty expectations

The award for the project that received the most fanfare over the past 15 years goes to the construction of the new Champlain Bridge corridor in Brossard and Montreal.

The former 57-year-old bridge had become obsolete and, recognizing its importance as a vital transportation corridor for moving goods in and out of the U.S. market to the Greater Montreal Area, the Government of Canada spared no expense in its replacement. Valued at more than \$4 billion, with operations and maintenance costs and additional transportation corridor elements included, the asymmetric 240-metre cable-stayed bridge was built at a premium, with an expectation to last 125 years.

issued locally and nationally) and where coordinated funding mechanisms are most needed. This helps senior levels of governments understand where investment is needed and why, using the evaluation methodologies adopted in the asset management process.

In the years to come, a national standard for condition assessment could further assist government officials in prioritizing funding programs for municipalities to help address asset development, maintenance and repair.

Strengthening the P3 market

When ReNew Canada launched in 2005, Canada was just beginning to use public-private partnerships (P3s) to build vital infrastructure assets. We are now international leaders in these models. The continued success in delivering these projects on time and on budget has led to other countries learning from our own system in order to get their assets built more efficiently.

One of the things that has made the P3 model in Canada such a success, despite its opponents, is the fact that the system has been continuously evolving. Government agencies like Infrastructure Ontario are constantly working with the sector to re-evaluate the model to ensure the best possible project outcomes, including the evaluation of how best to de-risk projects, as well as how to encourage more innovation within the project scope.

In our premier issue we heard from provincial minister David Caplan and federal minister John Godfrey on P3s—

with the latter who explained at the time his caution around the new model with this statement: "Highway 407 bad, Confederation Bridge good"

The Bank is open

The creation of the Canada Infrastructure Bank (CIB) in 2017 during the first mandate of the Trudeau Government has provided a new opportunity for engaging the private sector in the construction of new infrastructure assets.

It has taken a few years for the CIB to find its footing and introduce a robust system for project evaluation, but the result of that diligence is starting to be seen in the project agreements that have been rolled out. We have seen the CIB play in a few different sectors where revenue streams are present (transit, water, ports), and the MOUs announced in the past several months could lead to the development of some innovative new infrastructure assets.

As the CIB continues to evolve, there is a ton of potential for expanding the Bank into a body that can provide value to the infrastructure industry well beyond the funding it helps to unlock.

Preventing the flood

Heavy rainfall events and faster snow melts have led to significant flooding in almost every province over the past decade. Climate change has raised the severity and frequency of events. Damages from some of the most recent events have reached into the billions, and insurance companies have struggled to pay out the catastrophic losses. As a result, we have seen a massive uptick in investment in flood prevention and resilient

The project was one of the most, if not the most, important replacement projects over the past 15 years. Whether or not it will live up to its fanfare is a question that won't be answered until after our lifetime.

Put a ring on it

The ambitious multi-phase transportation projects undertaken by Alberta's two biggest cities, Edmonton and Calgary, have transformed the way people travel through the province. The two new road systems (Edmonton's is 78-kilometres while Calgary's is 101-kilometres) don't just make it easier for residents to get around the cities, they have been invaluable assets in the efficient movement of Alberta's resources to markets west, east, and south of the province.

With plans stretching back into the 1950s, the two "ring" roads are already vastly improving the provincial transportation network, and improving tourist access to not just the cities themselves, but other provincial destinations such as Jasper, Banff, and Drumheller.

Making hospitals smarter

Hospitals have become the hotbed of infrastructure innovation over the past 15

years, with new technologies seemingly inserted into each new health care project announced across the country.

The innovations are significantly improving the quality of service able to be offered by health care professionals: from improved air quality and access to the natural environment, to better sightlines for hospital staff and more efficient communication systems. We are seeing a digital and environmental revolution thanks to improved building envelope design, more effective construction methodologies, and better integration of new technologies.

And if it wasn't for adoption of AFP (P3) model and creation of IO in Ontario in 2006, many provincial hospitals there may still be waiting to be built.

Canada's transit boom

Okay, so this one we put last on purpose. There is no form of infrastructure that has seen such a monumental investment as what our urban areas are investing in public transit like subways, rapid rail, and bus lines. Almost every major city in Canada has some form of significant transit project currently being built or under development

(sorry Hamilton), and the numbers behind both the capital costs and the P3 costs are staggering.

The pipelines for continued transit development are also strong, with Vancouver, Calgary, Edmonton, London, Mississauga, Toronto, Ottawa, Montreal, Quebec City and Halifax all having large-scale plans for expansion of services on the books for the long-term.

COVID-19 will slow down some of these plans, however as transit ridership improves as pandemic fears wane, expect many projects and procurements to ramp back up.

That's our look at 15 of the most important infrastructure stories we followed over the past 15 years. Did we miss something? What do you think had more or less of an impact than we suggested? We'd love to hear from you and hope to publish a second version of this article online in the coming months with your feedback included. ♣

To provide your thoughts, email me at andrew@actualmedia.ca.

Andrew Macklin is the managing editor of ReNew Canada.

