

2021 INFRASTRUCTURE REPORT

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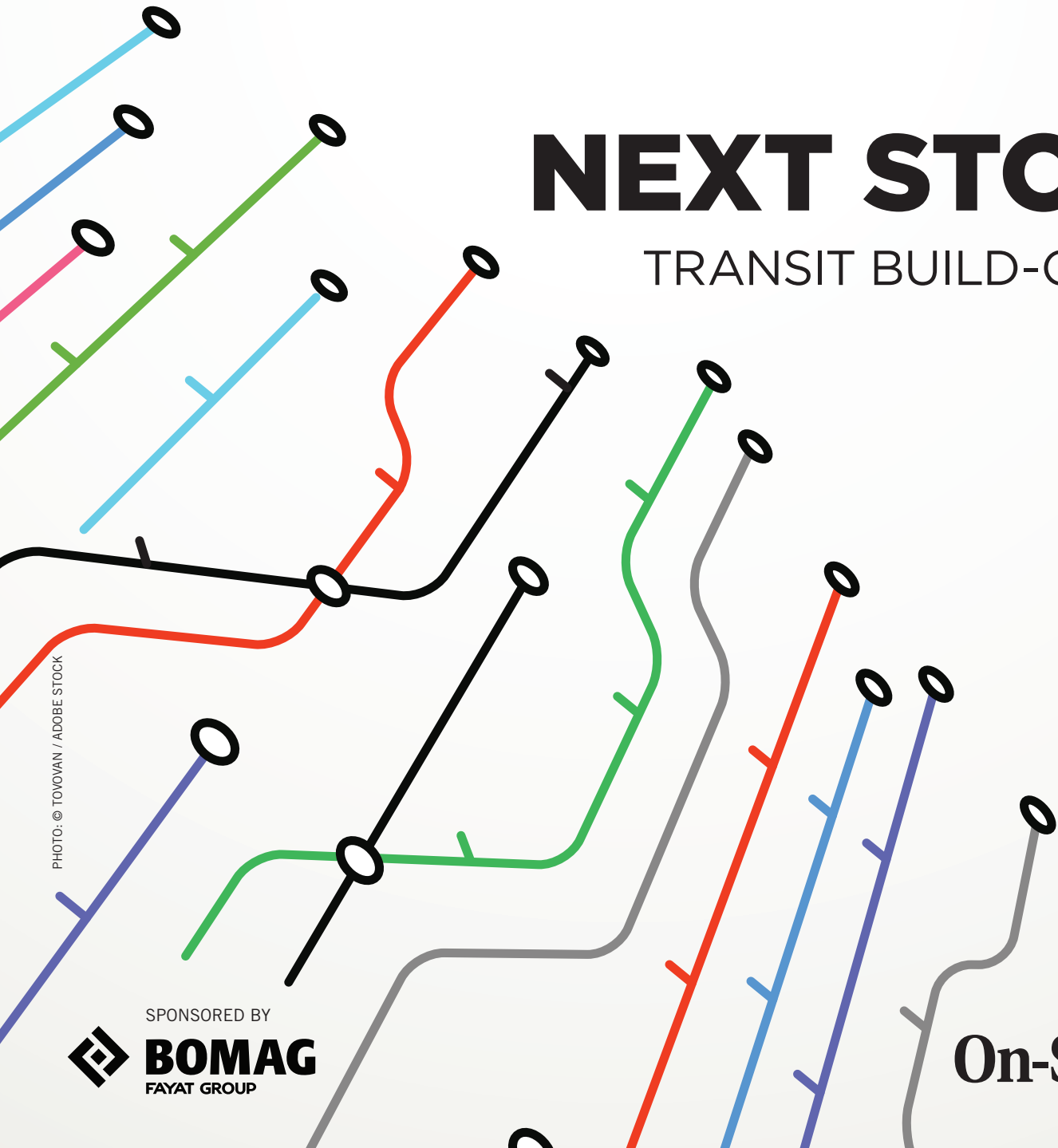


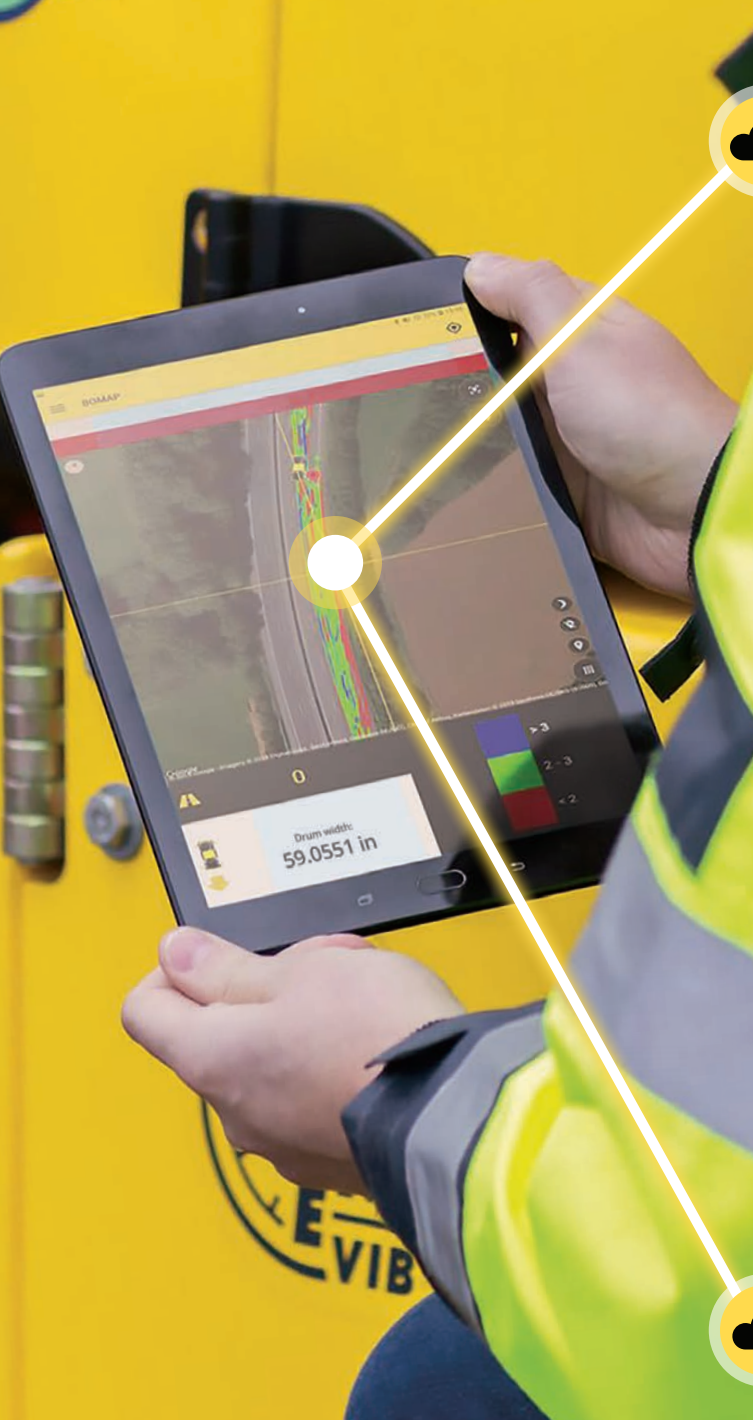
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WELCOME LETTER

