

# ReNew

May/June 2022

C A N A D A

The Infrastructure Magazine

- + Active Transportation
- + Accelerated Building
- + COVID Construction

## SITUATION CRITICAL

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infrastructure  
more resilient





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# ReNew

CANADA  
The Infrastructure Magazine

MAY/JUNE 2022

## LEADERSHIP

### 8 Pivotal Partnerships

CCPPP president and CEO Lisa Mitchell on evolving the P3 market.

By Connie Vitello

## RESILIENT INFRASTRUCTURE

### 12 Situation Critical

New investment is needed to make critical infrastructure more resilient to climate change.

By John Tenpenny

## HEALTHCARE

### 16 Accelerating the Building Curve

Building a long-term care home in months instead of years.

By Andre Bohren

## ACTIVE TRANSPORTATION

### 24 From Point A to Point E

New active transportation approaches are needed to keep up with the downtown rebound.

By Ankush Karwal

## CONSTRUCTION MANAGEMENT

### 28 COVID Construction

The criteria for success in delivering B.C.'s largest secondary school.

## LEGAL

### 32 Construction Claims

Canadian courts' approach to loss of productivity claims.

By Stuart Hankinson  
and Graham Henry

## TRANSIT

### 34 Plan Before you Dig

Accurate data gets Ontario transit infrastructure projects moving faster.

By Armando LaCivita

## TOP100 PROJECTS

### 38 Top100 Projects Update

George Massey Tunnel Replacement.

## DEPARTMENTS

### 4 Editor's Note

Governments are pledging billions to build public infrastructure.

By John Tenpenny

### 5 Front

Procurement begins for Union Station Enhancement Project, PCL celebrates 100 years in Edmonton, and more.

### 22 Panorama

The City of Toronto recently announced the completion of the Six Points Interchange Reconfiguration, part of Etobicoke Centre, a vital mixed-use, transit-oriented community.

### 40 People

Appointments, announcements, company news, and event reports.

### 42 Closing Shot

Rising inflation puts pressure on households and businesses, but it is also uniquely challenging for Canada's construction industry.

By Chris Gower

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Infrastructure Projects

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12



24



8



28



34





## INFRASTRUCTURE GETS A MUCH-NEEDED INFUSION

By John Tenpenny

Spring brings with it hope for better things ahead. As pandemic restrictions ease and business begins to return to a new normal, the season has also brought the infrastructure sector some good news in the form of capital spending announcements from numerous provincial governments.

From Alberta to Nova Scotia, billions of dollars have been pledged over the coming years to build highways, hospitals, schools, as well as public transit projects, signaling that public infrastructure remains top of mind.

In Quebec, the provincial government recently announced that its 2022-2032 Québec Infrastructure Plan (QIP), will be set at \$142.5 billion, which represents a \$7.5-billion increase over the previous plan. The past four years have seen QIP funding increase by \$42 billion, allowing the province to implement numerous infrastructure projects in the high-priority sectors of health, education, and transportation.

The Government of Nova Scotia's 2022-23 Capital Plan aims to invest more than \$1.5 billion to begin new projects and continue work on previously announced projects, most notably the modernization of healthcare facilities in Cape Breton, Halifax, and other communities across the province.

The province of Alberta laid out its 2022 Capital Plan, allocating \$20.2 billion in infrastructure spending that includes substantial spending on grants to municipalities for their infrastructure, provincial roads and bridges, as well as capital maintenance and renewal to maintain existing assets.

The biggest spending splash was made in Ontario, where the government laid out an ambitious 30-year transportation plan for the Greater Golden Horseshoe (GGH) area that includes plans for more than 100 immediate and near-term actions, including building Highway 413 and the Bradford Bypass, as well as

plans to create a new transit loop that would connect the proposed Ontario Line to Toronto Pearson Airport and the Richmond Hill Centre.

With the population of the GGH expected to reach almost 15 million people over the next 30 years, Ontario's Connecting the GGH: A Transportation Plan for the Greater Golden Horseshoe, calls for the province to spend a projected \$21 billion on highways and \$61 billion on transit over the next decade alone.

That includes the Ontario Line subway project, which recently broke ground with Metrolinx marking the start of construction, beginning with upgrades at Exhibition Station.

The 14 stations along the 15.6-kilometre Ontario Line will connect to more than 40 other transit routes, including GO train lines, existing TTC subway and streetcar lines, and the Eglinton Crosstown Light Rail Transit line.

While the federal government hadn't announced its budget as of the writing of this column, its Investing in Canada Plan—launched in 2016—continues towards its stated goal of infrastructure investments totaling \$188 billion over 12 years.

According to the latest update on implementation progress and funding, 74,812 projects have been approved to date, representing more than \$101 billion in federal funding.

The continued commitment to infrastructure funding from all levels of government during and now (hopefully) post-pandemic is encouraging for everyone involved in the sector. As for the team here at *ReNew Canada*, we look forward to including some of these new projects on next year's Top100 Projects report. 🍁

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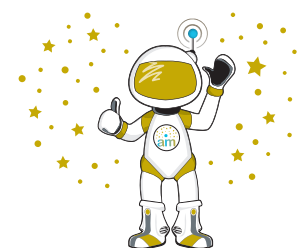
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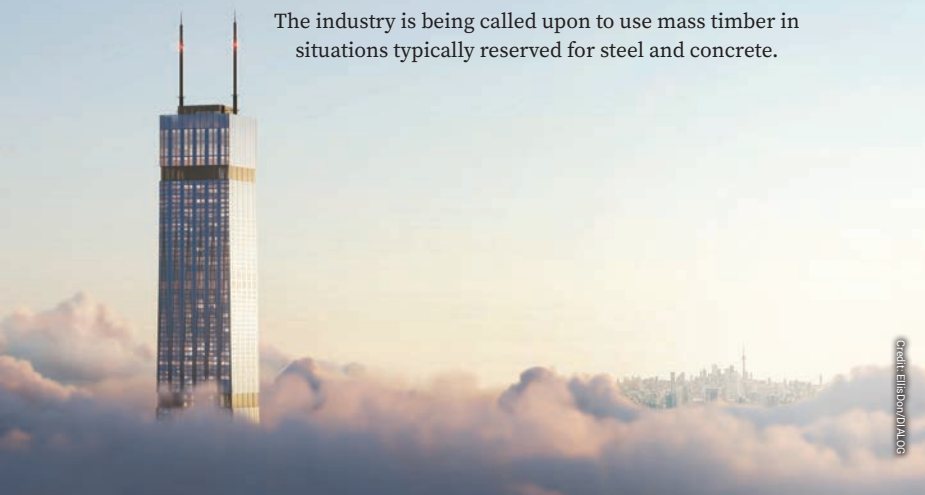


As the province of British Columbia continues to recover following a significant flooding event in November 2021, it wants to make infrastructure more resilient to climate change and future weather events so it remains reliable, safe, and efficient for people and as a key goods movement corridor for now and for years to come. Read about disaster resilient infrastructure on page 12.

Cover Photo: B.C. Ministry of Transportation and Infrastructure

## ELLISDON FILES PATENT FOR HYBRID TIMBER FLOOR SYSTEM

The industry is being called upon to use mass timber in situations typically reserved for steel and concrete.



Credit: EllisDon/DIALOG

**EllisDon, in partnership with DIALOG**, has officially filed global patents for the Hybrid Timber Floor System (HTFS), a 105-storey Hybrid Timber Tower design concept awarded as the winner of Fast Company's "2021 World Changing Ideas" in architecture.

As mass timber structures gain popularity nationally, the industry is being called upon to use timber in situations typically reserved for steel and concrete. This trend has sparked EllisDon's Construction Sciences team to combine materials in new ways while incorporating new mass timber materials in low-carbon products.

"The hybrid panel presents a unique value proposition allowing for carbon sustainability, the ability for offsite prefabrication, and long-span exposed ceilings desired by many commercial tenants," says Mark Gaglione, director of Building and Material Sciences at EllisDon. "We are excited to partner with DIALOG to help make this concept a reality as soon as possible."

"This system could introduce mass timber structural solutions into the supertall tower category, reducing the environmental impact of tall building development in high-density urban areas." 🌱

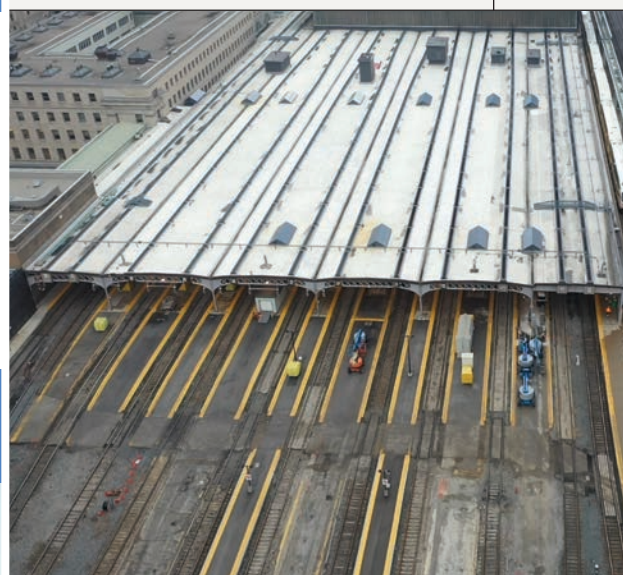
## NEXT ISSUE: MAY/JUNE THE INFRASTRUCTURE LANDSCAPE

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Metrolinx and Infrastructure Ontario announced the signing of the procurement agreement for the Union Station Enhancement Project.

Credit: Metrolinx

## TORONTO'S UNION STATION ENHANCEMENT PROJECT KICKS OFF

**A**dancement and upgrades at Union Station continue, as Metrolinx, with Infrastructure Ontario's support, announced the signing of the procurement agreement for the Union Station Enhancement Project (USEP).

The USEP is being delivered in various packages of work, including the glass atrium, removing heritage steel, installing overhead lighting, a new south concourse, widening platforms, increasing stair and elevator access, and upgrades to passenger communications systems. Construction is expected to begin early this year and to be completed in late 2025.

The USEP was procured as an 'alliance' contract and is the first major project in Canada to be procured using this model—an innovative procurement and delivery method recognized for delivering successful initiatives in Australia in the past 20 years. In November 2020, the USEP entered the Alliance Development Agreement (ADA) phase to develop the design, schedule, and cost of the project.

As a result of this collaborative process, the Project Alliance Agreement (PAA), the next official phase of the procurement side of this project, was signed, awarding the project to ONTrack Alliance and positioning them to break ground.

The ONTrack Alliance team includes: Kiewit – Alberici Union General Partnership (constructors); WSP Canada Inc. (designers); and Mass. Electric Construction Canada Co. (signalling work).

According to Metrolinx, it was determined that given the increased complexity of Union Station, the nature of the risks involved in this project were difficult to define. Therefore, the Alliance Contracting Model was chosen as it is much better equipped to address risk constructively and collaboratively. Other benefits of the alliance model include greater transparency and cooperative decision-making. 🌱



Credit: PCL Construction



## PCL CONSTRUCTION CELEBRATES 100 YEARS

**PCL Construction announced the centennial anniversary of its Edmonton Buildings and Civil district—100 years of building in Edmonton, Northern Alberta, the Northwest Territories and Nunavut.**

“We are so proud of our history and the people and partnerships that have allowed us to play a significant part in building our communities,” said Jason Portas, vice president and district manager, Edmonton Buildings and Civil. “PCL’s legacy is our people. As we reflect on achieving 100 years in construction, we recognize the contributions

our diverse teams have made to our company and our Edmonton community.”

Over the last century, Edmonton Buildings has partnered on more than 4,800 construction projects, building some of the most significant infrastructure and other developments in the Alberta Capital Region, including West Edmonton Mall, University of Alberta, Stollery Children’s Hospital, Edmonton International Airport, the ICE District and Rogers Place, and PCL’s first Edmonton project in 1922, the Edmonton Public Library.

“Looking back at all we have built over the last century, it is incredibly fulfilling for us to be such an essential part of Edmonton, Northern Alberta, the Northwest Territories and Nunavut,” said PCL’s president and CEO, Dave Filipchuk. “The rich history of PCL is intertwined with the rich history of this region, and our PCL family has always been passionate about where we live and how our work contributes to our communities. We look forward to continuing to build a better future, together.” 🍁

Credit: Twitter @fordnation



## ONTARIO RELEASES TRANSPORTATION PLAN FOR GGH

**With the population of the Greater Golden Horseshoe** expected to reach almost 15 million people over the next 30 years, the Ontario government released *Connecting the GGH: A Transportation Plan for the Greater Golden Horseshoe*.