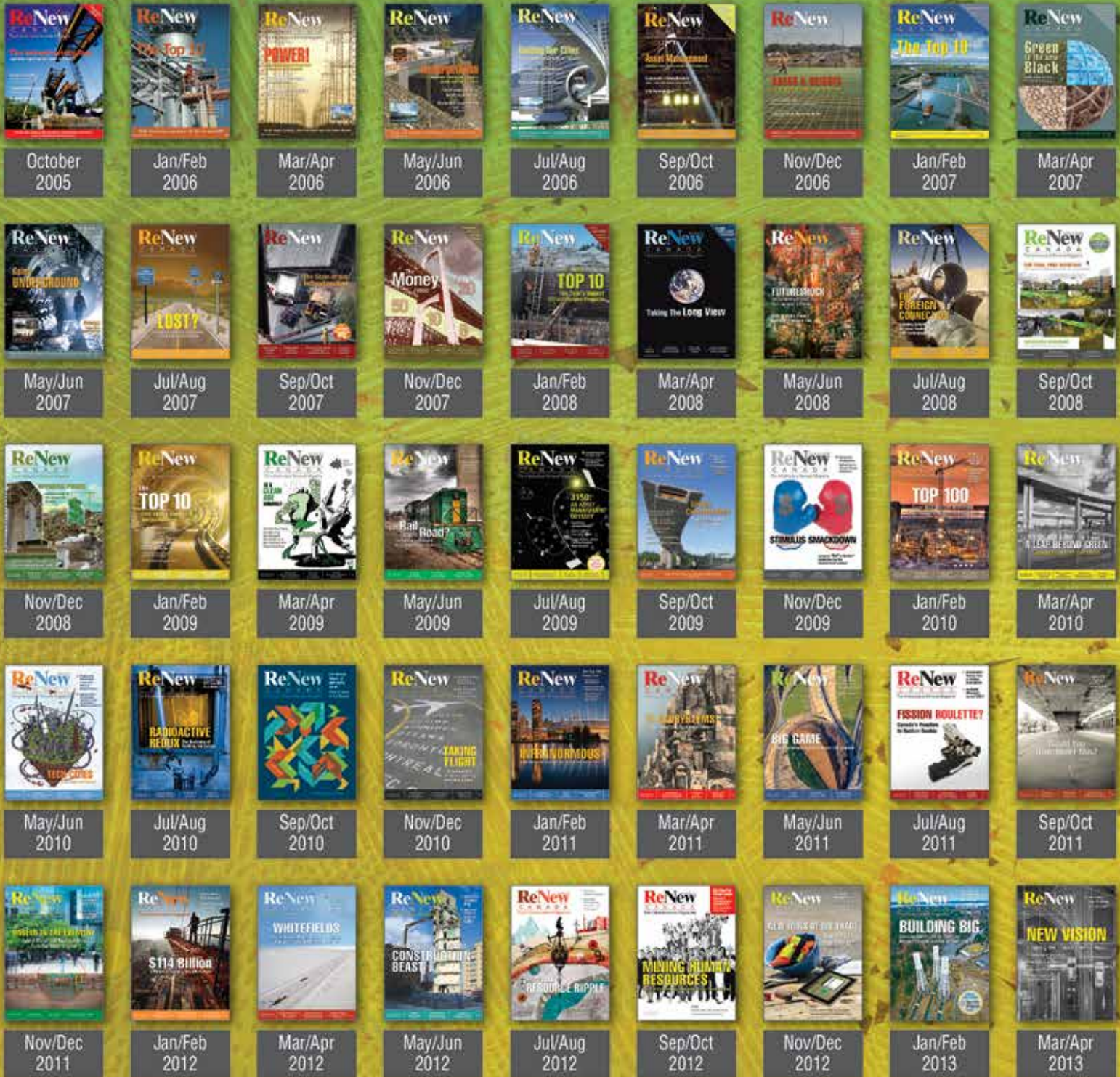
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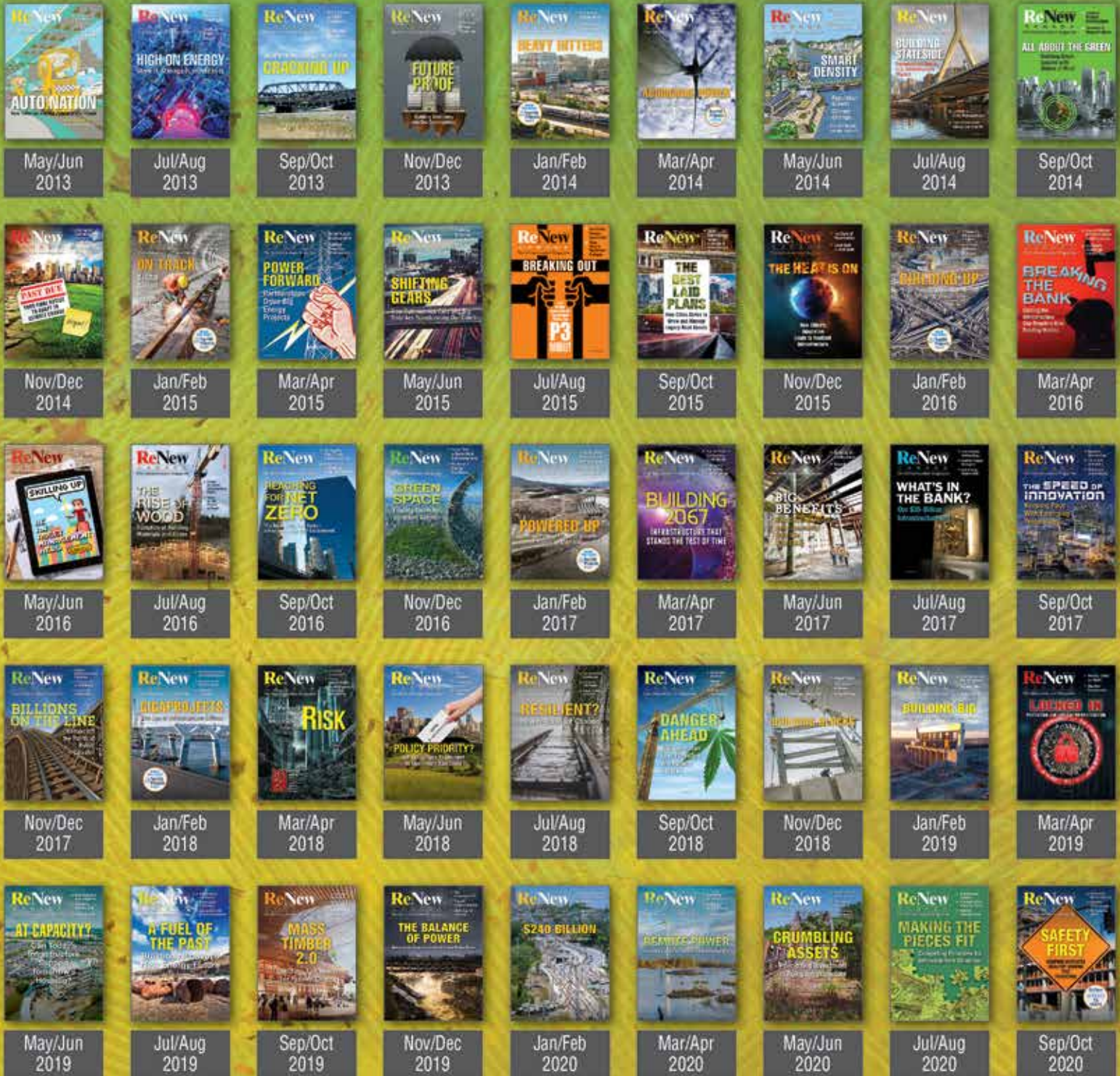


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We've seen an infrastructure boom in the past 15 years since our first issue. What have been the industry's biggest accomplishments?

FIFTEEN YEARS LATER

Industry leaders share their insight on the industry's greatest successes.

Fifteen years has passed since the first edition of ReNew Canada landed at the Canadian Brownfields conference on October 5, 2005. Few industries have gone through the amount of change, and significance of investment, than the public sector infrastructure industry in Canada.

We reached out to industry stakeholders across the country for their thoughts on the biggest changes, or most important developments, in the industry over the past 15 years. Here is what they had to say.



"The last 15 years have seen growing appreciation of the essential way that transportation infrastructure knits us together. Important everywhere, but especially in a country as large and diverse as Canada, transportation is critical to connect us, facilitate our mobility and enable our economy. We've also made great strides in understanding the linkage between transportation and the health of our citizens, our communities, and our climate. Investing in transportation infrastructure and effectively managing those valuable public sector assets helps Canada and Canadians be healthy, safe, and prosperous."

Sarah Wells, Executive Director, Transportation Association of Canada



"One of the greatest impacts on Canadian infrastructure over the last 15 years has been the size and scope of capital investment by successive governments at the federal and provincial levels. Combine that with sustained private investment and you can see the transformation of infrastructure across Canada. We're seeing it across traditional, social and green infrastructure projects. The true benefit can only be realized if we continue to invest over the next 15 years. Some argue that infrastructure investment should increase even more in the future. Our industry—and most Canadians—would certainly welcome that development."

Mark Dvorak, President and COO, EXP



"We didn't have the iPhone fifteen years ago, much less drones tracking site progress and communicating via 5G networks in real time. Despite improvements in technology, gains in productivity have evolved slower. We've witnessed megaprojects become larger and increasingly complex with more multi-disciplinary partners, yet the industry is still challenged to appropriately allocate risk. The trend we can all focus on is collaboration. We can listen closer to our clients and communities, better understand their needs and strengthen partnerships, attract and develop a more diverse group of employees with the right capabilities and foster cultures of collaboration. This will surely yield a more successful tomorrow."

Anthony Karakatsanis,
President and CEO, Morrison Hershfield



"Municipalities across Canada are facing a cash crunch due to the COVID-19 pandemic, so it is worthwhile to heed Todd's words in the "In Debt We Trust" piece in the September/October 2012 edition where he commented on the bankruptcy of Stockton, California that summer and asked whether this could happen in Canada. At that time there were two Canadian cities that had more long-term debt than annual revenue. Todd Latham's sage and prescient advice is well worth following today where the fiscal landscape for many municipalities is precarious and highly dependent on the largesse of senior orders of government: "Provide a more equitable distribution of provincial and federal tax revenues to the cities that earn them, and give municipalities the increased powers and autonomy they need to best manage their assets and their liabilities." The lesson for today: while infrastructure stimulus funding and other programs from Ottawa are welcome, bold action is needed now on how to implement structural changes to our governments' fiscal relationships."