“Partnering for the Future” is not just a tag line created for 2021 but a pursuit for adaptability; the true art of winning in an age of uncertainty. BOMAG is proud to partner with On-Site on its 2021 Infrastructure Report through our Dealer Partner, SMS Equipment, and looking ahead to 2022 with a renewed sense of purpose.

2020 has taught us that even with years of business experience managing through various economic cycles, even the most robust strategic planning could not have prepared us for the Global Pandemic and the eventual fallout from the worldwide quarantine measures and supply and shipping delays.

On behalf of BOMAG, I would like to reinforce that we are fully committed to our customers by **Partnering for the Future** to help us collectively succeed through continuous improvement. Currently Canada finds that the state of the infrastructure is at risk and will require significant attention in the coming decades. As Infrastructure is the heart of the BOMAG business, we are looking ahead to partner for the future, together.

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Cole Renken

Vice-President, Sales & Marketing,
BOMAG Americas



A future on the line

Transit tops priority lists as cities look beyond pandemic

BY DAVID KENNEDY

Pick a Canadian city approaching or over a million inhabitants, and you will find a billion-dollar transit project, often more than one.

Work on new hospitals, and more traditional infrastructure such as roads and bridges, is not letting up, but subway, light rail and even conventional rail lines have clawed their way up urban agendas despite competing budget priorities and more recently, dismal pandemic-induced ridership. With more than two dozen new or extended systems in the works coast to coast, the future of Canadian cities – and no small portion of their contractors' fortunes – is on these lines.

ORDERS FROM QUEEN'S PARK

Canada's most populous province is, unsurprisingly, home to the largest tally of transit projects in the country, and the list is only growing longer.

It has been a decade since early work began on the 25-stop Eglinton Crosstown that will run across midtown Toronto. Delays have pushed back the timeline, but construction on the new light rail line is scheduled to be complete by 2022. Nearby, on the opposite side of Hwy. 401, construction is also well underway on the \$2.5 billion Finch West LRT. The project's 11 kilometres of rail are expected to open in 2023.

In Toronto's two largest suburbs, Metrolinx is overseeing construction of the Hurontario LRT as well. With 18 km of rail

and 19 stops, the new \$4.6 billion line will carve out dedicated rapid transit space on the busy route through Mississauga and Brampton.

Farther west, trains recently began running on Grand River Transit's Ion light rail network through Kitchener and Waterloo. Service launched in 2019, but the transit operator for the region is already mapping out a second stage for the 19-km line that will extend the rails southeast into Cambridge.

For Metrolinx, a Crown corporation responsible for transit in the Greater Toronto and Hamilton Area (GTHA), the list of projects to juggle will only get more complicated as the 2020s wear on. The province set work in motion on four "priority" transit projects in 2019 that will stretch Toronto's transit system north, west and east.

The marquee component of the Queen's Park plan, the Ontario Line, will run through Toronto's downtown, before swinging through East York, and then north to meet up with the Eglinton Crosstown. Running through dense neighbourhoods, it will require a considerable amount of underground construction. Metrolinx and government procurement specialist Infrastructure Ontario (IO) have broken the megaproject into three P3 contracts. Cost estimates total \$10.9 billion. Major construction could start as early as 2023.

Tunnelling contracts for the long-awaited Scarborough Subway Extension

and the Eglinton Crosstown West LRT were handed down this spring, kicking off two other aspects of the four-part plan. Underground crews are scheduled to have tunnel boring machines in the ground for both projects next year. Procurement and construction for station work will follow later this decade. Combined, the two extensions are expected to cost about \$10 billion.

The final priority project, the Yonge North Subway Extension remains in pre-procurement, but an RFQ for the estimated \$5 billion job is expected this fall. With Toronto's existing Yonge subway line crowded even before four stops are tacked onto its north end, the extension is scheduled to open after the Ontario Line, which is designed to relieve some of the pressure. A \$1.5 billion retrofit is also planned for Yonge-Bloor Station, another bottleneck and the busiest subway station in the city.

Rounding out the considerable roster of Toronto-centric projects, the Sheppard East subway extension has entered the early planning stages, but remains years away.

At the westernmost tip of Lake Ontario, after being abruptly cancelled at the end of 2019, the Hamilton LRT is back on the docket as well. An agreement between the Ontario and federal governments resurrected the 17-stop project this May. Uncertainties remain, but construction on the line, worth \$3.4 billion in its latest incarnation, could start next year.

A launching gantry known as Marie in-use on the REM project in Montreal.

Meanwhile, the years-long initiative to transition GO Transit from a commuter rail service to a fully-fledged regional rail network with all-day, two-way service is scheduled to begin in earnest next year. In addition to ongoing station upgrades, IO expects to begin execution of a mammoth contract that includes a flurry of rail corridor upgrades worth well over \$10 billion in 2022.

Not to be outdone, transit activity in Ontario's other big population centre has picked up considerably in recent years. After significant delays, Ottawa's new

Confederation Line opened in late 2019. But even before light rail vehicles began carrying passengers, the city had handed out contracts for two extensions, cumulatively known as Stage 2.

The first of these projects will extend and upgrade the older Trillium Line, adding four new stations at its south end and an airport spur. Two stations will also be integrated into the existing portion of the line, which has been closed since May 2020 to accommodate the project. Contractors are scheduled to complete the \$1.6 billion job by 2022.