The plan includes more than 100 immediate and near-term actions, including building Highway 413 and the Bradford Bypass, as well as plans to create a new transit loop that

would connect the proposed Ontario Line to Pearson airport and the Richmond Hill Centre. The plan also incorporates ways to widen and expand highways 400, 401, 403 and the QEW.

Over the next decade alone, the province plans to spend a projected \$61 billion on transit and \$21 billion on highways.

In addition to building new highways to address gridlock, the province is also says it is

moving ahead with the largest subway build in Canadian history alongside the expansion of regional passenger rail services.

“No matter how you choose to move, we are building all forms of transportation infrastructure to help you get to where you need to go more safely, quickly, and conveniently,” said Caroline Mulroney, Minister of Transportation. 🍁





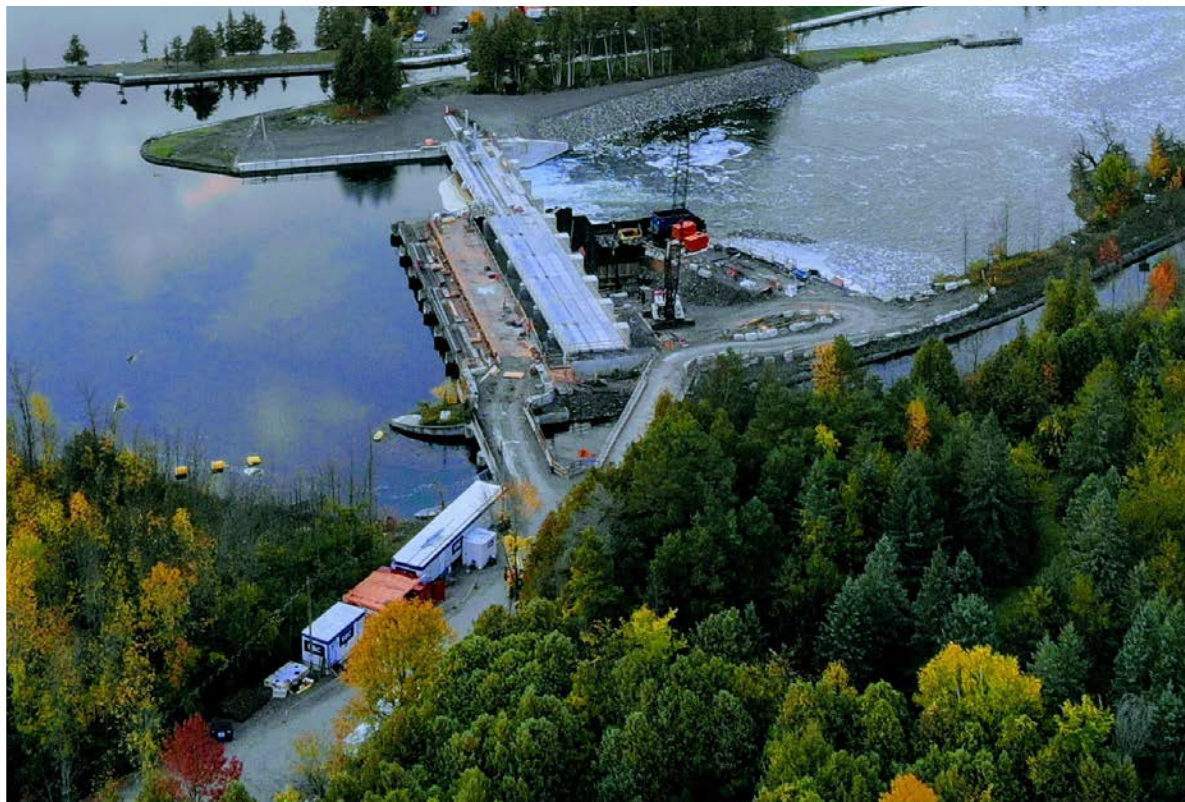
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## Trent-Severn Waterway National Historic Site

In 2017, Maple Reinders was awarded the Construction Management work on the Central, South and North bundles of the Trent-Severn Waterway National Historic Site, a major network of locks, bridges and dams that traverses 386 km through central Ontario. The objective of the project is to improve the structural integrity and public safety on the waterway, while protecting its heritage value and character-defining elements, as well as enhancing water management operations. The work included the repair or replacement of the structures at more than 20 sites, including 14 dams, one lock and a fixed bridge.

This multi-year project is one of the largest for Maple Reinders, and comprises part of the Government of Canada's \$3 billion investment into Parks Canada infrastructure history. Maple Reinders has been honoured to play such a key role in this significant infrastructure work.

See [www.maple.ca](http://www.maple.ca) for other civil and infrastructure projects and for more information.



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## CCPPP President and CEO Lisa Mitchell on evolving the P3 market.

By Connie Vitello

Partnerships between the public and private sectors can make a critical difference in terms of delivering essential infrastructure and services to Canadians. Since the model's arrival in Canada three decades ago, close to 300 public-private partnership (P3) projects have been facilitated across the country by federal, provincial, and municipal governments—including the Cortellucci Vaughan Hospital in Ontario, the Confederation Bridge linking New Brunswick and Prince Edward Island, the Regina Bypass in Saskatchewan, and the Energy Service Modernization Project in the National Capital Region.

There are many benefits of implementing P3s to support public infrastructure but there are also some challenges to keep in mind as the “made in Canada” P3 model evolves to meet the changing marketplace.

The most successful P3s involve leadership from experienced industry stakeholders from both the private and public sectors who work together to find innovative solutions and manage challenges as a team. This spirit of partnership is key for infrastructure projects that not only address current needs,

and chief executive officer. A long-time and thoughtful advocate for the P3 model, she brings 20 years of leadership, communications, and public affairs experience to the organization, which will be celebrating the 30th anniversary of its annual global conference in November.

“One of the main beneficial attributes of the P3 model is the consideration of the whole lifecycle of a project.”

but also see beyond to provide adaptability and resilience for the long-term wellbeing of the country.

In December, Lisa Mitchell joined The Canadian Council for Public-Private Partnerships (CCPPP) as its new president

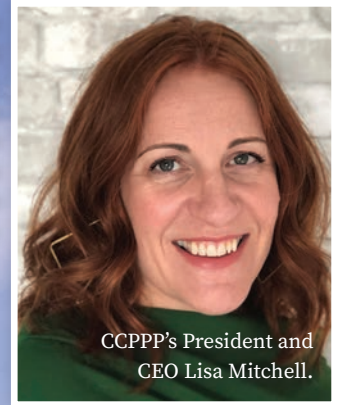
Most recently, she worked at Infrastructure Canada as senior director of investments, partnerships, and innovation. Prior to that, she served as director of strategy and market development at PPP Canada Inc.

She has led extensive research initiatives





The Cortellucci Vaughan Hospital was the recipient of the Gold Award, Infrastructure at the 2021 National Awards for Innovation and Excellence in Public-Private Partnerships.



CCPPP's President and CEO Lisa Mitchell.

on the model to position Canada as a global leader and is a recognized thought leader in Canada and internationally as the chair of the Organization of Economic Cooperation and Development's (OECD) Senior Infrastructure of PPP Officials Network.

*ReNew Canada* recently spoke with Ottawa-based Mitchell to share her perspectives on her important new role at CCPPP and to share her insights into the evolution of the P3 market.

**You bring 20 years of experience to your new role at CCPPP. How did your previous roles in advancing P3s at PPP Canada Inc. and Infrastructure Canada contribute to your understanding of the challenges and opportunities ahead?**

I am very excited to have joined the Council at such a pivotal time in Canada's P3 market. I worked in the P3 space at PPP Canada, as you mentioned, helping to build the public knowledge base, to encourage and

incentivize people that had never done this before. We built a body of work that helped address many key questions. How do the models work? What are the benefits? How do we apply them? I carried on a lot of that work at Infrastructure Canada. The model is constantly evolving and adapting and we're harnessing lessons learned. We're at an evolutionary point in the market right now. There's a lot of talk of different models and types of P3s and a lot of confusion since, for example, we're lacking common definitions on what these models mean and where they might be best applied. There's an opportunity for the Council to encourage and support our government and private sector members to share lessons learned and overcome challenges in the sector together as we take on the increasing opportunities ahead.

**You've mentioned that you plan on expanding membership and elevating the platform of the CCPPP organization. Tell us how you plan to achieve these goals and how**

**you plan on engaging with stakeholders in a meaningful way.**

That's a great question. For me, the number one item for the Council is ensuring we have a really strong value proposition for members. Are we delivering on the goals that our members are trying to accomplish from both the public and private sector sides? Are there gaps in the activities? We have a strong foundation to build off of and a great series of events and partnerships, but are there things we could be doing that we're not right now and other new potential partners we could be partnering with? We're very well known globally for our availability-based P3 model but internationally the models vary. There's also the Canada Infrastructure Bank and their new revenue models to keep in mind. I see a lot of opportunity and I'm working closely with the management team and the board members to put a plan in place to build new business.



**What are some of the key impacts that a partnership between the public and private sector can have on delivering essential infrastructure and services to Canadians? What is the power of P3 in your opinion?**

One of the main beneficial attributes of the P3 model is the consideration of the whole lifecycle of a project—not just the design phase, not just the construction phase. P3s bring everyone together before a shovel even touches the ground to look at an asset from the beginning to 35 years down the road, which provides great opportunities for more innovative thinking and improved efficiencies that cut down on maintenance and operation costs and even reduce greenhouse gas emissions, for example, depending on the project. It's common to say in the P3 space that the main incentive is the model's drive to deliver complex infrastructure projects on time and on budget. But there are a lot of benefits beyond that over the lifetime of these agreements.

However, something that we probably need to talk more about, particularly in the narrative of the municipal space with regard to asset management, is deferred maintenance. The federal government is working with the Federation of Canadian Municipalities (FCM) to support municipalities with asset management. The Financial Administration Officer of Ontario recently released a report on the state of asset management at the municipal level. Deferred maintenance is an ongoing issue and the P3 model can help in certain circumstances. It may not be the right solution for every project but when it is successfully applied it can provide certainty and timelines for capital improvements over the lifetime of a P3 agreement, meaning a critical asset like a hospital or a highway can not only ensure stable levels of service, they may even exceed their estimated lifespan,

which provides an additional cost saving for taxpayers.

Too often we think everything is done when something new is built or updated but that's only the beginning. A P3 enables everyone to consider an infrastructure asset long term. I think there is a really important narrative around operations and maintenance at the municipal level that I think we need to focus on that more.



Metrolinx's GO Rail Expansion-Highway 401 Rail Tunnels project received the Silver Award, Infrastructure at the 2021 National Awards for Innovation and Excellence in Public-Private Partnerships.

**What's your view on the next evolution of the Canadian P3 market and what can infrastructure policymakers and decision-makers do to alleviate pressures and assist with strategic solutions for future development?**

There's a number of areas where we'll see an evolution. Continuously adapting the model in various asset classes is critical. What are we learning in one area that we can do differently — for example, in terms of risk transfers, financial structures and

different innovative approaches? We're a big country with a lot of opportunities and a lot of growth potential. For instance, there's a lot of discussion about the application of P3s to support broadband and clean energy projects. They might not look like a hospital P3 but there are commonalities of attributes and lessons learned that can be applied. There's a great potential for a new wave of P3s on the horizon and it will include a greater variety of projects.

**Canada is only just emerging from the unprecedented two-year pandemic. What were some lessons learned and how do you plan to apply them internally and externally to achieve a resilient recovery?**

Internally, we've learned a lot in terms of how much we can accomplish if we're all online together. I'm in Ottawa but I can still be effective leading online meetings with members across the country. We know the importance of incorporating different thinking and engaging with a variety of people. We learned some great lessons in accessibility and flexibility. However, it is an industry built around partnerships so we're looking forward to meeting again in person.

With respect to the industry, there will be lessons learned, such as the increased importance of resilient healthcare and broadband. Ongoing conversations about climate change and resiliency were there prior but the pandemic shined a light on those areas and those needs. This is not unique to Canada—these issues are being raised in the global infrastructure space. We're still in learning mode as we adapt to the pandemic. It will be interesting to see how this time impacts risk management factors for future developments.

COVID-19 had an impact on construction and access to sites across the country, which

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The New Adult and Mental Health Additions Facility in St. John's won the Silver Award, Project Development at the 2021 National Awards for Innovation and Excellence in Public-Private Partnerships.

may also bring new thinking, but we have some amazing projects that successfully opened, reached financial close and are approaching substantial completion during these uncertain times.