Andy Manahan, Executive Director,
Residential and Civil Construction
Alliance of Ontario (RCCAO)



"P3's initial success in Canada has been overshadowed by recent delivery issues and finger-pointing regarding underlying causes. Early P3s belied a comfort with traditional procurement, meaning prescriptive specifications and lowest price wins. Some owners and contractors have been slow to embrace the "partnership" aspect, believing risk-transfer meant disappearance of risks. To realize P3's promise, new approaches are being considered: greater design flexibility for bidders AND greater owner involvement in evaluation of design; greater public role in risk management (proactively through legislation and reactively through stakeholder coordination) AND greater transparency by bidders in how they will manage risks. The challenge will best be met by openness about expectations, as in a true partnership."

Patrick Dolan, Counsel, BLG



"The delivery of P3 projects can be adversely impacted if risks are inappropriately assigned or improperly managed. Truly effective risk management requires a strategy that can accommodate the uncertainty and variety of risks exposed from the cradle to the grave of a project, regardless of size or procurement method. The vast majority of risks/claims on infrastructure projects tend to occur in the following eight areas: utilities, geotechnical, contamination, permits/approvals, bundled projects, scope changes, property, and construction interfaces. The risk tolerance in these eight areas has substantially changed in the past decade. Owners must accept that the market's appetite for risk tolerance is evolving to reflect past cost and schedule risks. These of which has now materialized into real-life project challenges, and Owners' approach to procurement, design and construction contracts needs to evolve to ensure a competitive response to bids in the future."

Elie Dagher, Vice President – Engineering
and Project Management, Comtech



"Technology has evolved to enable us to not only plan, design, build and manage assets in different ways, but also allow us to manage large amounts of data used for fiscally accountable and transparent decision-making. Growing social responsibility and stewardship for the environment underpins our client work, which is firmly grounded on science through the application of technological advancements. These shifts in our industry, along with growing economies and increasing population, is driving the public sector to have an accelerated appetite for change. Not only in the way day-to-day business is managed, but also in the new and creative ways we are delivering public sector projects."

Chris Hunter, Regional General
Manager, Ontario, GHD



"Over the years, we've seen significant change, and we've changed alongside it. The digital transformation has changed the way we tackle transformative opportunities. The focus is on nimble data-driven decision-making and digital solutions to ensure dependable execution. We enjoy opportunities to partner with governments to shape sustainable growth and drive social, economic, and environmental progress. But our industry needs to share risk better. Through collaborative partnerships and alliances, we are seeing this change unfold. Recently, in responding to COVID-19, this approach has led to new concepts to help governments accelerate shovel-ready infrastructure investments as the world invests to reboot economies."

Ian Edwards, President and CEO, SNC-Lavalin





The Saint John Clean Safe Drinking Water Project was one of the first successful water sector P3s in Canada.

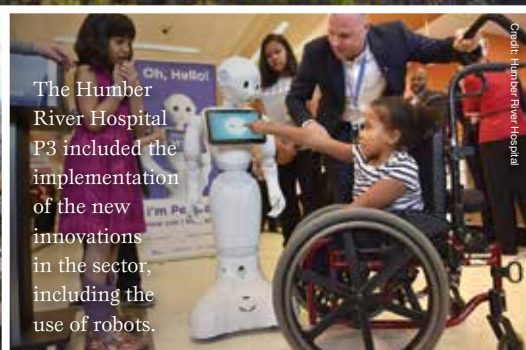
THE EVOLUTION OF P3S

Credit: Saint John Water



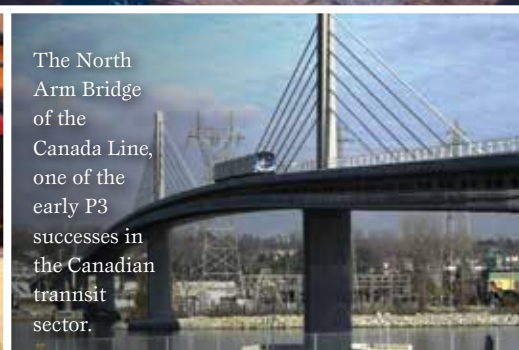
Credit: WDBA

The largest bridge P3 in Canadian history, the Gordie Howe International Bridge will provide a new transportation link between the U.S. and Canada.



Credit: Humber River Hospital

The Humber River Hospital P3 included the implementation of the new innovations in the sector, including the use of robots.



Credit: Saint John Water

The North Arm Bridge of the Canada Line, one of the early P3 successes in the Canadian transit sector.

How the 'Made in Canada' P3 model is building on its past to navigate an uncertain future. *By Mark Romoff*

It's an interesting time to be considering the recent past. In many ways for Canadians, life before lockdown seems very far away. Another time completely.

These last few months have seen perhaps the greatest social and economic upheaval since the 1930s as a result of the global fight to contain COVID-19. No aspect of life has been untouched—and that includes infrastructure.

Canadians have been fortunate that much of the critical infrastructure they've relied on during this period has performed admirably under tremendous strain—and that has a lot to do with the significant capital investments all levels of government have made in the past 15 years, as well as the efforts of the tens of thousands of front-line workers who are keeping things running smoothly.

Imagine fighting this pandemic without the hundreds of new state-of-the-art hospitals we've built from coast-to-coast-to-coast. Or, going without the dependable energy provided by the developments like the massive Bruce Power nuclear project in Ontario.

This pandemic has demonstrated that we can't take our infrastructure for granted. It's also shown how critical it is to speed up the delivery of essential projects as needs peak, from building better long-term care homes in months, not years, to fast-tracking broadband capabilities in rural and remote

governments are making it a key part of their efforts to get Canada back on its feet after these devastating last few months.

And the Canadian infrastructure sector is ready to deliver.

A large part in the success of delivering our infrastructure is the public-private

Most importantly, we all need to be reminded that the most important 'P' in P3 is partnership.

communities to ensure all Canadians have the ability to safely and effectively work from home.

Investing in infrastructure is a proven way to boost the economy, create jobs, increase the resiliency and health of our communities, and to pave the way for what we hope to achieve in the future. That's why

partnership model, which has delivered the Confederation and new Champlain bridges, cutting-edge hospitals and long-term care centres, the Saint John Safe Clean Drinking Water Project and the Mackenzie Valley fibre link, to name just a few. In total, there are 291 active P3 projects across Canada with those in operation or under construction



“The paradigm about how we plan for infrastructure must change. We must move from a lowest cost possible approach to a sustainable and resilient approach.

- MARTIN BUREAU, ENG. PH.D VICE-PRESIDENT, INNOVATION

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valued at \$139.5 billion.

Success has not dulled the sector's desire to evolve and improve the model. In fact, the pandemic has spurred discussions on how governments can speed up the procurement process using more innovative and flexible arrangements, while still delivering the value for money that the P3 approach consistently demonstrates.

But as we rush to try to predict—and steer—what the future course may be, it's helpful to keep in mind what has worked and continues to work in delivering the critical infrastructure Canadians need.

2005-2015: The Rise of the 'Made in Canada' P3 model

Fifteen years ago, as ReNew Canada was putting its inaugural issue to bed, the Canada Line project reached financial close after years of consultation and procurement. All eyes were on the \$2 billion, 19.5-kilometre rapid transit system, the first major transit project delivered via the public-private partnership model in Canada.

In addition to the usual P3 contract language to ensure on-time, on-budget delivery, the massive project had the biggest of all deadlines to meet—Vancouver was set to host the 2010 Olympic and Paralympic Winter Games. Failure was not an option.