The Confederation Line, which runs parallel to the Ottawa River, will see extensions on both its east and west ends. The eastern extension will allow O-Trains to run all the way to Trim Road. Those 12 km of new rail and five stations are expected to open by 2024. On the west end of the Canadian capital, crews are tasked with the final part of Stage 2, which includes building 11 new stations over 15 km. That extension, beyond Tunney's Pasture, is scheduled to open by 2025. The price tag for the work on both ends of the Confederation Line totals approximately \$2.6 billion.

GOING OFF-TRACK

Dedicated bus rapid transit (BRT) is becoming increasingly common across Canada, typically in cities or neighbourhoods with population densities unable to support higher-capacity LRTs. Winnipeg, for instance, completed its first BRT line in 2012. The largest Canadian city that relies entirely on buses for local transportation plans to stick to them for the foreseeable future. This April, city council approved a plan that would reorient Winnipeg's existing bus network to feed three BRT lines. Costs for implementing the 25-year master plan could run to \$1.1 billion.

MIXING PRIVATE AND PUBLIC IN QUEBEC

The Réseau express métropolitain (REM), now three years into construction in Montreal, will keep crews at more than two-dozen sites throughout the city busy through 2024. The largest transit project currently underway in the province, the 26-station light rail network, backed by Caisse de dépôt et placement du Québec,

CIQS and the CCA Gold Seal Certification Program signed a renewed reciprocity agreement in April 2021. This recommitment enables CIQS members holding the CEC or PQS designations to be automatically accepted into the Gold Seal Certification program.



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Similarly, CCA members who are Gold Seal Certified Estimators will have their Construction Estimator Certified (CEC) designation applications automatically accepted exempt of further testing.



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will span 67 km. The pandemic and other issues during construction have pushed the cost of the system to \$6.9 billion, up from \$6.3 billion originally. That figure is certain to rise further due to problems crews encountered in the Mont Royal Tunnel. However, the cost of bringing the century-old tunnel up to code has not yet been determined. Scheduled to open in stages, segments of the line are currently between three and 18 months behind their original timelines.

As 3,000 workers toil on the original REM, the network's pension fund backer is already working on expanding it to the east. Last December, officials from the Caisse and the Quebec government unveiled plans for the REM de l'Est. The proposed extension will add 23 additional stations across 32 km of both elevated and underground segments. Planning for the expansion is in the relatively early stages, with cost estimates topping \$10 billion.

The wheels are also in motion for a five-stop extension to the Montreal metro's Blue Line. The on-again, off-again project



BC MINISTRY OF TRANSPORTATION

Construction on the initial components of the Broadway subway project started this spring.

has been contemplated for more than 40 years, but federal backing announced in 2019 pushed the five-stop extension to the top of priority lists. The Société de transport de Montréal began consultations for the 5.8 km of added tunnel last year and has started prep work. With planning ongoing, however, the original timeline for the start of major construction this year

and the 2026 completion date appear in doubt. Early estimates put the cost of the extension at \$4.5 billion.

Meanwhile, in Quebec City, planning is underway for a new light rail line running 19 km through downtown. Initially expected to open in 2027, Le Tramway de Québec hit an early snag due to train maker Alstom's purchase of Bombardier



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PHOTO: METROLINX

▲ Eglinton Crosstown light rail vehicle testing in Toronto. The new midtown line with 25 stops is scheduled to open late next year.



PHOTO: CITY OF CALGARY

◀ A rendering of Sheppard Station on Calgary's Green Line. The LRT project ran into a hitch during procurement, but is back on track.

Transportation this winter, forcing it to relaunch procurement to keep the process competitive. Construction is now scheduled to start on the 28-station line in 2023. Costs are estimated at \$3.4 billion

Even earlier in the planning process, a light rail line is also being studied in Gatineau. The proposed line would link up with the O-Train across the river in Ottawa.

LRTS LINING UP IN ALBERTA

Light rail vehicles have been running in Edmonton since the late '70s, but the past decade has spawned a handful of new

plans that will extend two existing lines and add another.

Separated into two phases to simplify delivery, the initial segment of the new 27-km Valley Line is nearing completion and crews are readying their shovels for the second. The P3 consortium behind the \$1.8 Southeast portion of the Valley Line started construction in 2016 and is scheduled to hand over the line by the end of this year. This sets the stage for the second phase, for which the city awarded a \$2.6 billion contract last fall. Work will get underway on the Valley Line West this

year and light rail vehicles are expected to begin running in five or six years.

In the meantime, an extension of Edmonton's existing Metro Line started in 2020. The first step in the Metro Line Northwest project, crews are building two new permanent stations and about 1.6 km of track. Two subsequent phases are in planning and design, which will eventually stretch the LRT line seven more stops to the northwest.

The design has also been mapped out for an extension of the Capital Line at the southern end of Edmonton. The city again plans to break the project into separate phases. The preliminary design for a 4.5-km first stage, which will extend the line from Century Park to Ellerslie Road, has been completed. With city and provincial backing, the project is just awaiting a nod on funding from Ottawa.

Transit expansion has climbed priority lists in Calgary in recent years as well, though the process to get shovels in the ground for the Green Line LRT has been relatively rocky. City council signed off on the big-ticket project last June, but a provincial review of city plans put the 15-station light rail project on hold, and funds from both Alberta and Ottawa were only reconfirmed last month. The \$5.5 billion project will run from 126 Avenue Southeast to 16 Avenue North, crossing over the Bow River and ducking underground through the city's downtown. Initially laid out in three stages, the reconfigured plan includes just two. Following the delay to procurement, major construction is unlikely to start on the Green Line before next year, though early work is scheduled for this fall.