**Internationally, you've led extensive research efforts to position Canada as a global leader, participating in various initiatives through the Organization of Economic Cooperation and Development (OECD). How is Canada measuring up in the global community and what new trends are on the horizon?**

I've been fortunate to represent Canada through the OECD and other international forums. We are a recognized global leader in the P3 space. Still, the ability to learn from other jurisdictions is tremendous.

Similar systems of government in the United Kingdom and Australia are informative because they have older assets. For example, they are in the process of the first wave of "hand back" provisions as the P3s come to the end of the contract.

International projects generally are instructive in that they can inform us of how to increase value for taxpayers while harnessing private sector investments. There's now an interesting discussion happening about attracting private sector investment through institutional investors and pension funds that we intend to explore.

**Would you like to share any final comments with ReNew Canada readers?**

It's an exciting time for P3s in Canada and there's lots of opportunity ahead. We're

looking forward to getting everyone together again in person. I'd like to invite readers to the 30th anniversary of our annual conference, taking place on November 21 to 22 in downtown Toronto. It will be wonderful to celebrate the many industry achievements over the past few decades, and to network, discuss and debate how public-private partnerships can continue to contribute to the critical infrastructure and services Canadians need now and in the future. 🍁



**Connie Vitello** is the contributing editor of ReNew Canada.

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# SITUATION CRITICAL

Flooding, mudslides, and rockslides wreaked havoc across southern B.C. in November 2021, closing highways, prompting widespread evacuations and leaving motorists stranded. (Pictured): An aerial shot of flooding on B.C. Highway 11 in Abbotsford, November 14, 2021.

## How can we make Canada's infrastructure more resilient?

By John Tenpenny

**C**limate change impacts could leave Canadians physically and financially under water as a warming and increasingly volatile climate damages public and private infrastructure. Buildings and critical infrastructure are all at risk unless new investment and improved regulation make these assets more resilient to the changing climate.

During a recent INFRAIntelligence webinar, *ReNew Canada* brought together a panel of experts to discuss the impact climate change is having on infrastructure across the country and how adaptation and mitigation may point a way forward.

**ReNew Canada: What type of infrastructure is most at risk from climate-related events?**

**Ryan Ness, adaptation research director, Canadian Institute for Climate Choices:** So, we know that flooding, wildfires, and more

extreme storm events are going to be some of the primary hazards for infrastructure in terms of disasters, and those intersect with transportation infrastructure that frequently gets flooded or impacted by changing temperatures as well, in a less disaster-oriented kind of way, but transportation is very much front and centre.

**John Gamble, president and CEO of the Association of Consulting Engineering Companies (ACEC) Canada:** It's not a case of one or the other, infrastructure is all interconnected. The municipal infrastructure is almost an ecosystem unto itself. The risk is the weakest link in the chain, and that's where we have to start. If we can't access a site, we don't have supply chains and that cascades into other issues. If we don't have potable water, you'll have health and safety issues. So, it's not a case of choosing which assets to focus on, we must look holistically at the suite

of infrastructure assets and then prioritize on that basis.

And in fact, going forward, we need to recalibrate, so we're not looking at infrastructure investment or deferred maintenance on an asset-by-asset, project-by-project basis. We must look at asset management plans in their entirety and at how these things are interconnected. And then we look at how different infrastructure assets from different communities are interconnected. It doesn't help you a lot to do flood control if the community upstream hasn't done a whole lot about it either.

**Elise Pare, national practice lead for Climate Change and Resilience, with WSP Canada:**

If we look at increasing the resilience of infrastructure on a project-by-project basis, we run the risk of creating islands of resilience, where you might have one site that's doing great, which has detrimental





In a matter of days, extreme rain swamped rivers and farmland across southern B.C. and triggered mudslides that blocked every major highway connecting the Lower Mainland to the rest of the country. (Pictured): Peers Creek Bridge near Highway 5 - Othello Interchange, December 2, 2021.

impacts to neighbouring sites. And so, it's also important that we think about some of our vulnerable populations, which may be located in some of these floodplain areas that have been historically less expensive to build in, and that don't have the ability to respond or go to somebody else's place during a big flood event.

I also think that as we look at systemic land use planning, we should also think about what the consequence of failure is and where it is going to fail, if it does? We saw this with the flooding in the Lower Mainland here in B.C. last year where nature reclaimed areas. Sumas Prairie was a lake, and we decided to try to control it with a dam and pump station, and what happened during that disaster? It became a lake again.

**Dr. Quentin Chiotti, practice lead, Climate Risk and Resilience, with Matrix Solutions Inc.:**

Water is probably the most significant climate risk for the country as a whole. You can't ignore the fact that there are many aspects of climate change that will have impacts in their own right, and of course, the interconnections between them as we found

out in British Columbia, where it was largely a sequence of drought, fires, and then months later, with that scorched landscape with the vegetative cover removed, the precipitation exacerbated by the lack of vegetative cover caused washouts and flooding.

**ReNew Canada: Who has to make this tough decision on which type of infrastructure we focus on first, or is it about implementing at a policy level, before we start putting shovels in the ground?**

**Elise Pare:** As an engineer, I look at it from a codes and standards perspective. I would like to be told that the box is changing, because you typically design within a certain set of parameters, and sometimes you only actually have influence over the project that you're working on. That way, unless that high-level strategy changes, you're not going to get to that detailed level, and the details are not going to be that effective.

**Ryan Ness:** We've seen a decade or more of bottom-up effort by municipalities and other local actors trying to move the resilience yard stick on their own without a supportive

## RISK ASSESSMENT

We asked recent INFRAIntelligence webinar attendees about climate-proofing infrastructure. Here's what they had to say:

**What type of infrastructure is at greatest risk of weather-related disaster?**

<b>Land transportation</b>	<b>43%</b>
<b>Water/wastewater</b>	<b>36%</b>
<b>Energy</b>	<b>13%</b>
<b>Buildings</b>	<b>4%</b>
<b>Marine Infrastructure</b>	<b>4%</b>

**What should be top priority?**

<b>Strengthening existing infrastructure</b>	<b>73%</b>
<b>Designing and constructing new disaster resilient infrastructure</b>	<b>27%</b>



A series of atmospheric rivers hit southern B.C. in November 2021, causing evacuations, widespread flooding and mudslides. (Pictured): Patchett Road Bridge, west of Coquihalla Highway 5, November 28, 2021.



national or provincial vision, or system of policies to support that activity. It's a nested thing: Priorities need to be set nationally, provincially, and regionally and then locally, but I think at this stage, we're seeing a big gap at the federal and provincial level identifying what infrastructure is most important to prioritize, both existing and future?

And then, what are the tools that those governments need to be able to advance resilience and adaptation? What can they do to enable the actors like municipalities that are responsible for deploying most of this infrastructure and building much of it as well? The top of the hierarchy really needs a lot of work.

**John Gamble:** What could have a very positive impact is changing our approach to how we fund infrastructure. Typically, with the cost sharing model, it's a project-by-project application, and it's a bit of a beauty contest. Why are we not leveraging the asset management plans?

Instead of having 10 projects you'd like to execute over the next 30 years and then having to get in the queue with your application each year, where you may or may not get funding, why shouldn't we tailor the funding philosophy to committing to support a certain percentage of the asset management plan over the following number of years?

**Quentin Chiotti:** I think there's merit in terms of an overall national or provincial strategy, but extreme weather and evidence

of climate change has been around for a while. I've been at this for 30 years, and if you go back to the Calgary and Toronto floods in 2013, I remember my former position was created largely because of a GO train that was underwater. So, I think we tend to be a reactive society.

We need to be more proactive, whether it's municipalities mandated in terms of their asset management planning or within the private sector. Both need to be held accountable by shareholders and others in terms of demonstrating their climate risk, whether it's from a transitional perspective on emissions or physical risks. We need to act now, and perhaps put more emphasis on carrying out climate risk assessments, and better understanding what those risks are before we wait for someone else to solve the problem.

**ReNew Canada: What's it going to take to develop an integrated approach to build resilience into Canada's infrastructure?**

**Elise Pare:** This is a complex problem that we're trying to resolve and that takes different perspectives to come up with innovative solutions, so it's important that we keep the dialogue open between different disciplines—from planners to engineers, to ecologists, to accountants and insurance professionals—and include those people at the table and have those open conversations.

**Quentin Chiotti:** Do we have enough information in order to make decisions?

And I think for the longest time, we have. So, I would say whether or not it's the tools, the expertise, or the data, we've made great strides in being able to have all the information to make strong sound climate risk decisions.

**Ryan Ness:** Senior government officials need to do more than they're doing to drive the practice of building disaster and climate risk into infrastructure. There are so many more things and so many more tools available to governments through regulation, through funding requirements, through disclosure and infrastructure asset management requirements and support for those ultimately too, that they can do to help move this along.

**John Gamble:** It will take some political leadership, but what cultivates political leadership is political leaders knowing that we, collectively, this community and the people participating are behind them and support this. And we've got to be very clear, we've got to carry the message, and we've got to be consistent and let the politicians know that we support them as they move forward, because it won't be popular with everyone. ♣



John Tenpenny is the editor of ReNew Canada.



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# ACCELERATING THE BUILDING CURVE

How to build a long-term care home in months instead of years.

By Andre Bohren

**T**he life of a traditional construction project often includes months, if not years, of preconstruction planning before shovels go in the ground. In the summer of 2020, Infrastructure Ontario, Lakeridge Health, PCL, and a team of top-tier consultants and trade partners put their heads together to determine how to compress years of construction and build a new, six-storey long-term care home in just months.

What was needed to accomplish this seemingly impossible task? Strong relationships, and an expert team of professionals from multiple disciplines delivering on a precise strategy—all fueled by a relentless passion to achieve a common goal. The result? After just over a year of construction, Lakeridge Gardens, Lakeridge Health's new long-term care home at its Ajax Pickering Hospital, achieved substantial performance on March 2, 2022.

"Lakeridge Gardens' progress over the last year, and especially in the final weeks, was

a remarkable achievement," said Cynthia Davis, president and CEO of Lakeridge Health. "Our partnerships with PCL Construction, Infrastructure Ontario, local and provincial governments, the Durham Region community, and countless other skilled workers, tradespeople, and team members made this possible."

What follows is a breakdown of how the seemingly unachievable timeline was met.

## July 2020: The driving force

The global COVID-19 pandemic highlighted the need for new long-term care homes in the province of Ontario, and a solution was required fast. Jumping to action, the Ontario Government and Infrastructure Ontario launched the Accelerated Build Pilot Program—an innovative approach that leverages hospital-owned land and accelerated construction techniques to get shovels in the ground quickly. This approach helps build urgently needed long-term care

homes in large urban areas where scarce and costly land is a significant challenge for prospective developers.

Leveraging available hospital land saved significant time in the process. Within weeks of announcing the new model, Infrastructure Ontario chose Lakeridge Health's Ajax Pickering Hospital as the site for the long-term care home and issued the Request for Qualifications and Standing Offer (RFQSO). The hunt for a roster of firms that were equipped to rapidly deliver this project began.

