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CANADA'S CONSTRUCTION MAGAZINE

INFRASTRUCTURE REPORT 2018

FEDS RAMP UP
SPENDING



PICKING UP THE PACE

Canada's infrastructure plan starts hitting its stride

BY DAVID KENNEDY

It may have been a little slow off the proverbial mark, but the federal government's \$180 billion infrastructure plan is now off and running.

As of August 2018, the federal government has approved funding for thousands of projects across the country – from small-

scale jobs worth as little as a few thousand dollars, to megaprojects with price tags running into the billions. By 2028, the Investing in Canada Plan is expected to have doled out more than \$180 billion, split nearly evenly between investments in new programs and funding for existing federal initiatives.

Though some concerns remain about

the flow of funds, Ottawa has made substantial progress over the past few months. Of the \$14.4 billion promised under the first phase of the plan, 88 per cent has been tied to specific projects that are either underway or complete – up from 70 per cent in April. The larger, second tranche of \$81 billion in new spending, which Ottawa announced in Budget 2017,



has also begun to leave federal coffers.

14 federal departments and agencies, including Infrastructure Canada, Transport Canada and Natural Resources Canada are responsible for developing and overseeing the new spending programs.

For contractors, Infrastructure Canada's \$33 billion allotment that will pay for projects such as highways, water infra-

structure and transit lines through bilateral agreements with each province and territory is likely the highest-stake initiative. Ottawa has struck deals to unlock this funding with 10 of the 13 jurisdictions, up from seven in April. Only agreements with Saskatchewan, Newfoundland and Labrador and Prince Edward Island remain unsigned.

TAKING DELAYS IN STRIDE

Despite the progress, there have been slow downs along the way.

"Our partners asked that we design programs that are flexible and responsive to their needs," says former Infrastructure Minister Amarjeet Sohi, who was swapped off the infrastructure file in a mid-July cabinet shuffle. "And we have done just that – extending the deadlines under some of our programs and adjusting our forecasts under new programs to ensure that funding is available to their projects when they need it."

One of the largest of these adjustments came this spring in Budget 2018. While Ottawa did not alter the \$180 billion figure promised a year earlier, it pushed back billions in spending until the tail end of the 12-year plan.

The result is the slower rollout of funds between 2018 and 2024, but higher spending between 2025 and 2028. Backloading the budget delays an average of \$441.6 million in spending in each of the next seven fiscal years when compared to the original plan. So, while spending is still expected to ramp up, it won't be until 2025 that Ottawa truly opens the spigot. With the spring changes factored in, \$36.1 billion – or 44.5 per cent of total new program spending – is earmarked for the final three fiscal years of the plan, bad news for contractors looking to secure new contracts today.

Mary Van Buren, the president of the Canadian Construction Association, acknowledged that there's been "some slippage" in the flow of funds, but says as long as the infrastructure dollars remain on the federal books, it's not cause for concern.

"The fact that there have been some delays is not great, but some of it is understandable," she says, pointing to some municipal governments with projects that weren't shovel-ready and capacity issues within the construction industry itself.