In 2009, the Canada Line officially opened with crowds waiting up to two hours to ride the spacious new cars for free on its first day of service. Since then, the Canada Line has woven itself into the fabric of the region, transforming travel and beating ridership projections, with 48 million boardings in 2018 alone. An important consideration for other cities embarking on major transit projects is how the line has also fuelled a surge in new construction and helped

transform a former industrial area into a thriving community.

British Columbia was advised on the project by Partnerships BC, a government agency created in 2002 to support the public sector by providing expertise in the procurement of complex capital projects and in using the private sector.

The province was the first in Canada to create such a standalone agency, setting a trend that saw the creation of similar agencies in Quebec, Ontario, Saskatchewan, and nationally with PPP Canada.

This time period, running roughly from

There was also a growing boldness and excitement in the approach to projects, Bain says. "There wasn't an existing mould to break," he says, noting most jurisdictions, for example, hadn't built a new hospital in decades. The result was some truly impressive, cutting-edge facilities.

An example is the award-winning Humber River Hospital in northwest Toronto, billed as one of Canada's largest acute care hospitals and North America's first all-digital hospital when it opened in 2015. Modern hospitals like Humber River couldn't have come at a more critical time. A study released in 2015

In Canada, there is growing consensus among government and industry that risk allocation is a critical issue.

2005 to 2015, is when the Canadian P3 market started to develop its own legs, explained Mark Bain, a partner at Torys and the chair of the CCPPP board of directors. "The idea of sustained P3 programs had taken hold after years of pilot projects across the country."

Those largely successful pilots helped usher in a period that saw a dramatic rise in the number of projects coming to market and the emergence of a 'Made in Canada' model of public-private partnerships.

The P3 market was "pumping on all cylinders" with all sectors on offer, said Steve Nackan, president of Aecon Concessions. "Ontario, in particular, was the epicenter. It was a vibrant place to be with a good model in place."

by HealthCareCan found Canadian hospitals had an estimated \$15.4-billion in deferred maintenance costs. New hospitals were needed—and fast.

Healthcare facilities were the driving force in the rapid growth of P3 projects. To date, 91 health projects worth more than \$28 billion are under construction or in operation across Canada, accounting for close to one-third of all active P3 projects.

2015-2020: The Expanding Market, the Rise of Transit and Risk Rebalancing

After a remarkable period of growth, culminating in a record high of new projects and increasing competition, the last five years has seen an evolution of the

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Canadian P3 market.

Elections have resulted in new governments and different approaches to the sector. Alberta and Nova Scotia have rejoined the P3 market, while new players like Newfoundland and Labrador have also come on board. At the federal level, the government has wound down PPP Canada and created the Canada Infrastructure Bank as part of its 12-year, more than \$180 billion Investing in Canada plan. The Bank is focused on attracting and co-investing with private sector and institutional investors in new, revenue-generating infrastructure projects that are in the public interest like the Réseau express métropolitain (REM) project in Montreal.

Indigenous communities are becoming increasingly involved in projects, like the 97-kilometre Tłı̨chǫ All-Season Road in the Northwest Territories, which is among the first P3s in North America with an Indigenous government that has a cash-funded equity stake in the project. The project is also notable for its unique approach to handling long-term risks related to climate change, which is happening at an unprecedented rate in the North.

After much engagement with stakeholders, Ontario has opened itself up to receiving unsolicited proposals. The Canada Infrastructure Bank has also put in place a mechanism for unsolicited proposals and Alberta is interested in pursuing a similar framework.

A federal focus on transit and green infrastructure has caused a boom in major transit projects coming on stream in Ontario, Alberta, and British Columbia. The power of these projects to boost economic development and make communities more inclusive can be seen in the ION LRT, which

recently celebrated its first year of operation in Ontario's Waterloo region.

As the market evolves, it is clear the P3 model needs to evolve, too, in order to address issues like risk allocation. The collapse of Carillion, the U.K.'s second largest construction company, in early 2018 is a bellwether of what can happen when governments embrace "an aggressive approach to risk transfer," as a British government committee noted.

In Canada, there is growing consensus among government and industry that risk allocation is a critical issue and discussions are continuing via organizations like the Council over how to strike the right balance between allocating risk to the partner best able to manage it while also ensuring the Canadian infrastructure market remains healthy and competitive, with companies able to both deliver high quality projects and make a fair return on their participation.

There has been a winnowing of the playing field, with several companies reducing their interest in fixed-price contracts or exiting the market altogether, as well as a reduction in the number of projects using the DBFOM model, which delivers significant long-term benefits to taxpayers. There is also growing interest in new and different procurement approaches such as integrated project development and the alliance model, which is being used for the first time in Canada for the GO Rail Expansion—Union Station Enhancement Project.

Despite the changes, the P3 sector remains healthy with new projects continuing to be announced and teams embracing new approaches in how best to deliver them. Like all systems in use for a few years, experts have argued the time is right for a recalibration in the market to get back to

basics, to remember the spirit of partnership and to once again incentivize innovation rather than focusing as much attention on the lowest priced bid.

The pandemic and what comes next

At first glance, the pandemic may complicate these efforts but it also provides a golden opportunity for governments and industry to embrace this reset. We don't know what the future holds, but we do know we'll need to do things differently—and better.

Doing things better may mean a return to the basic principles of the P3 model. Focusing on innovation—and incentivizing companies to consider an out-of-the-box approach—should be given more weight when it comes to accessing bids.

Most importantly, we all need to be reminded that the most important 'P' in P3 is partnership. Government and industry work together to deliver these projects and, in many cases, to maintain and operate them for decades to come. An enduring spirit of partnership and collaboration can drive tremendous value, while an overly formal and adversarial approach solves nothing and only damages public trust.

By continuing to partner and collaborate, we can carry on delivering the excellent, innovative and quality infrastructure Canadians need and deserve as they confront and conquer the fiscal, economic, and social changes ahead. ✨



Mark Romoff is the president and CEO of The Canadian Council for Public-Private Partnerships.

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Credit: BC Transportation and Infrastructure



A simulation of what the bridge project could have looked like. Procurement was halted in 2017.

Credit: BC Transportation and Infrastructure



A video rendering of what the new George Massey Tunnel could look like if final approvals and financing move the project forward.



Inside the current tunnel, where upgrades are currently underway to increase its usable life while the replacement is being determined.

TRAVERSING THE FRASER

Will a bridge or a tunnel replace the George Massey Tunnel?

By Carroll McCormick

Opened in 1959 to join the cities of Richmond and Delta in British Columbia, the George Massey Tunnel running under the Fraser River has long been slated for replacement. But a New Democratic government, elected in 2017, cancelled the defeated Liberal government's 2015 decision to replace it with a bridge.

The Liberal government announced in 2015 that it would build a three-kilometre, 10-lane toll bridge, pegging the cost at \$3.5 billion. Construction would have begun in 2017 and taken five years to complete.

After the new government deep-sixed that plan, for which \$66 million had reportedly already been spent, the British Columbia Ministry of Transportation and Infrastructure commissioned Westmar Advisors in October 2017 to do an in-depth review of various options.

The Review studied issues ranging from the effects of earthquakes on the existing

tunnel, traffic scenarios, bridge and tunnel construction details, stakeholder concerns, and nearby highway interchanges.

The firm submitted its Independent Technical Review of the George Massey Crossing, Final Report, to the Ministry of Transportation and Infrastructure, in September 2018.

A daily average of 84,000 vehicles passed through the four-lane tunnel in 2017. Future traffic scenarios have that number reaching as many as 118,200 vehicles a day in 2030 and 128,400 in 2045, according to the Review.

According to a summary issued by the Ministry of Transportation and Infrastructure, the Review concluded that a six-to-eight lane bridge or tunnel could handle the traffic anticipated by 2045. From a longer list of options, the Metro Vancouver Mayors' Task Force endorsed a short list of six options in July 2019. They included a six-

lane bridge plus two traffic lanes and a multi-use path (MUP) in the old tunnel; an eight-lane bridge with an MUP; and an eight-lane bored tunnel, plus a MUP in the old tunnel.