## October to November 2020: No room for error

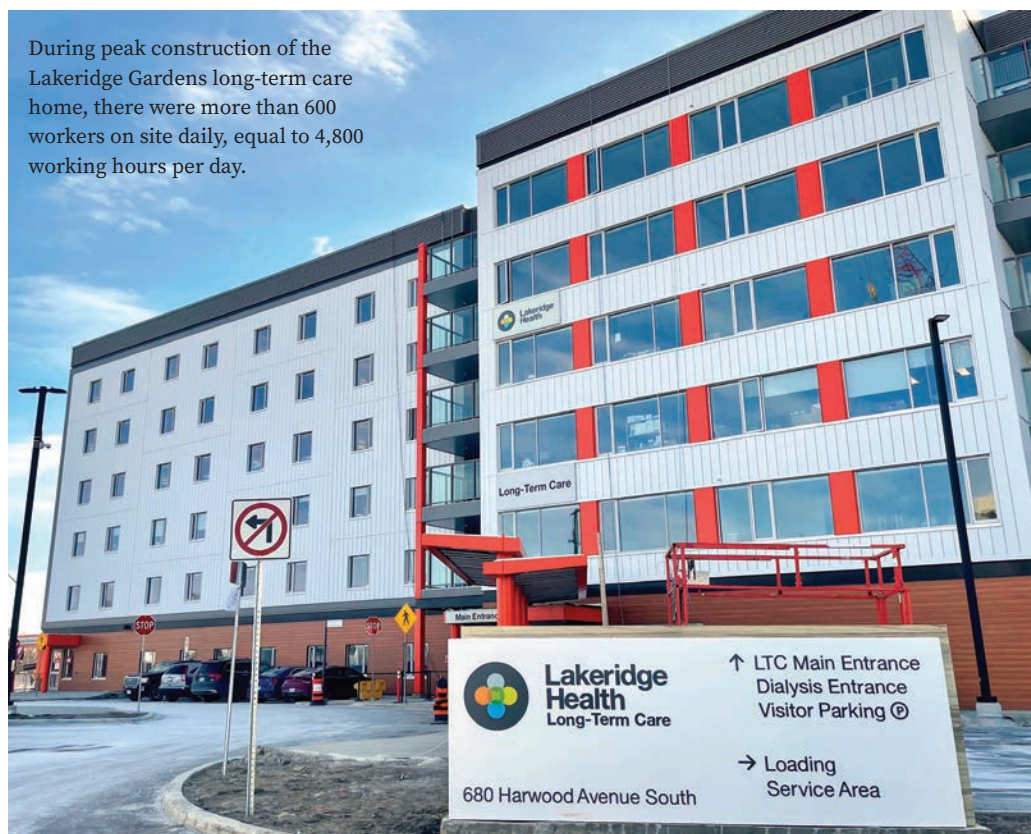
With a model of this caliber, PCL established a preconstruction plan early in the RFQSO phase to hit the ground running during construction. While PCL has a long history of experience in delivering projects under aggressive timelines, this project presented a unique set of challenges that required a near-perfect strategy.





The Lakeridge Gardens long-term care home in Ajax, Ontario, stands six storeys tall and covers 273,000 square feet. During construction, 2,605 cubic metres of concrete were placed on the site—enough to pave more than three football fields.

During peak construction of the Lakeridge Gardens long-term care home, there were more than 600 workers on site daily, equal to 4,800 working hours per day.



Credit: Lakeridge Health

“Going into the preconstruction phase with an open mind was key in developing a successful strategy,” says Dean Xuereb, field operations manager, Canadian Buildings. “We needed to come up with a plan, validate it, receive community buy-in and form a team of consultants and trade partners within a small window of time. Once our team bought in to the modular kit of parts approach, we were able to pitch it to our stakeholders as the most effective method of construction for this project.”

A knowledgeable design team is crucial for carrying out a successful accelerated construction program. Bringing in long-term care design experts G Architects, in joint venture with Parkin Architects, played a large role in mitigating potential design risks and setting up the construction team for success. With the design team working closely with the hospital and local municipalities, a site plan was submitted and prep for the project was underway.

“Making sure we could support the construction schedule and maintain accuracy was top of mind,” explains Phil Goodfellow, partner at G Architects. “It was important

to incorporate a simple and straightforward design that was reflective of PCL’s modular solutions approach.”

### December 2020: Bringing in the right people

After four months of planning and procurement, PCL and its team of consultants were officially awarded the contract to design and build the long-term care home. As PCL geared up to begin construction, bringing the right people to the table was important.

“Resourcing trade communities that have an exceptional safety culture and experience in delivering a high-quality product within a rapid schedule was vital to being successful,” adds Xuereb. “We hand-picked a team of trade partners that were as committed to delivering this project as we were.”

### January 2021: Let the journey begin

PCL officially broke ground in January 2021, commencing one of the most ambitious rapid delivery build projects it has ever taken on. The site was mobilized, and excavation and foundation work began.

While design development often continues simultaneously with construction, adopting a modular kit-of-parts approach allowed the team to minimize up-front design work. PCL was able to manage risks early on and had more control over the outcomes on the project.

“Each modular component of the building was broken into tangible parts and prefabricated off-site parallel to the on-site construction being done,” says John Schmalz, modular construction manager. “Understanding the design requirements,

relaying that information to our consultants and trade partners and finalizing the details during the preconstruction phase was how we were able to stay on track.”

### March to August 2021: The climb to the top

By early spring, the team successfully began construction on the vertical structure. A variety of specialized vendors were outsourced to prefabricate precast concrete, load-bearing wall panels, washroom pods, and mechanical distribution systems. Each key element was manufactured, shipped and installed on-site as the team reached the respective milestone.

The precast concrete and wall panels arrived at the site in March, followed shortly by the washroom pods. Construction of the building’s structure was moving at an incredible pace with the workforce alternating over two shifts per day. By August 2021, the structure of the long-term care home was complete, topping off just eight months into construction.

### October 2021: Shifting momentum

In October 2021, PCL began to shift the attention to the home’s interior work, roof, and exterior cladding. Ten months into construction, the home’s overall structure was complete.

“It was important for us to keep the momentum going once we reached this milestone in such a short amount of time,” says Schmalz. “The entire workforce recognized the significance behind what we were trying to accomplish and was willing to work around the clock to complete this project for the community.”





The Lakeridge Gardens long-term care home also includes the construction of a new parking garage. Once complete, this will create approximately 530 parking spaces.

### November to December 2021: The home stretch

As the end of construction inched closer, interior finishes became top priority. Despite the pressures of the ongoing pandemic, Lakeridge Health's clinical team safely supported important decisions that guided design development and clinical functionality throughout the project.

In November, an entire resident floor was mocked up, complete with a fully furnished resident room and working washroom reflective of the clinical team's review. With final interior work taking shape, the long-term care home was only weeks away from achieving substantial performance.

### January 31, 2022: Occupancy at Ontario's first Accelerated Build Project

After just 13 months, the long-term care home was announced as Ontario's first Accelerated Build project to achieve occupancy.

### March 2, 2022 : The ultimate construction milestone

Lakeridge Gardens long-term care home crossed the finish line and achieved

substantial performance on March 2, 2022, the ultimate construction milestone. Marking the completion of construction, Lakeridge Health took full access to the home to prepare the space for grand opening, which happened on March 25.

"We are deeply privileged to have worked with partners to create the Accelerated Build Program in order to quickly deliver much needed long-term care infrastructure," says Michael Lindsay, president and CEO, Infrastructure Ontario. "Through a range of accelerating measures such as modular construction, rapid procurement, and the use of hospital lands, we have been able to successfully build this facility faster than the traditional timeline. This project is a resonant example of what can be achieved when innovation, modern solutions, and great partnerships come together."

The successful outcome on this project was a testament to the passionate drive of all partners involved and the more than 500 tradespeople who worked tirelessly to deliver this new long-term care home without compromising safety, even during a global pandemic. Committing to sending everyone home safely at the end of the day, the

workforce performed a total of nearly 500,000 worker hours without a lost-time injury.

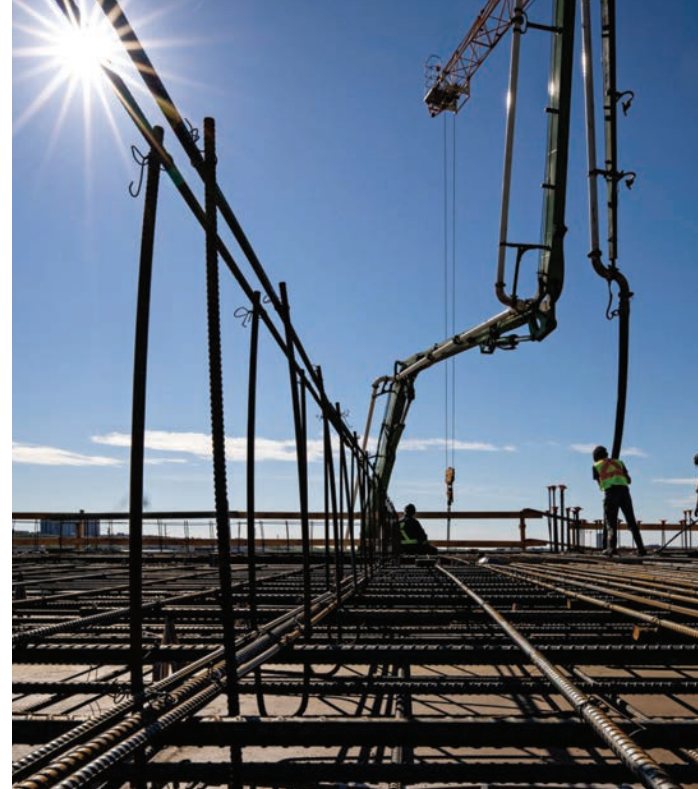
"The successful outcome on this project is only possible thanks to the dedicated efforts of countless individuals who worked tirelessly throughout the COVID-19 pandemic to provide long-term care residents with a modern, comfortable, and safe place to call home," said Marc Pascoli, vice president and district manager of PCL Toronto.

"The LTC accelerated rapid build project has been a true collaborative effort between Lakeridge Health, Infrastructure Ontario, PCL, and the team of subcontractors and trades," said Mark Murphy, senior director, Capital Planning & Development, Lakeridge Health. "The number of times each organization and the hundreds of trades have stepped up throughout this project are too numerous to count—and all within the context of doing so in a global pandemic. We are all proud of what we have accomplished." 🍁



Andre Bohren is construction manager, PCL Constructors Canada Inc.





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## Mass Timber - From Trend to Mainstream

Interest in Mass Timber has grown exponentially over the past few years. Multiple factors have contributed to this growing interest; from life-cycle carbon accounting, to sustainable resource management, to advancements in manufacturing, to health and wellness, and more. We are now in a position in the market where the adoption of mass timber systems across the industrial/commercial/institutional building sector is about to go mainstream.

### Background

Mass Timber has quickly become an international movement. Canada has an opportunity now to establish a global leadership position and drive new economic opportunities. Founded in 1959, the Canadian Wood Council (CWC) is Canada's unifying voice for the wood products industry. As a national federation of associations, our 14 members represent hundreds of manufacturers across the country.





**“The biggest challenge now is changing social perceptions of mass timber, so the industry has a green light to step up development.”**

**Vincent Martinez,  
President of Architecture 2030**

(Source: <https://www.weforum.org/agenda/2021/11/sustainable-mass-timber-green-building/>)

## A Path Foreword

The Mass Timber Industry Roundtable was launched by the Canadian Wood Council in 2021. A primary objective was to provide a collaborative and open space to share lessons learned, voice perspectives on the opportunities and the barriers before us, and work to create an industry led response strategy to the adoption of mass timber construction.

On November 30, 2021, over eighty executives from Canada’s building & construction industry gathered in Toronto for a full day of discussions on how to accelerate the adoption of mass timber in our built environment. We brought together a diverse group of thought leaders from across the building design and construction sectors to discuss the opportunities and barriers. The Roundtable commenced with a keynote presentation, followed by table discussions, a six-person panel session, and programming. To ensure a holistic approach and interdisciplinary insight, eleven tables were specifically curated, each focusing on a different topic and complemented with assigned participants based on their unique expertise and experiences. If anyone was reserved in the notion that mass timber was set to go mainstream, the Mass Timber Industry Roundtable put those reservations to rest.

**For more information on the Mass Timber Industry Roundtable and CWC programs contact Barb at [bmurray@cwcc.ca](mailto:bmurray@cwcc.ca)**

## TABLE TOPICS

**Table 1: Marketing & Communications**

**Table 2: Finances & Investments**

**Table 3: Technology Innovation**

**Table 4: Materials & Manufacturing**

**Table 5: Project Influence**

**Table 6: Cross Sector Collaboration**

**Table 7: Business Planning & Sector Growth**

**Table 8: Education & Training**

**Table 9: Building Construction & Operations**  
**Table 10: Green Buildings & Sustainable Development**

**Table 11: Design Excellence**



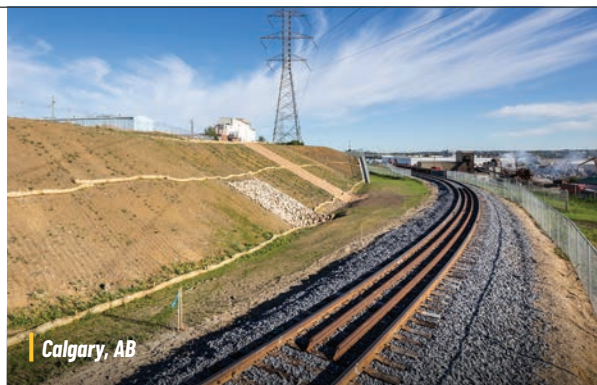
## Welcome to Six Points

The City of Toronto recently announced the completion of the Six Points Interchange Reconfiguration, a significant milestone in the continuing evolution of Etobicoke Centre as a vital mixed-use, transit-oriented community. The construction of a new Etobicoke Civic Centre, at the intersection of Dundas Street West and Kipling Avenue, is expected to begin in February 2023.