EXTENSIONS ON THE WEST COAST

Demolition crews began clearing the way this winter for construction of a six-stop extension of Vancouver's Millennium Line. The \$2.8 billion Broadway Subway project will add a half dozen subterranean stations and extend the western end of the SkyTrain line underground by five km. A 700-metre elevated guideway from VCC-Clark Station is also included. Construction on the guideway and tunnel portals started this spring. A pair of boring

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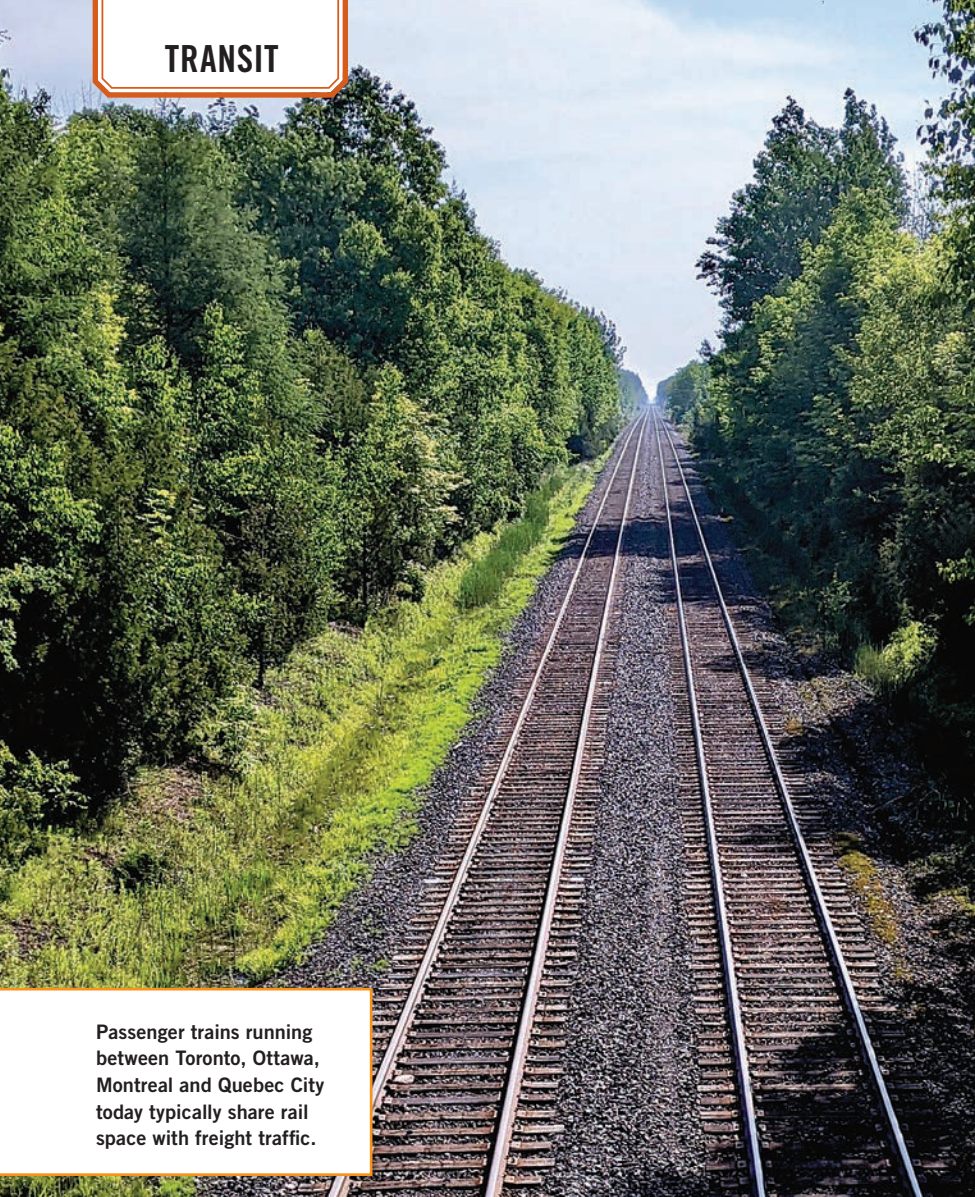
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Passenger trains running between Toronto, Ottawa, Montreal and Quebec City today typically share rail space with freight traffic.

PHOTO: DAVID KENNEDY

INTERCITY REVIVAL

Complementing urban transit upgrades, several prominent projects to build better rail links between cities Canadians often opt to fly between are garnering interest.

Last month, the federal government inched forward on a long-debated high-frequency passenger rail line that would connect Toronto, Ottawa, Montreal and Quebec City. Via Rail has long served all destinations, but delays are commonplace, partly due to the passenger trains running primarily on track owned by freight companies. Early studies for the project to build a dedicated line began in 2016, and with the July announcement, stakeholder engagement will now get underway. Early estimates for the project range from \$6 billion to \$12 billion.

In Alberta, a high-speed connection between Calgary and Edmonton has been bandied about for years. In 2008, for instance, a pair of studies assessed a possible high-speed rail line, and the environmental benefits of such a project have only grown more consequential in the interim. The Alberta Ministry of Transportation is currently working with two separate groups, one of which has proposed building a hyperloop between the two cities; the other, revealed just last month, aims to build a conventional high-speed rail line at an estimated cost of \$9 billion. Both projects remain at the early planning stages.

A passenger rail line between Calgary and the mountainous tourist town of Banff is under review as well. The Canada Infrastructure Bank and Invest Alberta Corp. are in the early stages of assessing the project, which would include seven stops along the roughly 150-km route.

Another proposal would make Vancouver the end of a West Coast high-speed line. Though no commitments have been made, a high-speed rail line connecting the largest cities in what's known as the Cascadia region could eventually tie together Vancouver, Seattle and Portland at a cost of between US\$24 billion and \$42 billion. □

machines, which will dig twin 6.3-m diameter tunnels, are set to launch next year. The build team is working toward a 2025 completion date.

Work along Broadway is one of several extensions to the SkyTrain currently underway.

Just last month, Prime Minister Justin Trudeau was in Surrey to announce federal funding for an extension to another of Metro Vancouver's three SkyTrain lines. The Surrey Langley SkyTrain will add eight stations to the existing Expo Line, extending the system 16 km to the southeast from its current terminus just south of central Surrey. A 2019 cost estimate pegged the project at \$3.1 billion, but federal funding commitments indicate the price tag has likely risen to \$3.8 billion. The extension replaces an aborted light rail project quashed by Surrey City Council in favour of the higher capacity

SkyTrain in 2018. Early construction could get underway shortly, but regional transit agency TransLink says lining up a build team is likely to take 15 months. Four years of construction will follow.

On the heels of the Broadway Subway project, a further extension of the SkyTrain's Millennium Line is also under review. That project, estimated at over \$3 billion, would pick up where the current extension leaves off, stretching the line farther west to the University of British Columbia campus.

A less conventional project to give students a lift to Simon Fraser University's campus atop Burnaby Mountain is also being studied. TransLink is deep into its assessment of a proposed gondola project that would run from one of three nearby SkyTrain stations, up the steep route to the forested peak, carrying up to 25,000 passengers per day.