A bored tunnel would be approximately 30 metres below grade beneath the river. To get the proper grade of the road would require it to be longer than an immersed tube tunnel, which would be placed in sections in a trench excavated in the riverbed. "A deep-bore tunnel [comes with a cost] estimated between \$12 and \$17 billion. The [immersed tube] tunnel estimate is \$4 – \$5 billion," notes Matt Pitcairn, president and CEO, Richmond Chamber of Commerce, who prefers the bridge option.

By September 2019 the list had been whittled down to two options: an eight-lane immersed tube tunnel with an MUP, and an eight-lane bridge with an MUP.

On November 1, Metro Vancouver's board of directors voted for an eight-



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Currently, over 84,000 vehicles per day travel through the tunnel, originally constructed in 1959.



Task Force’s approval of the immersed tube tunnel option, and to George Harvie, who is a Task Force member and the Mayor of Delta, and who voted for the tunnel option, for an explanation of his preference for the tunnel option. Neither replied.

The Ministry of Transportation and Infrastructure has referred to the tunnel option as possibly being less expensive, and with fewer negative impacts, and that a six-to-eight-lane bridge would accommodate the “majority” of traffic predicted by 2045. Its criticism of the 10-lane bridge option, levied in late December 2018, includes that it, “[...] was pushed ahead without the input of communities,” and “the technical review of the project has confirmed this was the wrong project for the region.”

Pitcairn argues that the bridge option allows for the possibility of widening it, should that be required, and that a tunnel cannot be expanded. He says there are technical challenges to building a tunnel, and notes that much work has already been done for the bridge option.

“Our strong preference for a bridge is based on cost and timeline,” Pitcairn says. “A bridge is cheaper than a tunnel. The 10-lane bridge already received environmental approval. Only an amendment is required [for a narrower bridge]. It can proceed on a much shorter timeline. It is likely, if the business plan is ready in 2020, it will take three to five years for the environmental approval [for a tunnel]. A new George Massey Tunnel would be one of the first projects to come under the new [environmental assessment] regime, with the uncertainty that is implied.

“The most recent studies that the government has released show complexities [in a tunnel project]. If you look at the Lower Mainland, we have a lot of experience building bridges, but, to my knowledge, only one tunnel. There is an increased risk building a new tunnel next to an old tunnel. The risks have been voiced. This is a concern of ours as well. Another variable is that the spring freshet in the Fraser can be pretty aggressive. It is easy to lose a construction season.”

Pitcairn also says that a tunnel would likely not be completed until 2029, adding, “We believe a bridge could present a shovel-ready option much more quickly than a tunnel.” ❁



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

lane, immersed tube tunnel, based on the Task Force’s recommendation. Public consultations would follow, and the Ministry of Transportation and Infrastructure would prepare a business case by the end of 2020.

But “preparation of a business case” implies that the tunnel option was not the *fait accompli* that some portrayed it to be last fall. Indeed, the Ministry of Transportation and Infrastructure, while confirming that the replacement option will have eight lanes, including two for public transit, incorporate active transportation, and protect for future transit, told ReNew Canada this

meeting with the head of the George Massey team, and they were very clear that no final decision had been made for a bridge or a tunnel,” Pitcairn says. Then, referring to the SARS CoV-2 pandemic, he adds, “The whole world came to a screeching halt.”

The Tsawwassen First Nation also supports the bridge option. Chief Ken Baird, with Tsawwassen First Nation and a Task Force member, explains: “The Fraser River is integral to the way of life of Tsawwassen people and it has been since time immemorial. Our opposition to the tunnel replacement option is based on

The Ministry has referred to the tunnel option as possibly being less expensive, and with fewer negative impacts

June that, “No decision has been made on what the replacement crossing will be. The purpose of the business case is to allow decision-makers to review the viability of the options presented, and make a decision on a preferred solution that serves the best interests of British Columbians. We continue to make progress towards selecting the right solution for a new crossing that aligns with regional plans.”

“There is an option for a bridge and a tunnel on the Minister’s desk,” according to the government. “On March 13 we had a

anticipated negative environmental impacts to the Fraser River ecosystem. The Fraser River ecosystem is central to the effective exercise of Tsawwassen First Nation’s treaty-based fishing rights. We are concerned that the construction method for a tunnel replacement option creates risk for fish and wildlife. All this being said, we recognize a need for a new approach to the George Massey Crossing. That is why we support a bridge option.”

ReNew Canada reached out to Task Force Chair Sav Dhaliwal for comment on the

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It is well studied that the poor state of Canadian public housing, such as inadequate indoor air quality, results in poor health outcomes.



Crowds gathered to pack Trinity-Bellwoods park in Toronto in May, grabbing international headlines, while also raising alarms over the amount of public space available in the city

INVESTING IN BUILDINGS

An investment priority for a resilient recovery. *By Elliott Cappell and Ryan Ness*

Trinity Bellwoods, a park in downtown Toronto, was in the national news spotlight in May. Media descended on the park to report on the crowd of 10,000 who had turned up to sunbathe on a sunny Saturday, seemingly without physical distancing. The Premier and the Mayor each weighed in. Pundits speculated, editorials were written, and conclusions were drawn about what that incident meant for re-opening the economy.

However, at the same time there was another important story playing out in Trinity Bellwoods—one which offers an important insight for policymakers about public places as we craft our national effort to recover from the Coronavirus:

In mid-March, the City of Toronto

converted the Trinity Bellwoods' community centre into a shelter for people experiencing homelessness. Like many temporary and even permanent shelters, conditions did not

often not adequate for our public need.

Across the country, our schools, community centres, libraries, courthouses, firehalls, public offices, and especially

The quality of one's housing has a direct impact on how one will fare in any shock. This is a well-known reality of climate resilience planning.

allow for social distancing and led to a much greater rate of COVID-19 illness than in the general population. This story highlighted the reality that Canada's public buildings are

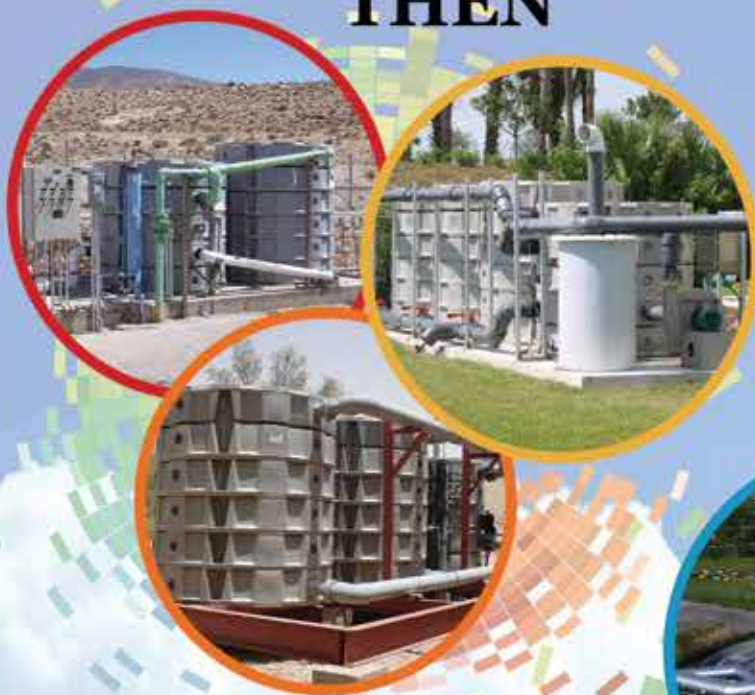
public housing are central to the life of every community. There are hundreds of thousands of public buildings: the federal government owns or leases 37,000 buildings,



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the City of Toronto has about 7,000, and the same can be said of every province, territory, and city.