Credit: City of Toronto



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# FROM POINT A TO POINT E



A comparatively low-cost, safe, and easy-to-adopt mode of shared transportation for most people, both e-scooters and e-bikes are gaining popularity in Canadian municipalities.

New active transportation approaches are needed to keep up with the downtown rebound.

By Ankush Karwal

When Statistics Canada began unveiling the results of the 2021 Census earlier this year, one of the areas that anyone in city planning, municipal government, transportation, or infrastructure was looking for was finally published—hard-data evidence of an important trend that many of us are seeing firsthand.

You could call it the “downtown rebound.”

According to the census data, downtown Halifax’s population soared by 26 per cent between 2016 and 2021. Montreal (24 per cent), Calgary (21 per cent), and Toronto (16 per cent) weren’t far behind. In total, 36 of the top 42 urban centres across the country saw their downtown populations rise during this census cycle.

In fact, the sum of all large urban centre downtowns grew nearly twice as fast (11 per cent) than the cities as a whole (six per cent). They also grew at twice the pace as they did in the previous census cycle (4.6 per cent).

All of this is great news for landlords of downtown residential properties or owners of businesses that previously earned 80 per cent of their revenue between 8 a.m. and 6 p.m. on weekdays. But the influx of full-time residents means that infrastructure that once served a reliable (if uneven) schedule is now being pushed to the brink under increased 24/7 demand.

Nowhere is that more evident than in transportation.

It only takes a quick glance around cities to see the billions of dollars being pumped into transit projects to service increased demand from urbanites who want to access and move through the communities they live in.

The Eglinton LRT, Scarborough Subway Extension and Ontario Line in Toronto. The REM in Montreal. The Broadway Subway Project in Metro Vancouver and major LRT projects in Mississauga, Brampton, and Hamilton. These projects alone translate

to roughly \$40 billion in costs designed to improve mobility throughout major urban centres, making it easier to get into downtown cores. But what those billions of infrastructure dollars will not do—which comes as no shock to anyone in transportation or government—is make it any easier to move throughout those downtown cores.

Along with the urgency to address environmental and climate change concerns, that is one of the reasons why so many cities are actively prioritizing micromobility programs today, and why providing a range of alternative transportation and mobility solutions will become increasingly important for cities for years to come.

## What is micromobility?

Micromobility refers to lightweight, usually single-person vehicles designed to travel over comparatively shorter distances than traditional cars and transit. It is dramatically





Micromobility refers to lightweight, usually single-person vehicles designed to travel over comparatively shorter distances than traditional cars and transit.

transforming cities, giving urbanites an alternative to passenger cars, reviving high streets and creating better synergies with public transportation.

The two most popular modes—e-scooters and e-bikes—have seen a surge in interest over the past half decade, across North America and around the globe. That's because they provide a safe and convenient transportation option for residents and tourists while helping to ease clogged roadways and frustrating travel delays in cities where shared rental models have been introduced.

A comparatively low-cost, safe, and easy-to-adopt mode of shared transportation for most people, both e-scooters and e-bikes are gaining popularity in Canadian municipalities as they aim to enhance and alleviate public transit in urban centres. In 2021, there were more than 10 shared e-scooter and e-bike programs launched across the country; 2022 could see as many as 10 more new programs join them.

### Offsetting congestion and pollution in cities

We know that urban transport is responsible for a substantial portion of global GHG

emissions and micromobility, powered by electric devices, can help cities meet their emissions reduction targets.

There is an endless string of numbers available that highlight the benefit that micromobility is already having in Canadian cities, as a central piece of the transport electrification puzzle. In 2021 alone we saw more than 100,000 Canadians use our e-scooters, collectively travelling more than 1.2 million kilometers. Beyond just getting around, those riders also directly supported their local economies with more than three-in-five trips including a purchase from a local business.

Among the most impactful figures are the direct environmental benefit that e-scooters present as a part of a city's transportation system, namely the percentage of car journeys offset by battery-powered e-scooter use, and the estimated carbon offset stemming from that.

When we polled our 2021 riders across the four Canadian cities where we operate (Calgary, Ottawa, Vernon, and Red Deer), we learned that nearly half of all trips using a Neuron e-scooter replaced a car journey. This adoption of e-scooters by local riders

led to over 232,000 car rides avoided and an estimated 91 tonnes of CO<sub>2</sub> averted. That is a huge number for a service area within four cities with plenty of room for growth.

Now imagine what that figure would be across all major and mid-sized urban markets in Canada, and the environmental benefit of incorporating micromobility into active transportation plans becomes even more clear. Those are projectable figures that participating cities can recognize as achievements against their own green initiatives and objectives, supporting their broader sustainability efforts.

### Moving urban planning and infrastructure

Density is another key driver for why transportation programs and systems need to take new approaches to solve old problems. Toronto, Vancouver, and Montréal lead the way in downtown density, but Ottawa and Edmonton are not far behind. These downtown cores were built with far fewer people and vehicles in mind.

Downtown density and better livability have been factors for why European cities like Paris, Brussels and Glasgow are closing



their downtown cores to cars, favouring only public transport and micromobility in these high-traffic areas. E-scooters make sense in these markets because they take advantage of the existing, often underutilized infrastructure effectively—namely roadways and/or designated bike lanes—to move more people from point A to point B. And because of their much smaller size, they have the added benefit of requiring less space for both operation and parking. While Canadian cities look for long-term ways to reshape their infrastructure to better promote active transportation, e-scooters can bridge that gap between then and now.

Because e-scooters by nature aren't designed for extremely long travel distances, they typically also end up complementing a city's existing transit system rather than outright replacing it. Many Neuron riders have told us they often use our e-scooters as an improved "last mile" transportation option between their workplace or home and city transit to travel longer distances.

Lastly, shared e-scooter fleets can be consistently upgraded with new technology, adding sensors that help with rider and pedestrian safety, geofencing, proper riding enforcement, and numerous other



Downtown density and better livability have been factors for why European cities are closing their downtown cores to cars, favouring only public transport and micromobility.

operational benefits. That creates a trove of valuable, anonymized rider data that can be captured by operators like Neuron and shared with cities to help with current and future planning needs. Every ride is a survey sample producing valuable data that otherwise would take months or more to collect—if

it was captured at all. The cost savings and value of this data alone make these programs extremely beneficial.

### Expect to see more e-scooters in more places

Less congestion. More active transportation

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Credit: Neuron Mobility



There is an endless string of numbers available that highlight the benefit that micromobility is already having in Canadian cities.

like Calgary, Edmonton and Ottawa have run e-scooter programs for multiple seasons. Cities like Vancouver, Brampton, Mississauga, and Hamilton are exploring launching their own. A number of other leading cities like Vernon, Red Deer, Lethbridge and others are jumping aboard. It is not out of reach to think that the number of Canadian cities running shared e-scooter programs could pass 100 before the midway point of the decade.

Riders themselves say their cities are better for these programs. Our 2021 end-of-year rider survey showed most riders across Canada—nine out of 10—believe that e-scooters have had a positive impact on their community. That's an overwhelming vote of confidence for the forward-thinking municipalities, city councils and city program managers that have been the driving force behind the integration of innovative shared micromobility programs into their city's transportation systems. 🍁



Ankush Karwal is head of market, Canada for Neuron Mobility.

initiatives. Greater sustainability efforts. A growing desire for more "15-minute cities" where all aspects of work, live and play are easily and quickly accessible.

Each year the number of voters telling their cities that they want to see these issues addressed is growing. They're calling on

municipal officials to launch programs that will make their cities more livable and accessible. It should therefore come as no surprise that each year the number of cities evaluating shared micromobility programs is growing.

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# COVID CONSTRUCTION



## The criteria for success in delivering B.C.'s largest secondary school.

**I**n 2017, Graham was selected as the design-build provider to replace the City of New Westminster's 70-year-old high school with a state-of-the-art facility for 1,900 students and 200 staff. At the time, the biggest construction-related challenge in B.C.'s Lower Mainland was the scarcity of trades due to the hot building market. But what was regarded as manageable for an experienced builder delivering a large and richly programed project, would soon spiral into labour shortages, construction slowdowns, subcontractor interruptions and murky supply chain disruptions—all brought about by the COVID-19 pandemic.

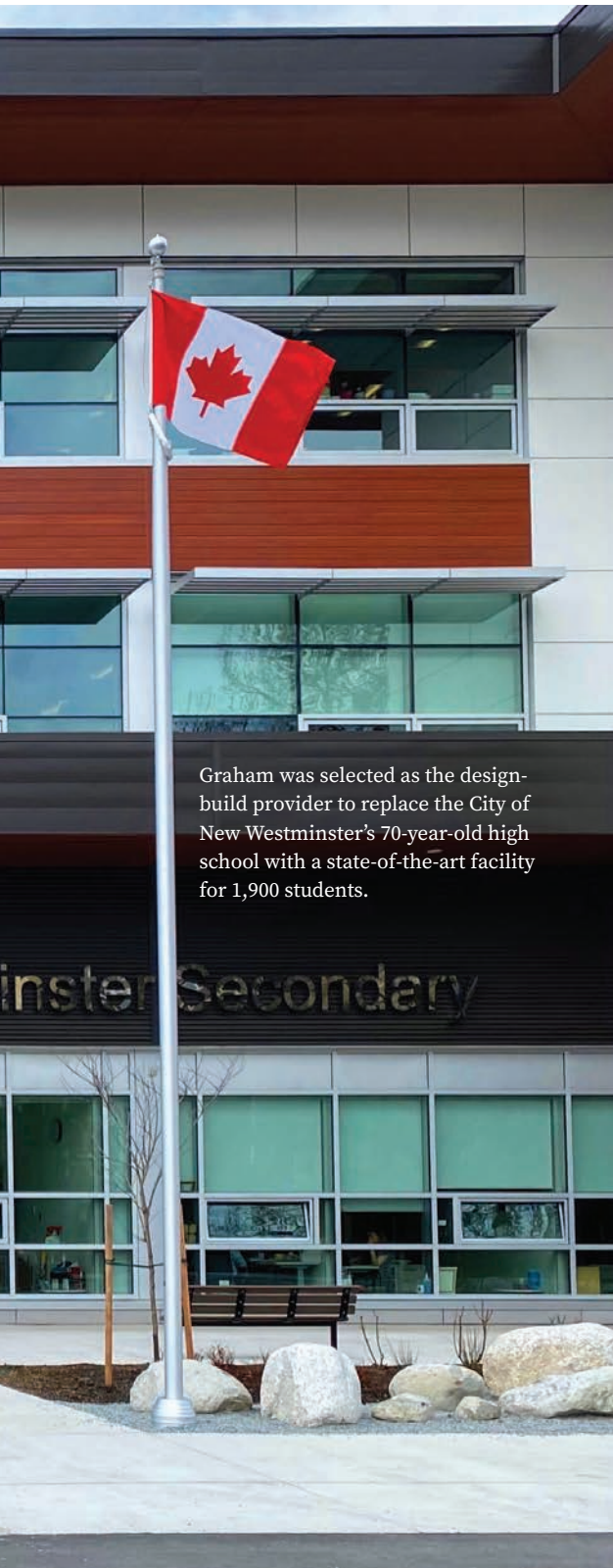
Still, New Westminster Secondary officially opened to students in January 2021. In addition to the standard school attributes, it has a robotics facility, a three-court gymnasium, and a theatre. Deliverance from the effects of COVID-19 was not brought about by any silver bullet. There was no swinging for the fences. Instead, explains Justin Marchiel, Graham's senior project manager on the \$78.8-million, three-and-a-half year-long project, it was more like a game of inches. Keeping the project from bogging down and getting it over the finish line on-budget and to its revised deadline, says Marchiel, was accomplished through

able construction management, quick response to emerging issues, and item-by-item problem-solving.