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Crunching the numbers

New AI tool brings construction scheduling into modern era

BY DAVID KENNEDY

An experienced project scheduler can spend months mapping out one, or perhaps two, iterations for a complex construction job. “ALICE” can simulate and assess millions in the course of an afternoon.

It takes planning teams from a reality where they often have just a single option, to a simulation where the number of sequences are practically limitless, says René Morkos, the CEO and co-founder of

ALICE Technologies Inc. “You add a crane, add a delay, change the design, try over-time, try fast-drying concrete [or] change the amount of formwork. Whatever it is that you want to do, you change it, and the change ripples through your system.”

A generative construction simulator powered by artificial intelligence, ALICE, an acronym drawn from Artificial Intelligence Construction Engineering, gives construction firms plotting out projects the ability to opti-

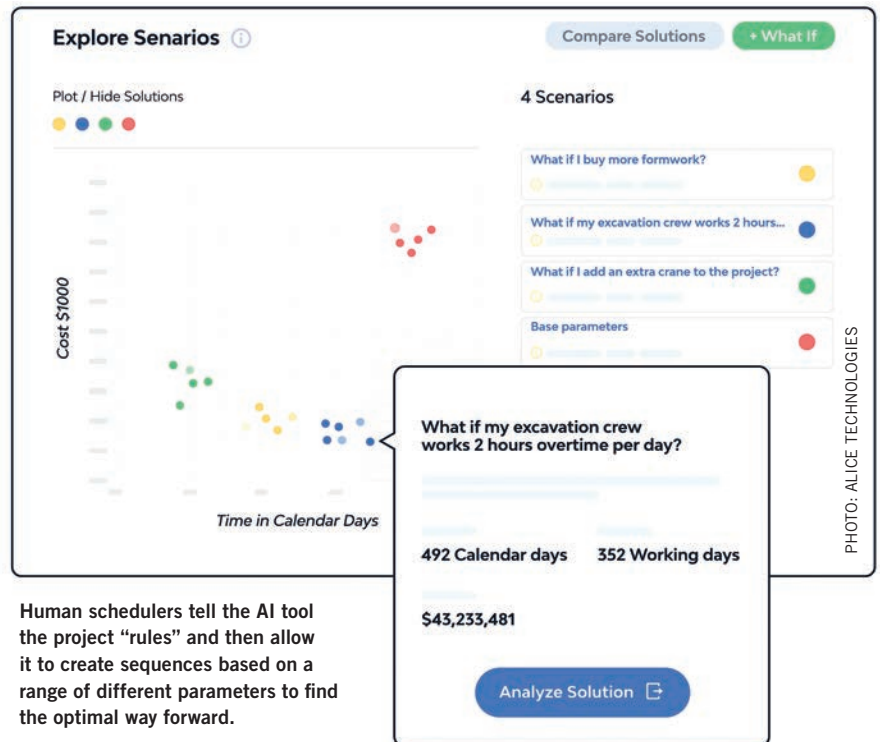
mize resources, fine-tune their timing and overcome constraints in ways that human planners couldn’t work through alone.

“Let the humans do what they’re good at, which is the gut sense, the understanding of reality, the risk analysis, those kinds of things,” Morkos says. “Let the machines do what they’re good at, which is crunching.”

It’s one tool in a growing arsenal of software solutions to which contractors are turning to tackle increasingly complicated

“Let the humans do what they’re good at, which is the gut sense, the understanding of reality, the risk analysis, those kinds of things. Let the machines do what they’re good at, which is crunching.”

–René Morkos, ALICE Technologies



Human schedulers tell the AI tool the project “rules” and then allow it to create sequences based on a range of different parameters to find the optimal way forward.

An AI-powered tool, ALICE relies on human input for the initial parameters, while turning to computing power for crunching the numbers.

PHOTO: © KNSSR / ADOBE STOCK

projects in an industry that’s always had to juggle a huge number of moving parts.

In five or six years, when light rail vehicles begin running along the 14-kilometre second phase of Edmonton’s Valley Line, it’s ALICE – guided by the scheduling team at Parsons Corp. – riders will have to thank for the construction sequencing that laid the roadmap for the project.

“With ALICE, you still need that experienced scheduler to do the planning, but

once you do the iterations, you can run a million iterations and then you take those iterations and you analyze them,” says Elie Homsy, senior vice-president of Parsons. “It is that limitation on the number of iterations that you can be running to optimize resources, optimize time, cost schedule, or whatever constraint the project has, that you are benefitting from.”

Parsons, a technology firm that takes on both physical and digital infrastructure work, is one member of the Marigold Infrastructure Partners (MIP), the consortium responsible for the \$2.6 billion Valley Line – West. It is working alongside Standard General and its parent firm Colas Group to build the new LRT system. Franci Architecture, Fast & Epp and Stantec Inc. are also involved on the design side.

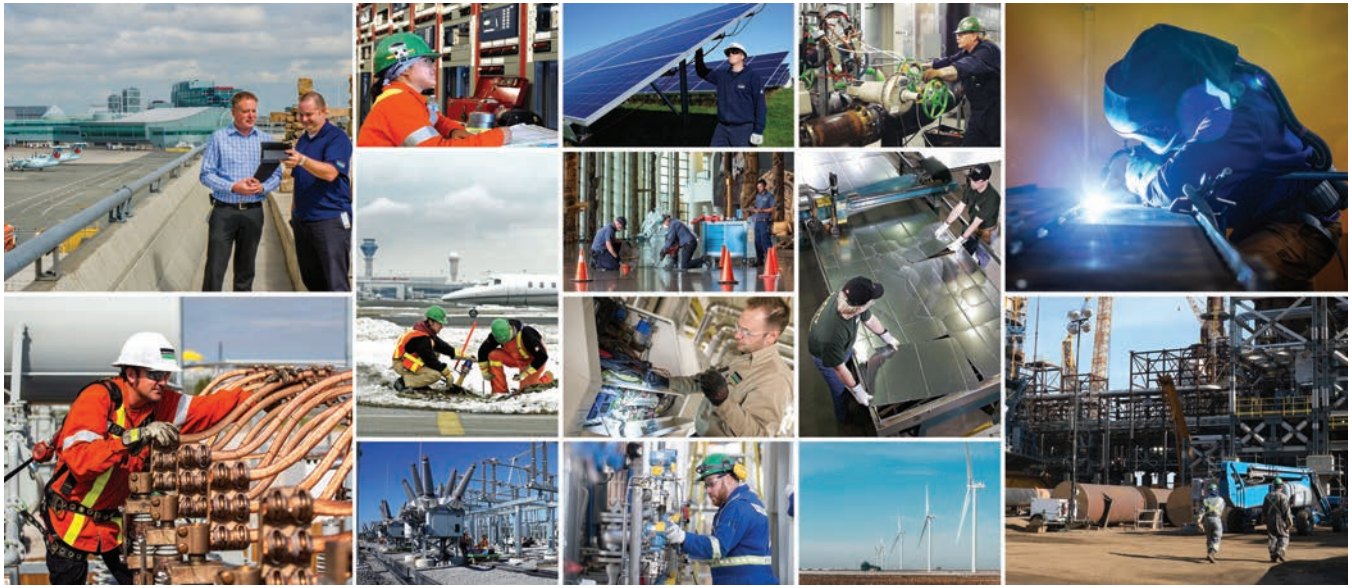
“In Edmonton, we are working right now on finalizing our base schedule, and when we finish finalizing our base schedule, that team will start working on ALICE on that project to see also how we can improve the schedule and the delivery,” Homsy says.