However, as the COVID-19 pandemic has illustrated, the supply, quality, and function of public buildings are often inadequate, especially in times of crisis. A recent Treasury Board review stated 30 percent of federal-owned public buildings in the National Capital Region are in “poor or critical” condition. About two-thirds of public buildings are owned and operated by municipalities and their agencies, who are faced with a double crunch of needing to repair, upgrade, or repurpose to accommodate a new reality while also facing extreme budget shortfalls as a result of the current economic crisis.

The retrofit and renewal of public buildings could be an important element of a national economic recovery effort to “build back better,” one that improves the quality of community life while helping to prepare us for a world of decarbonization, growing climate risk, and the aftermath of the COVID pandemic.

The benefits of building renewal and retrofits in ‘normal’ times are

well established, especially in terms of transition to a low-carbon economy. Retrofitting Canada’s building stock is an absolute necessity for achieving our climate change commitments and since public buildings tend to be older and more inefficient it makes sense to focus on them for retrofits.

In addition to the substantive energy and cost savings that could be achieved, a large-scale initiative to retrofit public buildings could be an important opportunity to learn how low-carbon building retrofits can be executed efficiently and at a large scale across the country. This ‘Retrofit Economy’ could create over 150,000 Canadian jobs, according to research from institutions such as Canada Green Building Council and The Atmospheric Fund.

Renewal and retrofit of public buildings are also an important opportunity for our collective resilience to climate change. Public buildings such as community centres and schools are hubs for the response to any crisis, including in times of flooding, heatwaves, snowstorms, and power failures. With climate change

Public buildings are the foundation of community life and are essential to our individual and collective wellbeing.

increasing the frequency and severity of extreme weather, public buildings will be called upon more often and with more demand in the decades to come. The physical resilience of those buildings will have a direct impact to the delivery of important services and ultimately to how Canadians fare in a time of increased climate risk. And with ever-growing demands on public budgets we can ill afford to continually repair and replace

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buildings that cannot withstand the effects of our future harsher climate.

The context of COVID-19 significantly strengthens the case for investing in renewal of our public buildings because they are currently, for the most part, empty. Much of the cost of conducting a retrofit and most of the annoyance comes from the displacement of the people who normally work or use the building. Just ask the 3,500 Ontario Public Servants who have been displaced from Queen's Park while the Province spends over \$1 billion on rehabilitating offices. With most of our public buildings either empty, underutilized, or with public servants working from home, retrofits could produce the same long-term benefits while incurring fewer short-term costs.

There is one exception to the state of occupation of public buildings: public housing. Public housing is not just full, it is overflowing. Over 500,000 Canadians live in social and affordable housing, with over 250,000 families on waitlists. Meanwhile our shelter systems for people experiencing homelessness are at 99 per cent capacity in some cities. Research

from the Toronto Foundation shows that COVID-19 could lead to unprecedented levels of homelessness: potentially 13,000 additional people in the GTA alone without a home in which to shelter, let alone isolate, work, and live through the pandemic. Research from the Association of Community Organizations for Reform Now (ACORN) show similar statistics nationally, with 35 per cent of renters fearing they would not make rent this year.

The quality of one's housing has a direct impact on how one will fare in any shock. This is a well-known reality of climate resilience planning. It is well studied that the poor state of Canadian public housing, such as inadequate indoor air quality, results in poor health outcomes. Other factors such as low rates of internet access create barriers to participating in the economy for residents. These were bad enough in good times, but with a virus circulating indoors and employment opportunities even more closely tied with the ability to work from home, the quantity and quality of Canadian public housing may be more critical than ever. A renewal and expansion effort could simultaneously


improve its livability, energy efficiency and climate resilience.


Public buildings are the foundation of community life and are essential to our individual and collective wellbeing. Our public buildings and especially our public housing need investment to not only provide this function under 'normal' conditions, but to also see us through the pandemic recovery and support us in an era of climate change. A concerted effort to renew public buildings could be the opportunity of a generation to improve their resilience and efficiency, and to support the welfare of communities and users that depend on them. 🍁



Elliott Cappell, is the national director for climate change and resilience at WSP Canada.

Ryan Ness is the adaptation research director at the Canadian Institute for Climate Choices.





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SECURING SOCIAL LICENSE

Collaborations with Indigenous communities have led to recent infrastructure megaprojects such as the Southwest Calgary Ring Road seen here.

Consultative direction for engaging Indigenous communities post-COVID-19.

By Ross Holden

Along with most of the rest of the world Covid-19 has driven Canada's economy into recession, and there it will remain for a very long time unless some form of economic stimulus is brought into play. With interest rates at or near zero percent, one of the few tools available to governments in the difficult years ahead will be public-private partnership (P3) investments in infrastructure and other projects that get people back to work, and offer added benefits such as reduced carbon emissions, or increased connectivity. But in order to ensure that government and private sector investments result in their intended purpose—rapid economic recovery—private sector and government project proponents cannot cut corners when it comes to engaging Indigenous communities. Doing so could make the difference between a relatively short two to three-year economic recovery, or one lasting a decade.

The Aboriginal and treaty rights of Indigenous peoples in Canada are explicitly protected by section 35 of the 1982 Constitution Act. Since 1982 the courts have provided some guidance on how potential project impacts on those rights should be identified, mitigated, and/or accommodated (e.g. the Crown's "duty to consult"). They have also hinted at the overall importance of pursuing social license from Indigenous communities above and beyond impacts on rights, but have stopped short of mandating a process for doing so in deference to federal,

provincial and territorial legislatures. Federally, and until recently, most major projects in Canada were subject to the requirements of the Canadian Environmental Assessment Act 2012 (CEAA 2012). Among CEAA 2012's many shortcomings were its orientation toward simply assessing whether or not a proposed project would result in significant adverse environmental effects, rather than whether it was in the public interest (e.g. contributing to sustainable development), or had achieved social license. Because CEAA 2012's requirements for assessing and approving major projects was not sufficiently robust to promote the objective of securing social license vis-à-vis Indigenous communities, many projects have failed to achieve it, the results of which have been in plain view in recent years.

The federal Impact Assessment Act (IAA), which came in to force in August of 2019, partially remedied this shortcoming by instituting a process that encourages proponents to start seeking social license from Indigenous communities during a new project planning phase. The planning phase is triggered by a proponent's submission of an initial project description which must include, among other things:

- The project's proposed geographic coordinates (including a proposed route for linear corridor projects).
- A list of all activities, infrastructure, permanent, or temporary structures and physical works to be included in

and associated with the construction, operation, and decommissioning of the project.

- The anticipated schedule for the project's construction, operation, decommissioning, and abandonment.
- A list of any changes that the project may be cause to the habitats of fish and other aquatic species, migratory birds, and any other changes to the environment.

With respect to the Indigenous peoples of Canada, a brief description of the impact that the project may have on physical and cultural heritage, the use of lands and resources for traditional purposes, and anything of historical, archaeological, paleontological, or architectural significance.

A brief description of any change that, as a result of the carrying out of the project, may occur in Canada to the health, social, or economic conditions of Indigenous peoples of Canada.

These requirements and others, as outlined in the IAA Information and Management of Time Limits Regulations, can be met based on information that is available to the public or derived from any engagement undertaken with Indigenous peoples of Canada. While it is difficult to imagine how a proponent could meet these requirements in a substantive manner without direct engagement of Indigenous communities, the regulations do not require them to do so. And yet, a project's success will depend on achieving social license, which in turn,



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depends on early engagement. Therefore proponents, particularly those entering into projects wholly or partially financed by public funds, must engage Indigenous communities in a substantive and meaningful manner at the earliest stages of the development of an initial project description in order to foster social license and ensure that the expenditure of public funds results in their intended purpose—contributing to economic recovery.