### Experience in design-build contracts

The project's complexity came not from size or physical layout but from its diversity of features, or "program," in industry terms. The client and owner had laid out their many needs and wants in a statement of requirements and an "indicative design" document. This required, for example, complicated wiring to support a network of devices and range of equipment—everything from woodworking tools and dust extraction, to theatre lighting

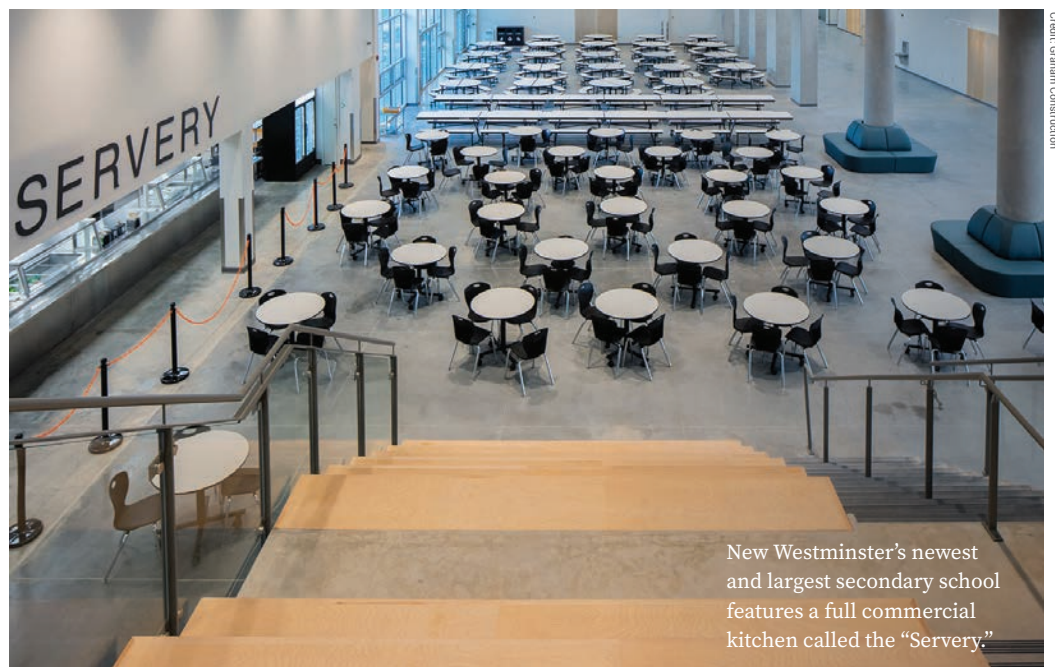




Graham was selected as the design-build provider to replace the City of New Westminster's 70-year-old high school with a state-of-the-art facility for 1,900 students.



New Westminster Secondary School holds an 18,500-square-foot gymnasium and features a 272-seat theatre.



New Westminster's newest and largest secondary school features a full commercial kitchen called the "Servery."

and IT networking—as well as numerous wall finishes ranging from writeable surfaces, wood art display walls, wood panelling, and painted gypsum wallboards.

Graham's deep experience with large, complex projects and sophisticated contracting models like design-build, and its access to top-flight partners—in this case KMBR Architects and Planners—met the foundational criterion for project success. "We've successfully executed countless schools and other types of large-scale projects, so our company has a proven internal process in place to deliver on an owner's vision," explains Marchiel. After the qualifying round organized by InfrastructureBC, a competitive field of proponents submitted

detailed proposals that met the statement of requirements, including an initial design, and Graham was awarded the project.

### Making the most of the format

"Recognizing potential obstacles at the design stage and solving them on paper is a far better way of doing things than having to go through contortions to develop innovative work-arounds during execution," is how Marchiel puts it. Because it places a project's architecture/design/engineering provider and the construction contractor on the same team, the design-build contract model opens a path to avoid "constructability" issues stemming from design elements that are naïve, impractical, or too costly.

The team, says Marchiel, buckled down early in the 10-month-long design phase and put a lot of time into using the design-build opportunity to its full potential. "Vancouver-based KMBR have a longstanding history of doing educational facilities, designing many projects with many clients across B.C.," he says.

### Operating flexibility

B.C.'s hot construction market required particular attentiveness to managing trades and subcontractors, making the most of availabilities, paying immediate attention to delays, and minimizing the ripple effect on other trades. Accordingly, Graham deployed more management resources to the site than usual. After COVID descended, even more would be needed. "After the challenges of lining up and scheduling trades, we were finally underway and had established good momentum, and then the pandemic hit. Things either shut down or slowed down. Some companies shut down, and some workers were no longer available," recalls Marchiel.

The response was to maintain the extra resources brought in earlier. "We broke the building down into smaller pieces and deployed sector-by-sector project managers and superintendents," says Marchiel. "One each for the exterior, for the main floor/gymnasium, and for the upper floors." The result, he says, was that "they were able to





Despite the effects of COVID-19, Graham Construction was able to complete the \$78.8-million New Westminster Secondary School on-time and on-budget.

Credit: Graham Construction

spend time really focusing and dealing directly with the details. This allowed the trades to deal with someone directly, so that we could identify emerging problems early on and manage them more swiftly and in detail.”

Following all of this, recalls Marchiel, “... the supply chain issues sprang up. How do we deal with not having writeable surfaces for the classroom walls, or specialized wall finishes? Audio components? Kitchen equipment? Any number of items were suddenly not available when we actually needed it. Our writeable surfaces were coming from China and we were unsure when they would actually show up.”

Such problems have brought thousands of construction projects and renovations to a virtual standstill. Determined that New Westminster Secondary wouldn't be one, Marchiel says the team decided “to finish all the physical systems, put all the switches and wall plates on, test and prove the systems, and then when the wall finishes finally showed up, take the plates off again, finish the walls, and replat everything.” In the end, the original writeable surfaces were replaced with alternate ones. “But at least we knew the building would work,” notes Marchiel.

### Focus on creating the best program

Although the school board's list of requirements was detailed, it still couldn't account for everything, and Marchiel says the Graham team wanted to do better than spec wherever possible. “We looked for better products than what the owner had specified,” says Marchiel. “We upgraded the fibre cement siding to phenolic panels and worked with our concrete partner to develop a thin

lightweight concrete panel that was more innovative than traditional pre-cast.” Inside, he says, “We spent a lot of time on acoustics. We did trial assemblies, building test walls between classrooms several different ways to make sure we had a highly-performing acoustic wall.”

### Communication

By summer 2020 it was clear the coming school year would not be a normal one and the two sides agreed upon a revised opening of January 2021. There was a lot of stress, in part because there were so many concerned parties. “Not only did the school's owner have to work with us, they had to report to the

measures, and use of natural light and LED options. The building's look takes inspiration from West Coast architectural styles, while optimizing the use of glazing.

New Westminster Secondary School holds an 18,500-square-foot gymnasium, 272-seat theatre plus a mini or “black box” theatre, full commercial kitchen called the “Serving,” band/choir/recording studios, dedicated dance room, fully equipped tech-ed and shop spaces, eight science rooms including an engineering lab, 60 general classrooms, many multipurpose/flexible learning spaces, a wellness centre, welcoming centre, and an Indigenous Friendship Centre.

“It's always a wonderful experience, after

“We broke the building down into smaller pieces and deployed sector-by-sector project managers and superintendents.”

school trustees and the school board, and reassure them that we were making progress and that we would be able to open and meet the revised plan to open in January. They in turn also had to reassure concerned parents and students,” says Marchiel.

What they got was the largest high school ever built in B.C. that meets LEED Gold standards, covers 236,000 square feet plus a separate IT and maintenance building serving the whole school district. LEED-related systems include energy-efficient boilers and HVAC systems, glazing on all exterior glass with heat-control shutters, water conservation

living with a project for several years, to have people walk into the finished facility and see their eyes get big, them looking every which way and expressing awe at how great it turned out, how awesome it is, that's very gratifying,” says Marchiel. “It's wonderful to know that New Westminster Secondary School is a great piece of new infrastructure that's embedded in this community and will serve thousands of people for many decades.” 🌱

This case study was submitted by Graham Construction & Engineering Inc. of Calgary, Alberta.





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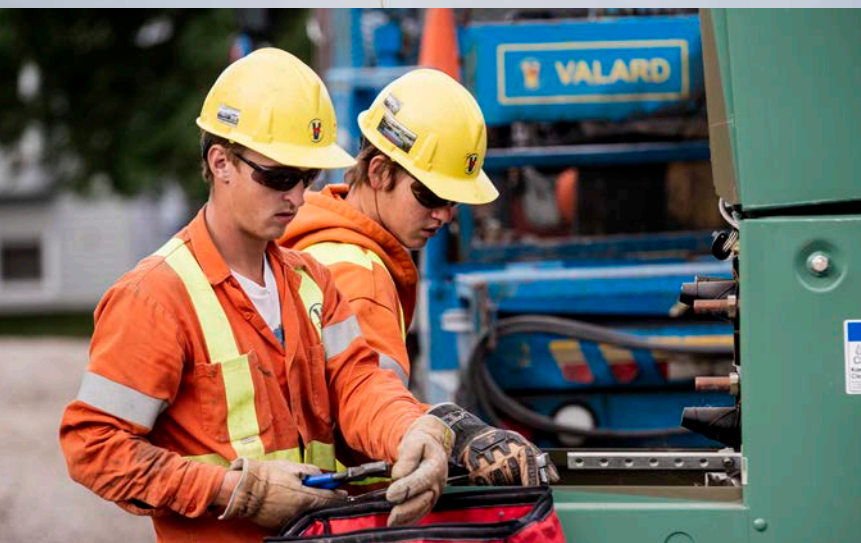
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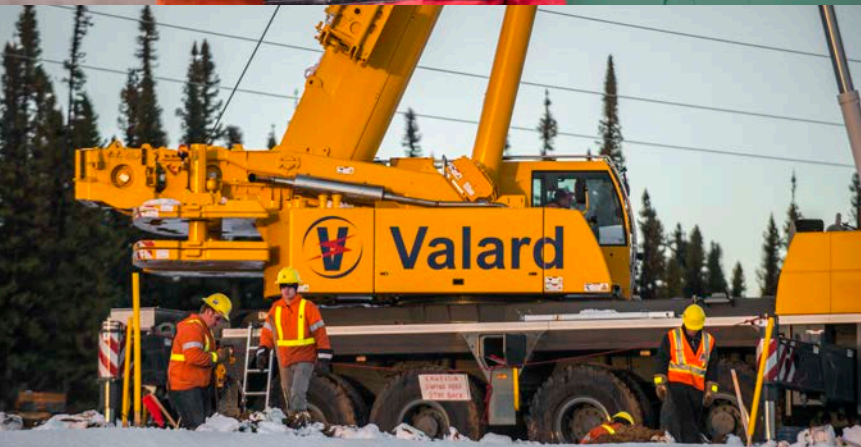
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If successful, loss of productivity claims can present an opportunity for contractors to recover the actual cost of performing the work.

# CONSTRUCTION CLAIMS

## Canadian courts' approach to loss of productivity claims.

By Stuart B. Hankinson and Graham Henry

Owners expect their projects completed on time and on budget.

Contractors expect certain productivity in performing their work. This expectation typically makes its way into the project bids. After a project begins, however, sometimes issues negatively affect productivity. A contractor can encounter obstacles and additional tasks not contemplated at the time of tender.

The requirement to stop and start work activities can impact a contractor. When required to pause work unexpectedly, a contractor may be forced to leave workers unoccupied or reallocate them temporarily while the disruption is addressed.

Another common issue is the stacking of several trades in a small area such that our courts say, "the addition of more and more manpower to a project reaches a point of diminishing returns, beyond which productivity suffers a decline."

Less obvious, though still significant, are impacts to the contractor's learning curve. This can be caused by interruption of the work, the introduction of additional new personnel, or the addition of new work

beyond that originally planned. These events can hinder productivity.

In addition, excessive use of overtime to regain a project schedule also impacts productivity by causing physical and psychological exhaustion of the workforce.

in which the value of such a claim can be quantified. If successful, loss of productivity claims can present both an opportunity for contractors to recover the actual cost of performing the work and a risk to owners of additional costs not previously expected.

"Impacts to productivity, though perhaps difficult to identify at the time they are incurred, will often result in real unrecovered costs for contractors and potential liabilities for owners."

These are but a few of the ways that costs can result from disruption on a project; and, to complicate matters, these costs are rarely quantified and claimed at the time they are incurred. Instead, they are usually addressed after the fact during the claims process. During this process, it is critical for all parties to consider the source of any legal entitlement (normally the contract), and the manner

### Legal basis

It is important to recognize that simply because contractors experience inefficiencies on a project, they do not have an automatic right to claim for these costs. Instead, these costs must have been caused by the legal wrongdoing of another party. In order to claim for the costs incurred as a result of less productive work, there must be:





- an express term in the project contract that provides recovery for productivity losses;
- a breach of that contract by another party that caused impacts to productivity;
- implied obligations to provide the contractor a clear and unimpeded path to perform the contract work; and
- not unreasonably delay or hinder a contractor in performing such work; or
- negligence by the other party that causes impacts to productivity.