Construction is expected to get underway in the Alberta capital this year. Crews will be on-site building the western portion of the Valley Line until at least 2026. Once complete, the overall transit system will stretch 27 kilometres.

While Parsons will be using ALICE during the construction phase, it also played a role for the MIP team in procurement as the consortium estimated costs and prepared its bid.

Continued on page 28

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A CENTURY OF SUCCESS

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From its origin in 1921 as a Toronto-based electrical contractor, **Black & McDonald** has evolved into a multi-trade service provider with 30+ offices operating throughout North America. Built on the founding principles to “Do Things Right” and “Deliver Lasting Value,” the family owned company now completes over \$1.5 billion in sales per year and employs more than 5,000 people from coast to coast.

Reaching the 100-year mark is a great achievement for any business, and for **Black & McDonald**, it is a testament to the people, partnerships and meaningful moments that continue to shape its legacy — one that began as a two-man operation in 1921 when founding partners William R. Black and William J. McDonald launched their electrical wiring service.

“So many people have contributed to make this achievement possible,” said Ian McDonald, Co-President & CEO. “For the past 100 years, the support from our employee group, our client base, our suppliers, and the communities in which we operate, has been incredible. We are very appreciative of this support and we will strive to continue to be worthy of it going forward.”

Rapid growth through the decades

For two decades, World War I veterans William R. Black and William J. (W.J.) McDonald enjoyed success together as electrical contractors serving small businesses and households in the Toronto area. When Black passed away in 1946, W.J.

took over sole proprietorship and was later joined by his sons, John and Bill, in the 1950s. By the early 70s, **Black & McDonald** had grown out of its humble roots into a national network of Canadian offices offering a range of services that included electrical and mechanical contracting, sheet metal fabrication, HVAC and refrigeration maintenance and repair, and utility contracting. This expansion continued through the 80s with the addition of design engineering and facility management and operations capabilities. By the mid- 90s, **Black & McDonald** had entered the U.S. market with utility construction and asset management services.

Today, the multi-trade company fulfils all building lifecycle needs and holds facility management contracts for multiple operations, including hospitals, museums, airports, industrial plants, office complexes and military bases. Led by third generation family members Ian and Bruce McDonald, it continues to adhere to the same core values that steered it so successfully in the beginning: to provide a quality service at a fair price and to treat people respectfully.

Looking ahead, **Black & McDonald** envisions a continued path of planned growth and profitability guided by a promise to put customer satisfaction and quality first; to remain true to its longstanding code of business while honouring a commitment to health, safety and environmental responsibility into the next century and beyond.



Our Founder W.J. McDonald.

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Black & McDonald has experienced continued change in its 100-year history, surviving the Great Depression, WWII, several recessions, and now a pandemic. The ability to adapt quickly, develop new services effectively, and remain on the cusp of new technology has been central to its success. Today, Black & McDonald proudly offers multiple products and services in the following core areas:

- **Electrical and Mechanical construction services** – **Black & McDonald** provides turnkey solutions for a wide range of applications including commercial buildings, institutional facilities, airports, mission critical data centres, hospitals, pharmaceutical, transit & transportation, water & wastewater treatment, oil & gas, mining, manufacturing, utilities, power generation and renewable energy across North America.
- **Utility Construction** – Serving both private and public sector clients, **Black & McDonald** has extensive experience in substation design, construction, retrofit, repair and maintenance, including testing and commissioning. We provide construction services for overhead and underground transmission systems, fibre optic cabling, construction of stations, municipal installations, and their related civil construction.
- **Facility Services** – **Black & McDonald** has extensive experience in operating and maintaining a diverse portfolio of facilities across both the public and private sectors. B&M's experience covers a varied cross-section of facility types, including commercial offices, healthcare environments, major transportation hubs and airports, cultural facilities, life sciences laboratories, municipal government properties, educational institutions, data centres, utilities infrastructure, and major manufacturing and distribution plants.

100 YEARS OF MILESTONES

- 1921** W.R. Black and W.J. McDonald form partnership in Toronto.
- 1946** W.J. McDonald acquires 100% ownership in Black & McDonald.
- 1950** Black & McDonald enters the ventilation and A/C markets.
- 1955** Corporate headquarters opens at 101 Parliament St. in Toronto.
- 1955** Quebec office opens.
- 1957** H.J. and W.L. McDonald assume leadership.
- 1958** Black & McDonald enters the plumbing and heating markets.
- 1971** Atlantic region business activity begins.
- 1973** B&M enters the utility market.
- 1973** Operations begin in Western Canada.
- 1977** Vancouver and Dartmouth offices open, establishing coast to coast presence.
- 1983** B&M secures its first Facilities Management contract at Commerce Court in Toronto.
- 1990** Offshore energy business begins operations in Atlantic Canada.
- 1997** Ian and Bruce McDonald assume leadership.
- 1997** B&M begins operations in Kansas City, U.S.
- 2008** B&M begins _rst public-private partnership project at the Kelowna Vernon Hospitals in B.C.
- 2013** Women's College Hospital redevelopment begins; B&M awarded 30-year FMO contract.
- 2019** B&M awarded major public-private partnership (P3) contract in Ottawa as part of the Innovate Energy Consortium under the Government of Canada's Energy Services Acquisition Program (ESAP).
- 2021** B&M celebrates 100 years of excellence. Energy Services Acquisition Program (ESAP).
- 2021** B&M celebrates 100 years of excellence.