Herewith is some advice for proponents of major projects in a post-Covid, Impact Assessment Act economic recovery:

Get ahead of the curve: A few hours of desktop research can point you to First Nation, Métis and Inuit communities, Tribal Councils and other representative organizations in the broader vicinity of where your project might occur. Even if you don't yet have many project details to share, a few phone calls or even emails introducing yourself, providing a heads-up on a funding or feasibility study announcement, and an invitation to meet will go a long way to building trust and empowering leadership by committing to a 'no surprises' relationship at the outset. If possible, try to avoid having an Indigenous community (especially its leaders) hearing about your project in the news,

through social media, or from their neighbours.

During early engagement, be prepared to spend time, if not money: Early engagement need not require a large financial outlay, but it will require a commitment of your time and 'personal capital.' In addition to talking with leaders you should take every opportunity offered to get to know community members: Where they live, how they live, their challenges and their successes. The time

personal level. Indigenous communities understand that values shape decisions, and accountability rests with decision-makers; therefore, they will want to know what values the decisionmakers live by, and the only way to do so is through face-to-face, eye-to-eye conversations. People will want to know your story, and tell you theirs, so leave your corporate persona behind and bring your empathy instead.

[...] private sector and government project proponents cannot cut corners when it comes to engaging Indigenous communities.

for extensive community engagement and research will come later; invest in building relationships at the early stages.

Focus on building trust from the outset: As a CEO, your ability to achieve social license for your company's project among Indigenous communities will hinge in large part on their knowledge of, and trust in, you and your management team at a

Listen, learn and don't be afraid of making 'mistakes': No one expects someone who has spent his or her career battling in the trenches of West Georgia Street, 5th Ave SW, or Bay Street to have an expert-level knowledge of the history of Indigenous-Crown relations, the varied cultures and experiences of First Nations, Inuit and Métis peoples, or their structures of governance. But listening,

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asking questions and learning on your own time will demonstrate your commitment to developing an informed relationship. Seek out opportunities to broaden your historical and cultural learning.

Commit to transparency: You won't have a great deal of information to share at the early stages of project planning, but you can provide regular updates on the status and progress of project planning to a community's leaders, and begin to introduce them to your project managers and technical experts, so that they can begin building relationships. As the discussion progresses, you will want those people engaging in conversations with community leaders and citizens about their interests, their use of lands and resources for traditional and ceremonial purposes, and what they hope to get out of the project. The feedback from those conversations can inform an initial project description, but at a summative high-level, and should not be attributed or considered in any way a definitive consultation. You should also share the initial project description with communities for comment before you submit it to the Impact Assessment Agency of Canada, again, to ensure a 'no surprises' relationship.

Start investing in internal engagement expertise and capacity: Even though you will not be expected to demonstrate expertise vis-à-vis Indigenous communities, as a CEO you will be expected to build such capacity within your organization. There's no shortage of knowledgeable, well-connected people that can help guide you on your journey, introduce you to the right people, and help you avoid mistakes that could be critical later in your project's development. Start small, and choose carefully: Take the time to find someone who is comfortable and capable of moving in a variety of circles, and is willing and able to speak truthfully to you, and the communities you hope to partner with.

Leading up to the passage of the IAA and thereafter, critics claimed that it imposed an unreasonable burden on proponents and would result in reduced investment in, and approval of major projects. This view represents a fundamental misunderstanding of Aboriginal law in Canada, and the intent of the IAA: the reason so many major projects have been delayed and scrapped in the past is because federal and provincial regulatory regimes have not provided an adequate framework for consideration of

Constitutionally-protected Aboriginal and Treaty rights, nor guidance to proponents on achieving social license. Another fundamental misunderstanding is that it is the job of governments and regulators to achieve social license for a project by 'selling' it through the exercise of the Crown's 'duty to consult.' While that may have been true in the past (in practice, if not in law) that is no longer the case. Social license requires the development of relationships that will have to stand the test of time through a project's entire lifecycle—beginning to end—and long after project is approved by regulators.

As the CEO for a major project, do you expect (or want?) a government managing your relationship with your project partners? I doubt it. So, work toward social license by taking the time to get to know your future partners as soon as possible. And just be yourself. ♣



Ross Holden is an independent consultant focused on advancing the Indigenous-Crown relationship and responsible resource development.

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Proponent Selected for Broadway Subway Extension

2020 Top100 Projects Rank: 23
Value: \$2.83 billion

Following a competitive procurement process, a preferred proponent team has been selected to design, build, and partially finance the Broadway Subway Project in Vancouver.

The Broadway Subway Project is a 5.7-kilometre extension of the Millennium Line, from VCC-Clark Station to Broadway and Arbutus. It will provide fast, frequent and convenient SkyTrain service to British Columbia's second-largest jobs centre, health services and an emerging innovation and research hub, as well as growing residential communities.

The preferred proponent team selected to enter into final contract negotiations is Acciona-Ghella Joint Venture:

Proponent: Acciona Infrastructure Canada Inc./Ghella Canada Ltd.

Design-build/tunnel contractor: Acciona Infrastructure Canada Inc./Ghella Canada Ltd.

Design contractor: IBI Group Professional Services (Canada) Inc./Dialog BC Architecture Engineering Interior Design Planning Inc./Mott MacDonald Canada Ltd./Ingenieria Especializada Obra Civil e Industrial, S.A.

Systems integration contractor: Acciona Infrastructure Canada Inc./Ghella Canada Ltd./Parsons Inc.

The request for qualifications was posted through BC Bid on February 15, 2019 and shortlisted proponents were invited to respond to the request for proposals (RFP). A thorough RFP process and subsequent evaluation of technical and financial submissions was undertaken.

Transportation Investment Corporation (TI Corp) is leading the delivery of the Broadway Subway Project on behalf of the Ministry of Transportation and

Infrastructure. TI Corp will provide the controls, practices and other oversight that are essential for this complex project.

The project will be delivered under the province's Community Benefits Agreement (CBA).

Once opened, the commute from VCC-Clark Station to Arbutus Station will take about 11 minutes. This will save the average transit commuter almost 30 minutes a day, while also relieving traffic congestion along Broadway.

The project budget is \$2.83 billion, funded and delivered by the provincial government, with contributions from the Government of Canada and the City of Vancouver.

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

Credit: DIALOG



Grande Prairie Regional Hospital Construction Complete

2020 Top100 Projects Rank: 71
Value: \$850 million (adjusted)

The construction of the \$850 million Grande Prairie Regional Hospital is now complete. Once operational, the 63,272-square-metre hospital will have 240 patient beds and provide a wide range of healthcare services, including surgery, cancer care, and emergency services.

The hospital, which will be managed by Alberta Health Services (AHS), will include a state-of-the-art cancer centre that will include two new radiation treatment areas and a health-care training facility in partnership with Grande Prairie Regional College.

"When we hand over the hospital to Alberta Health Services on July 1, we will

have completed construction of the newest and most technologically advanced hospital in Alberta," said Minister of Infrastructure Prasad Panda. "Needed public infrastructure projects like this are an integral part of Alberta's economic recovery and keeping Albertans working."

Due to the dedication and commitment of the on-site workers, construction was completed about three months ahead of Clark Builders' initial construction schedule. Work at the site will now shift focus to address minor deficiencies and the start of commissioning activities at the hospital.

"This milestone is a significant one for the people of Grande Prairie who have

been waiting for years for this facility," said Premier Jason Kenney. "The completion of construction means that AHS can get to work getting the hospital ready to serve the community. Once operational, this new hospital will ensure that Albertans across our province continue to have access to world-class health care."

Once AHS takes possession of the building, they will need time to clean, commission, and train staff prior to opening in order to provide safe and quality care. It is hoped this process is complete by the end of summer 2021. Timelines for commissioning activities could be impacted by the COVID-19 pandemic. ♣

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APPOINTED



Andrew Furey

Dr. **Andrew Furey** is the 14th Premier of Newfoundland and Labrador, following his victory in the Liberal Party's leadership convention.