### Quantifying the damages

If legal entitlement to damages from loss of productivity has been established, the next step is to attempt to quantify such loss in a manner that is defensible in court. To do so, parties and their legal counsel have adopted many different methods, with varying degrees of success. The Measured Mile is commonly used and has been judicially accepted as a method for quantifying loss of productivity and disruption claims. This method evaluates a mile of a given project during which productivity was not impacted and then compares it to other miles during which productivity was impacted. The difference in costs between the miles is then, as best as possible, calculated to identify damages associated with the alleged loss of productivity.

While the Measured Mile may have been accepted by courts, it is not applicable to all types of projects. This approach, as the name suggests, is best suited for linear projects with distinct work activities that require similar levels of effort. It has been found to be less useful on projects that have work that is continually evolving as the project

progresses. There is simply no one mile that can be fairly compared against any other. (This approach also requires detailed contemporaneous project documentation to demonstrate the work that was completed at each stage time of the project).

Earned Value Analysis is a method of quantification that attempts to address some of these applicability challenges faced by the Measured Mile but has some disadvantages as well.

Rather than focusing specifically on the work performed during the project, this approach compares the number of labour hours expected to be earned by a given point during the project to the number of hours actually incurred at that same point. The overrun in hours incurred is then used to calculate the inefficiencies caused as a result of productivity impacts. This analysis requires the accuracy of the original estimate. As a result, parties (normally owners) faced with defending a claim quantified using this method will often argue that the original estimate was unduly optimistic.

Another approach that has been advanced and considered in our courts is the Modified Total Cost approach. It is, however, a much more blunt instrument and largely fails to provide the courts with sufficient causation in its analysis. This approach first subtracts the estimated total labour costs from the costs actually incurred. It then modifies these findings by accounting for errors in estimation and any self-imposed productivity impacts. Not surprisingly, this method also suffers from its reliance on the accuracy of the original estimate.

When faced with incomplete or inapplicable

project documentation, parties also turn to industry loss of productivity studies. These methods use industry-specific knowledge and case studies to identify the unique inefficiencies experienced in a particular line of work and ascribe factors that reflect these findings for use in quantifying claims. A widely used set of such factors is published by the Mechanical Contractors Association of America (MCAA) and often used in litigation in America. The MCAA factors have not yet been accepted by Canadian courts.

Impacts to productivity, though perhaps difficult to identify at the time they are incurred, will often result in real unrecovered costs for contractors and potential liabilities for owners. Prudent parties on construction projects should therefore be mindful of these two questions when unforeseen disruption arises: does this impact give rise to a legal entitlement and, if so, how will the associated costs be quantified? With these issues top of mind, parties will better understand the implications of disruption and be better prepared to defend their interests if claims arise. 🍁



Stuart Hankinson, Q.C. is a Partner in the Construction and Infrastructure Practice Group at Singleton Urquhart Reynolds Vogel LLP.

Graham Henry is an Associate in the Construction and Insurance Practice Groups at Singleton Urquhart Reynolds Vogel LLP.



# PLAN BEFORE YOU DIG

Esri Canada was involved in a pilot project with Metrolinx and Infrastructure Ontario that helped manage and resolve conflicts around utility coordination. Metrolinx plans to deliver more than 50 kilometres of new LRT lines, including the Eglinton Crosstown West Extension.

## Accurate data gets Ontario transit infrastructure projects moving faster.

By Armando LaCivita

In April 2019, the Ontario government announced a historic \$28.5-billion transportation plan for the Greater Golden Horseshoe Region (GTHA), including four priority subway projects within Toronto. A few months later, the *Getting Ontario Moving Act* was enacted, granting ownership of the new subway projects to the province. Enter Metrolinx.

Metrolinx, a Crown agency of the Ontario government, is responsible for developing and operating an integrated transportation system for the GTHA. Metrolinx plans to deliver more than 40 new kilometres of subway lines, 50 kilometres of new LRT lines,

and 200 kilometres of new GO train tracks. It will include 100 new stations and stops throughout the GTA, Hamilton, and Niagara Region.

Infrastructure Ontario, also a Crown agency, supports initiatives to modernize and maximize the value of public infrastructure and real estate, in cooperation with the private sector. Working together, Metrolinx and Infrastructure Ontario are developing new programs and processes to ensure the effective delivery of these complex transit projects. These projects involve complicated coordination among many stakeholders: everyone who has a cable, pipeline, or power

line under the streets. How do you keep them all operating while you're digging entrances and exits to the new subway lines without running into huge overhead costs?

### Building transit faster

Paul Collins, utilities director of Capital Projects Group at Metrolinx and Gord Reynolds, vice president of Commercial Advisory & Strategy at Infrastructure Ontario, wanted to answer that question and find a way to deliver transit projects more quickly with fewer conflicts and delays. They proposed legislation that is the first of its kind in North America.

The Ontario government saw their bill,





Credit: Metrolinx

Esri Canada helped to streamline the process of coordinating utilities for some of Metrolinx's large transit delivery projects, using improved data-driven decision making and communication

the *Building Transit Faster Act* (BTFA), pass very quickly in 2020, because MPs knew it would save both time and money on these huge projects. The legislation puts some backstops into negotiations with utilities, as it made it mandatory for the utilities to provide accurate data to the Crown agencies. This must be, as Reynolds says, “data that we’ve seen and located,” before design of the transit begins. And those designers are now required to use the same data. Contracts are fixed and immutable. No one can hold up the process by asking for more money to complete their information, their contribution to the project.

The legislation also empowered Metrolinx to access municipal rights of way. This would provide more certainty for the businesses affected and firm budgets for tax and ratepayers.

Collins and Reynolds developed Utility Conflict Management (UCM) practices to identify and resolve conflicts and the Office of Utility Coordination (OUC) to do the same with third-party utilities.

Collins wanted to prevent the usual situation where, as he says, “we are last to know and

first to have to deliver.” A long-time advocate of knowing all the constraining parameters before any designs start and long before construction, he argues that “for every dollar spent on SUE (Subsurface Utility Engineering) investigation, you save six that you’d spend dealing with problems you find in the field.”

The confusions that slow things down are endless, ranging from the simple—two organizations using different words for the same thing—to the complex incompatible data. And confusions make a clear plan almost impossible. The former is partly solved by building in regular meetings to discuss hurdles, which encourages transparency and promotes reliability. They chose Esri’s

geographic information system, ArcGIS, to address the latter.

Esri’s ArcGIS system played a critical role as it uses location to integrate different data types and sources from multiple organizations into a cohesive view that can be easily shared among stakeholders. As Brian Bell, director of utilities at Esri Canada says, “For large, multi-organization infrastructure builds, it is critical that asset and planning data is available through a centralized hub, unifying information access for multi-agency stakeholders through common views, supporting critical and complex decision-making.” Using ArcGIS, they can track, monitor and manage BTFA compliance

“The confusions that slow things down are endless, ranging from the simple—two organizations using different words for the same thing—to the complex incompatible data.”



requirements in one format. This provides the choir with one hymn book, one system of record shared among multiple asset owners and involved parties.

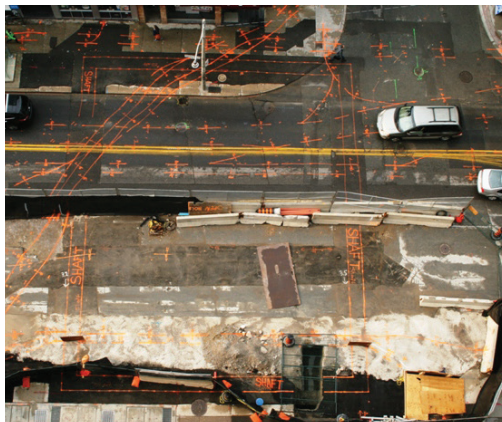
What legacy maps and spreadsheets depict as “in the ground” (what we think is there) versus what is “seen and located” (can be verified to be there) is, according to Collins, the single biggest challenge for this project.

Inconsistent data is annoying and makes for serious delays and confusion. Information that is siloed and unshared is problematic. But the worst problem when preparing for the huge upheaval of utility, wastewater, telecommunications, and similar essential services infrastructure that run underground, is not knowing exactly where they are, and the follow-up concerns that raises. Can they be moved, and if not, how can they be circumvented? As Reynolds puts it: “You can’t connect the dots if you don’t see the dots.”

To make sure it all worked as planned, they decided to run a pilot project on one of Infrastructure Ontario’s Subway Program projects—the Ontario Line.

### Utility coordination

The first study they did was a SUE one. This tells them not only where things are, but



Coordinating utility locations benefits project owners because if they must dig they will know where things are and reduces the old routine of ripping up a road more than once.

importantly, what they’re made of and how old they are—all of which impacts if, and how, they can be moved. Armed with accurate data, Metrolinx and Infrastructure Ontario went to the owners of the pipeline and the telecommunications system and talked to them in a collaborative manner.

“Those companies are primarily concerned with their customers but with this information, we can ask intelligent questions and they can see that we want to be good partners,” says Collins. The company is forced

by the BTFA legislation to cooperate, but “we want to use the carrot rather than the stick.”

Because not all the stakeholders have up-to-date maps of their assets and even fewer are likely to be aware of the placement of other systems, Collins says “we help them understand that it’s in their best interests to be able to share this information.” The dedicated operational team, created by the OUC and run by Infrastructure Ontario to manage utility coordination, proved invaluable in this process.

“Much of the infrastructure in urban areas is quite old and the recordkeeping associated with those old assets is often questionable,” says Bell. “Utilities aspire to meet modern customer needs and develop digital twins that enable them to operate more efficiently, and they see programs like these as helping them to move in the right direction.” As Reynolds adds, “We aren’t railroading utilities, we are just doing a better job of working with them, in a way that benefits Ontarians.”

One of the results of this pilot project is that companies involved now have accurate maps of exactly where their assets are—under the northern sidewalk, not the southern one—and those maps are held by the Crown agencies and will be constantly updated. This

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is the beginning of building a digital twin for these companies.

And of course, it benefits the city who also can use these maps. Now if they must dig, they will know where things are. This reduces that old routine of ripping up the road once and then watching some other group dig it up again six months later.

This 'plan before you dig' approach seems obvious now, but it's a first—and it's not limited to building subways. It's scalable to smaller cities and can be used for any linear infrastructure build, like highways or even the broadband networks being built seemingly everywhere in Canada.

In March 2021, the Ontario government passed the Build Broadband Faster Act. By forcing preplanning on all the stakeholders, limiting the cost, and ensuring the collated data is accurate using Esri's ArcGIS system, it's now cheaper and more efficient to build broadband in Ontario, including where it is most needed: remote communities. 🍁



Armando LaCivita is district manager of the Ontario Region for Esri Canada.



Esri's Canada's ArcGIS system played a critical role in utility coordination of transit projects, as it uses location to integrate different data types and sources from multiple organizations into a cohesive view that can be easily shared among stakeholders.

Credit: MetroVix

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## George Massey Tunnel Replacement

2022 Top100 Projects Rank: 20  
Value: \$4.15 billion

The province of British Columbia announced nine contracts have been awarded for technical and engineering expertise to support the province's delivery of the Highway 99 Tunnel Program to replace the Massey Tunnel.

"We are moving ahead with a new toll-free tunnel to replace the George Massey Tunnel, and these contracts will support the ministry's work as we move from development to construction," said Rob Fleming, Minister of Transportation and Infrastructure. "The new tunnel, along with a new Steveston Interchange and Highway 99 improvements, are being designed to improve safety, reliability and connectivity."

The following contracts with a total value of

\$56.7 million were awarded:

Owner's Engineering Service (Immersed Tube Tunnel)—**COWI North America Ltd.** (\$15 million); Owner's Engineering Service (Highway and Civil Works)—**R.F. Binnie and Associates Ltd.** (\$15 million); Archaeological Services—**Golder Associates** (\$2.1 million); Environmental Services—**Golder Associates** (\$14.771 million); Independent Environmental Monitor for the Corridor Improvement Projects—**Sartori Environmental Inc.** (\$725,000); Marine Navigation Advisor—**TyPlan Consulting** (\$322,000); Communication and Engagement Services (Highway 99 Tunnel Project/ Steveston Interchange Project)—**Lucent**

Quay Consulting Inc. (\$4.188 million); Hydrotechnical and River Hydraulics Services—**Northwest Hydraulic Consultants Ltd.** (\$4.4 million); Marine Construction Advisor—**RAM Engineering Ltd.** (\$202,000).