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A rendering of the Alex Decoteau on Edmonton's new Valley Line – West LRT project. The construction team responsible for the new line is employing ALICE.

PHOTO: CITY OF EDMONTON

“With ALICE, you still need that experienced scheduler to do the planning, but once you do the iterations, you can run a million iterations and then you take those iterations and you analyze them.”
—Elie Homs, Parsons

Homs notes that a detailed construction schedule is a normal requirement when bidding on major infrastructure projects, but ALICE “takes what was available to a new height.”

“It’s unusual to see the level of details ALICE can put on the table pre-bid,” he says.

Likening ALICE to a laboratory, which lets schedulers experiment to find the optimal construction roadmap, Morkos says the simulator takes anywhere from a week to a month to set up, depending on the complexity of the project.

“Instead of figuring out how to build it, I just tell the software what are the rules that are involved,” he says. “What are the tasks? What are the resources? What are the calendars? Set it up and then I press the simulate button.”

Creating the rules and having ALICE generate myriad sequences are the first two parts of the process. The third lets schedulers analyze and change the planning parameters as they see fit. On average, Morkos notes, relying on the AI tool translates to a 17 per cent reduction in total construction duration and drives a 13 per

cent decline in labour and equivalency.

At Parsons, Homs says trimming costs is one component of using ALICE, but the company is still working on quantifying exactly how much it’s saving. For the moment, he’s watching the qualitative impacts closest, noting one clear benefit of the tool is its ability to make less experienced schedulers more accurate.

The Edmonton LRT project is also not the first job on which Parsons has used ALICE. It has been piloting the AI system on a handful of projects in North America and elsewhere for several years, including on an expansion project along Ontario’s Highway 401. Incrementally handing it more responsibility on each successive project, Homs says if the software ultimately makes the cut, the company will roll it out for all of its work.

Meanwhile, the team at ALICE Technologies is not standing still. Having focussed on the bidding and pre-construction process first, the company launched what’s known as the Manage feature a few months back. As the name implies, it’s designed to keep projects on track as

they’re built and can troubleshoot the best way forward when issues do arise.

“It becomes really easy to update progress and schedule, and re-sequence,” Morkos says.

The feature has also broadened the market for what was originally conceived as a solution to a problem Morkos encountered early in his construction career. Tasked with finding the optimal way to sequence construction on a series of landing strips for fighter jets, he searched for the proper tool to tackle the issue, but came up empty-handed. Running up against the same issue on project after project, he spent years looking for software capable of running the algorithms required.

“Long story short,” he says, skimming over both a masters degree and a PhD focused on artificial intelligence applications for construction, “I ended up building it.”

With its pre-construction tool, ALICE appealed mainly to schedulers. The Manage feature has prompted some of the Menlo Park, Calif.-based company’s first conversations with owners looking for added insight into their projects. It has made it more viable for use on smaller projects as well. While in the past, companies tended to turn to ALICE for projects worth at least \$100 million, the Manage function and a plug-and-play template are pushing that threshold lower, Morkos says, pointing to new commercial jobs in the \$20 million to \$30 million range.

Homs, meanwhile, says the decision to use ALICE should hinge more on the difficulty of the project rather than its price tag.

“If it’s a billion-dollar highway in the middle of the tundra, there might be some benefit, but even if it’s a smaller project with complex utility and phasing and all the stuff going on top of each other, that would be where we would be using it,” Homs says. “It’s the complexity rather than the dollar value.” □

Weighing the community benefits

CBAs aim to help all groups share in infrastructure spending, but implementation a challenge

BY SAUL CERNOS



The replacement of the Pattullo Bridge will be delivered using a CBA.

Since time immemorial, people have built roads, bridges, fortifications and other public infrastructure in order to provide common benefits such as mobility, security and access to goods and services. While construction is generally a strong provider of local and regional employment, infrastructure proponents – typically governments – are increasingly turning to community benefits programs to counter longstanding employment equity imbalances and improve the everyday lives of people living near major projects.

British Columbia has been a strong proponent of formal community benefits

agreements (CBAs), thanks to provincial government policy established in 2018, mandating they be undertaken with select major B.C. infrastructure projects. British Columbia Infrastructure Benefits (BCIB), a Crown corporation that reports to the Ministry of Finance, currently has eight projects on its CBA roster, including the Broadway Subway development in Vancouver and the Trans-Canada Highway widening project at Kicking Horse Pass near the Alberta border.

The catalyst for B.C.'s CBA has been the skilled trades shortage – workers reaching retirement age with an insufficient pool of young, skilled talent ready to

take their place. Furthermore, the province wanted to address the relative absence of entire groups of people on job sites. For instance, Building a Better BC, an independent report by the Community Savings Credit Union, a B.C. financial institution, determined women represent only six per cent of on-site employment and Indigenous people represent just eight per cent of total overall employment, including off-site, in the province.

Greg Johnson, BCIB director of stakeholder relations and project development, says its CBAs are meant to engage people from underrepresented groups. When the province decides a project is significant

In B.C., the province is using its CBA for a range of infrastructure work, including a major Trans-Canada Highway widening project.

PHOTO: BANKSPHOTOS / E+ / GETTY IMAGES

enough in size and scope, a CBA comes into play where contractors can bring its usual crews but BCIB becomes the employer of record and fleshes out remaining numbers with workers attracted through outreach to local unions, community organizations and First Nations. BCIB maintains a database of candidates, assessing candidate qualifications and certifications in areas as far flung as fall arrest training and highway project experience, and applicants from underrepresented groups get priority.

"We make sure everyone is qualified so that contractors get qualified people, but wherever possible we're giving underrepresented folks a chance to get onto job sites and have meaningful opportunities to build their career," Johnson says.

BC's CBA program offers tangible supports. Collaborating with its partners, BCIB provides mandatory foundational safety training in addition to anything a worker might receive from any particular contractor. Crews also participate in sessions designed to make them aware of and sensitive to Indigenous culture and appropriate workplace conduct involving race, gender, sexuality and harassment.