In February, then-Premier **Dwight Ball** announced that he was stepping down from his position, allowing him more time to spend with his family. Ball became Premier following the Liberal Party's victory in the 2015 provincial election.

The 45-year-old Furey is a familiar face in provincial politics, as his father George is the Speaker of the Senate of Canada.

Furey is an orthopaedic trauma surgeon and professor at Memorial University's School of Medicine in St. John's. He is also the founder and CEO of Team Broken Earth, a collective of Canadian medical professionals that help to provide humanitarian aid to countries around the world.

Furey is not currently a Member of the House of Assembly, and has not indicated when or how he will seek a seat.



Patrick McManus

Patrick McManus is the new executive director of the Ontario Sewer and Watermain Construction Association (OSWCA).

McManus has been with the association since June 2013, taking on the role of director of government relations and communications. Prior to joining the OSWCA, he had served as a government relations analyst with the Ontario Road Builders' Association.

McManus takes over the role from **Giovanni Cautillo**, who was recently named the executive director of the Ontario General Contractors Association.



Raphaël Fischler

The Canadian Institute of Planners (CIP) is pleased to announce two new inductees into its esteemed College of Fellows: Dr. **Raphaël Fischler** urbaniste, FCIP, and Dr. **Sasha Tsenkova** RPP, FCIP.



Sasha Tsenkova

Recognition as a Fellow of CIP is the highest honour a planner in Canada can receive. It recognizes national excellence, identifies

prominent role models, promotes advances in planning practice, and draws leaders to the forefront of planning in Canada. Only members of the College of Fellows are permitted to use the title of FCIP, which denotes Fellow of the Canadian Institute of Planners.

Having taught and mentored students at both McGill University and the Université de Montreal for over 25 years, Dr. Fischler's reach of influence has extended all over Canada, as well as internationally, through his role as an academic and researcher. As a research supervisor, he has guided and shared his knowledge with over 80 doctoral and masters' students who have gone on to make their marks in the profession. In 2013, McGill University awarded him

the Principal's Prize for Excellence in Teaching when he was Director of the McGill School of Urban Planning. In 2018, he began his current leadership role as Dean of the Université de Montreal Faculté de l'aménagement.

With over 150 publications, Dr. Tsenkova is a prominent voice in the areas of housing policy, growth management, sustainable cities, and comparative urban development. While Dr. Tsenkova has made significant contributions to planning in Canada, her influence extends well beyond the Canadian context. In working with the World Bank, Council of Europe, and United Nations, Dr. Tsenkova has played a critical role in projects in 30 countries across Central and Eastern Europe, Latin America, and Central Asia. Additionally, she has been a visiting scholar in Austria, Bulgaria, Denmark, Latvia, the Netherlands, Scotland, Sweden, and the United States of America.



Carmen Ogilvie

Carmen Ogilvie has been named the new head of operations for the International Project Finance Association (IPFA).

Ogilvie started with the IPFA in March 2015, joining the team as its regional events coordinator in London, England. She was promoted to operations manager in July 2017, a role she served in for three years.

Prior to joining the IPFA, Ogilvie spent time with the National Basketball Association and the Chelsea Football Club. ♣

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SEPTEMBER 9

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Learn about CNAM's Asset Management Competency Framework (AMCF) for Canadian communities and how it can help you increase AM capacity and build AM capabilities.

SEPTEMBER 30

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OCTOBER 6, 13, AND 20

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OCTOBER 28

Webinar: CNAM AMRS Tool Launch

CNAM will be launching an advanced version of FCM's AM Readiness Scale in an Excel-based tool that has added functionality, including Future State planning across 1-3-5 years to help you with your short-, medium-, and long term business roadmaps, as well as graphs and table reporting for you to easily include in your asset management documents like internal comms and your AM Strategy.

NOVEMBER

NOVEMBER 25

Webinar: CNAM New Professionals Network

Led by one of CNAM's new professionals, this webinar will showcase the emerging research and analysis being undertaken to advance the asset management body of knowledge. This event is an opportunity for new and seasoned professionals alike to gain new knowledge in a particular area of research.

DECEMBER

DECEMBER 1, 8, AND 15

AM101 Virtual Course

See description details for the event listed above on October 6, 13, and 20.

Visit cnam.ca to register.





After 15 years, these issues hold some of Todd's favourite Closing Shots.

Visit renewcanada.net to download the issues and read Todd's rants.

RANTS AND RAVES

By Todd Latham

Hurricane Katrina was hitting New Orleans around this time in 2005 - its critical levee infrastructure had failed, flooding much of the low-lying area. The “Closing Shot” in the inaugural issue of ReNew Canada was an aerial photo of the widespread damage and helped drive home the importance of public infrastructure assets—a central theme of this publication that has continued for fifteen years.

Since then, I’ve written most of the 90 columns here. Our editors have filled in for me a few times, a provincial premier used it as soap box for proposing five per cent of GDP be invested on infrastructure renewal, a union head took this page to say that the CIB is a bad deal for Canadians, and a university professor lamented the ‘death of evidence-based planning.’ When my name is the byline, I’ve gotten in my shots on the woeful imbalance of municipal and provincial taxation powers, and championed the benefits of full cost accounting, user pay, and road tolls. I’ve compared fighter jet and water costs and have sung the praises of guerilla gardening with street flowers and seed bombs.

I’ve lambasted the lack of public utility coordination and praised former Toronto mayor Rob Ford for seeking private funding of subways. I’ve ranted about the lack of facts on environmental assessments and infrastructure condition assessment (good, fair, poor?). I’ve written on irresponsible and partisan governments and decried the lack of women leaders in our industry. Some of my rants have focused on the often poor relationships between politicians and career bureaucrats or on the overuse of words like ‘innovation’ and ‘sustainability.’ One particularly pointed rant called out the idiocy of an elected official who said the collapse of a new bridge was “God’s will.”

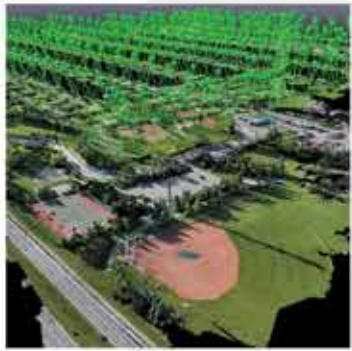
It hasn’t all been critical. I’ve celebrated the use of prizes and awards as incentivizing funding sources and momentum-builders for clean capitalism, the use of roundabouts in transportation systems, and how governments can capture the value of natural capital on the balance sheet. I’ve taken you on an expedition to Antarctica and scuba diving in Mexico—always with an infrastructure itinerary. I’ve asked questions like “what’s a tree worth?” and “what’s the

stupidest thing you have ever heard in your municipality?” and been surprised with the answers to both. It’s been a fun journey.

This edition is a big thank you to the tens of thousands who read ReNew Canada and embrace the infrastructure community in their professional lives, a thumbs up to the hundreds of loyal industry friends and supporters who continue to say ‘yes’ and a virtual hug to the dozens of close staff, Actual alumni, and family who, like me, feel ReNew closer to home. There are still many infrastructure good news stories to praise and many frustrating ones to skewer, so I’m certain you’ll see more rants and raves on this page in the coming fifteen. 🍀



Todd is the founder of this magazine and, as the traditional gift for a 15th anniversary is crystal or glassware, he bought some nice scotch glasses and a bottle of 15-year old single malt for the office to help celebrate.



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A photograph of three young women of diverse backgrounds looking upwards and to the right. The woman in the foreground is pointing her right arm towards the upper left. They are all wearing white t-shirts. The background is bright and out of focus.

Question today *Imagine tomorrow* Create for the future

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