The next step in the Fraser River Tunnel Project is to initiate the environmental assessment process. This includes ongoing engagement with Indigenous groups and stakeholders and preparation for procurement. The new tunnel is scheduled to be complete in 2030.

In the interim, improvements to transit and cycling infrastructure along Highway 99 are underway. Construction of the new Steveston Interchange is scheduled to begin this year. ♣

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Sponsorship opportunities are still available for the 2022 event. Contact Nick Krukowski at 416-444-5842 ext. 0101 or [nick@actualmedia.ca](mailto:nick@actualmedia.ca)

**Date:** Tuesday, May 17, 2022

**Cocktail Reception:** 6:00 p.m.

**Dinner:** 7:30 p.m.

**Venue:** The Carlu  
444 Yonge Street  
7th Floor, Toronto, ON



For corporate tables of eight or single tickets, visit [top100projects2022.eventbrite.ca](https://top100projects2022.eventbrite.ca)



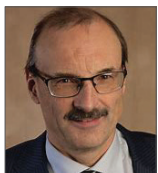
## APPOINTED



Philippe Morais

WSP in Canada appointed **Philippe Morais** as vice president, Strategic Advisory and Innovation where he will address their priorities in the areas of climate action, social responsibility, and digital transformation, through WSP's Advisory Services strategy and its Future Ready program.

"Advisory is already deeply embedded in WSP Canada's service offer across our markets," said Morais. "Through Future Ready, we are creating more value to clients by bringing insights and innovative approaches to address their most complex business challenges."



Andy Manahan

The Toronto and Area Road Builders Association (TARBA) announced the appointment of **Andy Manahan** as its new executive director. Manahan is a well-respected senior executive with over 30 years of experience in the infrastructure, construction, and development sectors.

"Over the past 15 years, I have worked with TARBA on a range of issues and am thrilled by the opportunity to represent the association at the municipal and provincial levels," said Manahan.



Kevin Machej

The Ontario Road Builders' Association (ORBA) elected **Kevin Machej**, EVP, Strategy, Development and Partnership Ventures at CRH Canada as president of the Association during its 95th Annual General Meeting.

"As we look into the future, we have an exciting journey ahead of us," said Machej. "I will work with our members and stakeholders to strengthen our relationships with all levels of government as a partner and collaborator and in the business of keeping Ontario moving forward."



Tara Erwin

**Tara Erwin** has been promoted to serve as HDR's transportation manager in Canada.

Based in Richmond Hill, Ont., Erwin will provide

operational leadership and strategic coordination of the firm's nearly 250 transportation employees in Canada and oversee key projects in delivery and support business development efforts in all transportation markets.

"I look forward to working across Canada with our talented teams and clients to advance mobility across all modes," said Erwin.



Dominic DiBrito

Hatch Infrastructure announced that **Dominic DiBrito** has been named managing director of its global Transit business. Dominic was previously president of LTK, which integrated with Hatch in November 2020.

"Our team's contribution to the successful delivery of major transit projects in the United States, Canada, South Africa, and Australia is something I am very proud of," said DiBrito. "Our decades-long relationships with major transit authorities have afforded us the opportunity to bring about positive change in many cities and countries."



David Nagy

Associated Engineering (AE) promoted **David Nagy**, P.Eng., to national practice lead for alternative and major projects. In this role, he will lead and support the pursuit and delivery of projects for the firm's public-sector clients.

Nagy holds a civil engineering degree and an MBA. He has 18 years' experience completing transportation projects—including roads, tunnels, bridges and airports—and providing engineering services for water intakes and treatment plants, primarily during 11 years at AECOM. He joined AE in 2015 as the manager of its bridge group in Calgary.



Don Kudo

The Ontario Public Works Association (OPWA) named Wellington County Engineer, **Don Kudo**, P.Eng., president for the 2022 term.

"The organization does excellent work of connecting public works practitioners from across the province, and I'm looking forward to continuing to engage with these members and finding innovative ways to advocate for public works in our communities," said Kudo.



Simon Douglas

Klohn Crippen Berger (KCB) announced that **Simon Douglas** has been named vice president, Power & Transportation, taking over from **Ryan Douglas**, who has stepped into his new role as KCB president. Simon Douglas brings to the role 25 years of global civil engineering experience in the design and construction of hydroelectric and water resources infrastructure projects.

He joined KCB in 2005, working in the Power and Transportation business unit. In his early career at KCB, he worked as a project engineer on several of KCB's biggest hydroelectric projects including the Nam Theun 2 Hydroelectric project in Laos and the Snoqualmie Falls Redevelopment project in Washington state. He was later promoted to design manager and project manager roles, and in 2016 he became a KCB principal.



Michael Magnan



Glenn Hubick

AECOM announced the appointment of two leaders to its Canadian Buildings + Places business. **Michael Magnan** will serve as urbanism + planning practice lead for the Canada region. He is based in Calgary, Alberta. **Glenn Hubick** will serve as managing principal for Buildings + Places in Alberta and British Columbia. He is based in Burnaby, B.C.



Andrew Wall

Colliers Project Leaders Canada announced the promotion of **Andrew Wall**, CD, P.Eng, PMP, MBA to lead its Atlantic team.

Prior to Colliers Project Leaders in 2017, Wall served in the Canadian Army for 15 years as a senior leader with the Royal Canadian Engineers. He is currently the National Chair of the Veterans Initiative (Veteran Employee Resource Group), North America, which actively promotes mentorship, networking, support and professional development for Veterans and Veteran allies within Colliers.

"I'm excited to build on the great work the team has already done and move forward with a thoughtful vision for expanding our client relationships in the future." 🌱

Send your news and events to [john@actualmedia.ca](mailto:john@actualmedia.ca)





Industry leaders say a collaborative, coordinated approach by government, industry, and other stakeholders is the best way to solve Canada's housing supply problem.

Credit: RESCON

# HOUSING SUPPLY SUMMIT 2022 TORONTO, ON

By Grant Cameron

**T**he federal and Ontario governments, along with provincial party leaders and big city mayors are all aligned on the severity of the housing crisis.

That much is certain following the virtual Housing Supply Summit 2022: Solutions to Build More Homes that was presented by the Residential Construction Council of Ontario (RESCON).

The politicians, along with many of the featured speakers and panelists were in agreement that immediate action is necessary, and we need all levels of government to be working on the problem.

With the idea of owning a home becoming more of a dream than reality for many, others at the session noted governments can't do it alone and the private sector will also have to be engaged to boost supply.

"It's no secret Ontario has a housing shortage driven by low supply," Municipal Affairs and Housing Minister Steve Clark stated in his remarks at the summit. "Canada has the lowest amount of housing per capita of any G7 country."

Indeed, the OECD, for example, reports that Canada ranks 34th out of 35 countries when it comes to dealing with approvals. The World Bank, on the other hand, has pegged us at 64th out of 190 countries.

Clark indicated that Ontario needs to build on the More Homes, More Choice Act as housing development is being choked by red tape. He noted the government wants to develop a digital data standard to help speed-up and improve decision-making so shovels can go into the ground faster.

Minister of Housing and Diversity and Inclusion Ahmed Hussen noted in his

remarks that the federal government is doing everything it can to remove barriers and bring more housing supply to market. He stressed the importance of the government partnering with private sector developers and municipalities to eliminate barriers for middle-class Canadians becoming homeowners.

Barrie Mayor Jeff Lehman, chair of Ontario's Big City Mayors' Caucus, said that governments must respect one another's roles and the feds and province must resist the temptation to embrace short-term solutions.

A much broader conversation is also needed about the labour supply and ways to bring more young people into the industry in greater numbers as they will be needed to build homes, he said.

"If we're going to double the supply of housing, we're going to have to double the supply of construction labour."

Leaders of Ontario's Opposition parties all agreed that housing supply has become worse, and the number of new homes being built must rise.

NDP leader Andrea Horwath said additional homes must be built in a thoughtful way, for example, by encouraging missing middle housing instead of paving over farmland.

Liberal leader Steven Del Duca said Ontario has a "significant affordability crisis" which needs to be addressed and governments at all levels must break down impediments to get all forms of housing to market.

Green Party leader Mike Schreiner said, "there's no beating around the bush" and that the province needs to increase housing through gentle density, building the missing middle and along transit corridors.

RESCON president Richard Lyall pointed out in his remarks that bold and decisive action is needed to solve the problem, but more importantly the housing summit showed all levels of government—and the industry—are aligned.

"Lack of housing is a threat to our economic recovery, to health and wellness, jobs and investment," he said in his remarks. "The growing demand for housing shows no signs of abating, home prices and rents are moving beyond what most families can afford, and many have given up on the prospect of ever owning a home. Decent housing should be within the reach of all Ontarians."

Lyall called for further measures to cut red tape, accelerate the construction of new homes, and make them affordable.

"Specifically, we need to speed-up the review process so builders can get moving more quickly on projects."

He said a collaborative, coordinated approach by government, industry and other stakeholders is the best way to solve the housing supply problem.

Other jurisdictions around the world that were in a similar predicament have taken steps to deal with similar housing shortages, so there is no need to reinvent the wheel, said Lyall.

While there are no quick fixes or silver bullets, governments and industry know where the problems are—they just need to take immediate action—because the clock is ticking, he added. ♣

Grant Cameron is senior director of public affairs at RESCON.



Today, inflation is not just high and persistent—it's also volatile and driven by a host of factors over which contractors have little influence.

# KEEPING A LID ON INFLATION

By Chris Gower

**T**ransitory—that was how many economists and policymakers described this period of inflation a year ago, when prices for food, fuel, and just about everything else began to rise. They predicted that the sharp increase in costs was just a by-product of temporary supply chain disruptions or the global economy rebounding from the pandemic. Yet here we are in 2022, and inflation shows no sign of ending its steep upward trajectory.

Rising inflation puts pressure on households and businesses—we're all experiencing that firsthand. What you might not know, however, is that inflation is uniquely challenging for Canada's construction industry.

To be sure, contractors have always priced inflation into our job estimates. But that was a relatively predictable task when inflation rates were low and consistent. Today, inflation is not just high and persistent—it's also volatile and driven by a host of factors over which contractors have little influence.

As someone who's worked in this industry for more than 30 years, I know there is a better way to manage inflation to deliver value for our clients. But we'll need some fresh thinking—and openness to change—from contractors, owners, and procurement agencies alike.

The first step in addressing the problem, of course, is acknowledging that there is one. The construction industry needs to accept that inflation is not going away. Labour shortages

across the country, especially in major markets, are driving up costs and the risk of project delays and cancellations. And this is all happening while demand is being fuelled by low interest rates, strong infrastructure spending, and a pick-up in construction activity compared to 2020.

An even bigger problem for builders is inflation's unpredictability. The challenge is both inflation volatility in the aggregate and the sheer number of issues that drive cost variability. Perhaps more than other sectors, construction is heavily reliant on global supply. The pandemic has weakened those supply chains, but factors beyond the pandemic are driving volatility too. Social unrest, issues securing silica, floods, fires—everything that's happening in the world today—have real and potential impacts on construction costs.

The costs of not managing that volatility could undermine the effectiveness of our entire industry. Many construction firms are hungry to regain business lost during the shutdowns of the past two years. But some firms won't have the labour or the materials to manage it effectively, and they will probably have priced projects incorrectly because of inflation. Then they will end up with budgets they can't meet, labour they can't find, and projects they can't finish. Obviously, this is a bad scenario for builders. But it also jeopardizes owners, who would face substantial cost overruns and project delays.

What's the solution?

One approach we favour is identifying high-

risk inflationary elements in a project—steel, copper, aluminum, wood, or whichever are among the most price-volatile—and then developing a price index for this group of materials based on historical spot market prices. As the project evolves, the partners track price fluctuations against the index. If the index goes up, the project price goes up, and if the index goes down, the price goes down. The approach would allow the project team to focus on other risk mitigation opportunities, such as analyzing trends and identifying the best times in the project life cycle to acquire materials. Another solution is finding alternative materials that are locally sourced or more readily available. With this strategy, we're aligned to procure the right materials at the best moment to ensure the project is successful.

I'll be the first to admit that such a collaborative approach to inflation is not the norm in the construction industry today. Many owners and procurement agencies continue to demand guaranteed prices. Yet there are signs of progress. Among them, is some contractors including a price indexing strategy in projects, which is a very rational way to manage unpredictability. 🍀



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