"There's no shortage of women entering the construction trades or going into training to take on a trades career, but somewhere in the first couple years they're

leaving," Johnson says. "There's a very high attrition rate and, from talking to participants in the industry, we've learned that job site culture is keeping a lot of women and Indigenous people — and LGBTQ2S+ (lesbian, gay, bisexual, transgender, queer or questioning, and two-spirit) people as well — from continuing their careers."

So far, the approach seems to be working. After the first full fiscal construction year with the provincial policy in place, women made up 12.5 per cent, and Indigenous people 15 per cent of BCIB employees. "Those are on our projects," Johnson emphasizes. "Changing the industry is a long-term thing, but we contribute where we can. We're hoping that, by helping some of these underrepresented people get their start in the construction industry, they're going to be able to go forward, work for other companies and make it their career. They won't always work for BCIB projects, but they will work on other projects for private employers."

Still, not all infrastructure players are on board with all aspects of community benefits arrangements. A coalition of employer and employee groups challenged the B.C. CBA on grounds that mandatory membership in the BC Building Trades Unions (BTUs) violates freedom of association provisions under the Canadian Charter

of Rights and Freedoms. The requirement doesn't preclude membership in other labour organizations, but does require those working on CBA projects to join the affiliated BTUs. Still, the B.C. Supreme Court refused to hear the Charter argument last year, directing the matter back to the provincial Labour Relations Board.

Paul de Jong, president of the Progressive Contractors Association of Canada, which participated as a plaintiff, calls the organized labour requirement restrictive and says it increases worksite complexities, drives up infrastructure costs and reduces the pool of contractors able or willing to participate. "Community benefit agreements are a relatively new public policy trend and they're probably here to stay," de Jong says. "If we do it right, a community benefit agreement framework that's well consulted, well considered and well designed could become the new public policy instrument in Canada that will truly achieve changes for communities that are adjacent to public infrastructure projects. The challenge is how to develop this policy as it emerges. Is it going to be taken over by special interest groups, or is it going to be a fair and balanced piece of public policy that develops through consultation?"

Other members of the coalition share the concerns over a lack of industry engagement. The Vancouver Regional Construction Association, for instance, says CBAs can be a useful policy tool, but the B.C. government did not adequately consult the industry on the current framework.

With the court dismissing the Charter challenge, de Jong says the coalition is evaluating its options, including taking its case to the labour board. "Another avenue is for the broader construction sector to request that the BC Auditor General conduct an audit of the BC CBA, not to assess its appropriateness, but rather its efficacy," de Jong adds. For instance, he asks, is the cost of the CBA warranted by the outcomes? Are the outcomes being tracked and measured and if so, does the data indicate the CBA is worth the expense and intrusiveness it entails?

Likewise, a report from think tank Cardus released last month says the



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CBAs could become more common on projects across Canada in the years to come.

concept of CBAs are “promising” for Canada, but stresses the need for governments, and B.C. in particular, to reassess their implementation methods.

Other opponents have expressed concern over costs to the public purse. In a 2018 report, the Canadian Federation of Independent Business (CFIB) warned that unintended consequences could lead to British Columbians paying significantly more for provincial infrastructure projects. Citing an estimate from a 1994 report analyzing what it described as a similar BC infrastructure contract policy, the CFIB warned labour costs for infrastructure projects could increase up to 37.6 per cent as a result of the CBA. Singling out the \$1.4 billion Pattullo Bridge project, the CFIB said its use of a CBA could increase costs by \$130 million to \$259 million. “The BC government needs to ensure the new policy does not result in escalating costs for infrastructure projects and affirm the playing field is level to ensure cost-effective construction,” the CFIB said.

Building a Better BC, the CSCU report, notes that the province initially estimated the CBA program would increase tendered bid prices by four to seven per cent, and projections suggest net costs of a mature CBA program to the province could range from \$50 million to \$80 million annually. “It’s undeniable that it costs money to administer the CBA,” says CSCU president

and CEO Mike Schilling. “However, that cost pales into insignificance when compared with the economic benefits of giving skilled jobs to people in British Columbia. If you employ local people and get them into skilled trades and good jobs, you’ve got life-long earners generating money within your economy.” Still, the proof is in the pudding. “We’re in early days,” Schilling says. “We’ve seen fantastic data in terms of women, Indigenous groups and local people, so a lot of things are working. But we haven’t seen enough work to assess whether the private sector is getting its fair share of these bids. Opponents are asking some valid questions, and we’re interested in testing this further down the line.”

Though the approach is unique, B.C. is not alone in turning to CBAs. Many Canadian municipalities design their own community benefits programs, and it’s much the same with some provinces and the federal government. Infrastructure Canada introduced a Community Employment Benefits (CEB) initiative in 2018 under its Investing in Canada infrastructure program for projects that are bilaterally run and meet specified cost thresholds. Participating provinces and territories are expected to establish targets for at least three employee and contractor groups (the list includes apprentices, Indigenous peoples, women, people with disabilities, veterans, youth, recent immigrants, small-

and medium-sized enterprises, and social enterprises) and then report actual employment or procurement opportunity numbers. “This approach helps to promote opportunities for populations experiencing vulnerability and (for) groups who are under-represented in the construction industry and related sectors so that a broader array of individuals in Canada can benefit from the investments made in infrastructure across the country,” says Infrastructure Canada spokesperson Jen Powroz.

Also key to the CEB is a project’s broader impact on surrounding communities, so there’s a drive to invest in local communities. The Gordie Howe International Bridge, currently under construction on the Detroit-Windsor corridor, is currently administering a Community Benefits Plan negotiated by affected governments that has already allocated more than \$10 million on each side of the border to support community cultural and economic activities. Grants on the Canadian side include \$25,000 for the Essex County Black Historical Research Society for a film project and \$8,400 to the John McGivney Children’s Centre in Windsor for an accessible ramp. On the U.S. side, the First Latin American Baptist Church of Detroit received \$25,000 to renovate its service centre and the Clark Park Coalition got \$3,000 to host a winter carnival.

While the provision of community benefits might appear directed at maintaining public support throughout protracted noise and disruption. Windsor-Detroit Bridge Authority vice-president of corporate affairs and external relations Heather Grondin says earlier community consultations and environmental assessments helped minimize impacts and achieve local buy-in, yet the weight of projects carries on for their entire duration. “Having a big piece of infrastructure in your neighbourhood can be perceived as detrimental,” Grondin says. “It’s responsible infrastructure development to look at the communities where we’re building a significant piece of infrastructure, recognizing that there may be an impact, and developing a program that responds to direct community needs and input.” □

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