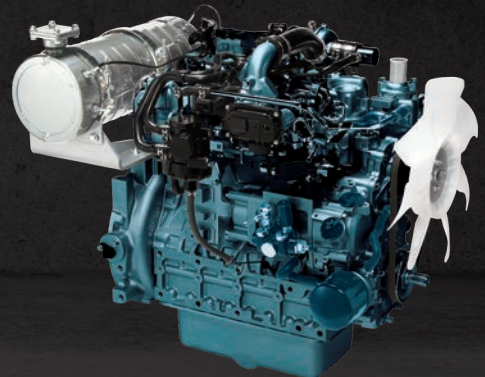


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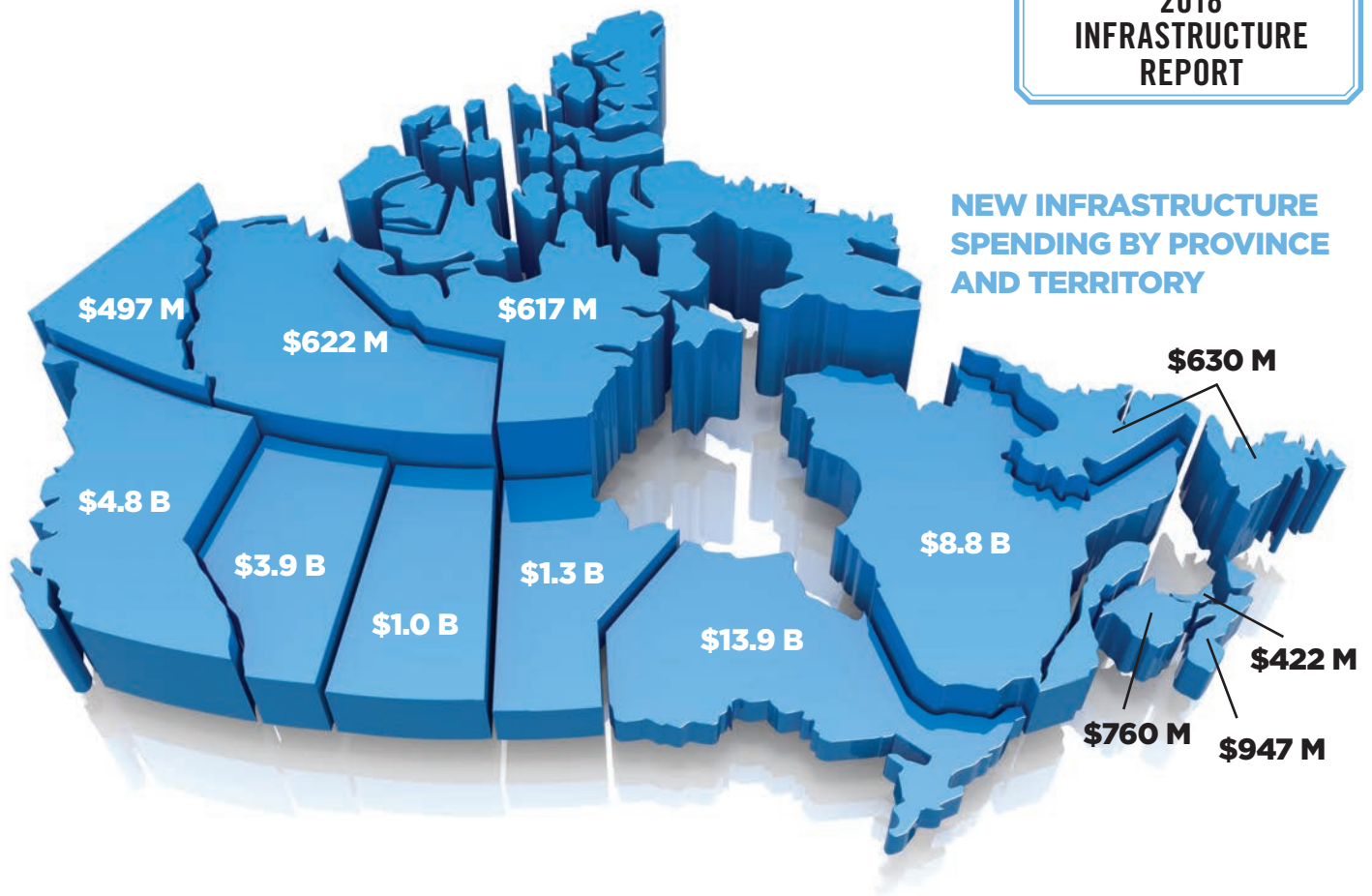
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The **\$180 BILLION** plan consists of more than \$90 billion in both new and existing spending initiatives

\$
44.5% of the federal funding is earmarked for 2025-2028

Ottawa has inked infrastructure deals with **10 OF 13** Canadian provinces and territories

“Municipalities are working hard to get their funding requests in and there’s no shortage of work that needs to be done. Canada has very aging infrastructure – it’s very old. Whether that’s sewers or roads or bridges, these are important investments that need to be made,” she says, adding that the CCA is working with governments and industry groups at both the local and national level to help ensure any future funding problems are smoothed out and projects get underway.

P3S GO “A STEP FURTHER”

Much of the federal infrastructure cash

will reach construction firms through tried and true methods, such as provincial and municipal contracts or public private partnerships (P3s). But there’s at least one wildcard in Ottawa’s infrastructure deck.

The much-touted Canada Infrastructure Bank, an institution set up to foster private sector interest in financing, building and operating major infrastructure, could coax a new breed of investors into what’s traditionally been government territory.

Pierre Lavallée, who started work as the CIB’s new president and CEO in June, says the arms-length government body

could begin making investments next year. Though later than initially hoped, the novel investment vehicle has been allotted some \$35 billion over the next decade to help lure private investors into the public works business. Far from chump change, the government dollars and potential for private profits could alter the infrastructure landscape, and greatly benefit builders in the process.

Lavallée says he believes the bank will be good for contractors. “Our intent is not to replace the successful P3 model,” he says. “We will be a new option for funding infrastructure projects that might other-



PHOTO: CITY OF KINGSTON

A rendering of Kingston, Ont.'s Third Crossing bridge. The new \$180 million span is one of thousands of projects to receive federal funding.

wise not get built.”

“P3 arrangements typically include payments from the government when an asset becomes available – this model transfers construction and operating risk to private parties. The bank will use a co-investment model that takes the involvement of the private sector a step further to assume risks relating to usage or revenue. The bank’s co-investment can mitigate some of the usage and revenue risks for private-sector and institutional investors, or ‘inject’ capital at key points, making projects more attractive.”

The bank’s mandate encompasses revenue-generating projects that are in the public interest and at least partly within Canada. It expects to focus on public transit, trade and transportation as well as green energy projects.

Lavallée would not comment on specific projects, but says the bank has received several “promising proposals” that it’s currently working on with its

partners.

While most projects are expected to focus on Canada, at least one U.S. state is actively exploring using the new Canadian institution to its own advantage. A report prepared for the Washington State Department of Transportation released earlier this year says the CIB could provide a “key” source of funding for an ultra high-speed rail line connecting Vancouver, Seattle and Portland.

The potential project, and others like it, would likely require close cooperation between Canada and its southern neighbour. Given the current climate, this seems far from guaranteed.

UPHILL BATTLES

Uncertainty for Canadian infrastructure projects extends beyond the untested Canada Infrastructure Bank.

With fresh tariffs on steel and aluminum crossing the Canada-U.S. border, seemingly weekly threats of further hostile

trade action from the Trump administration and some steep challenges within our own borders, many major building projects will be pressured in both the short- and long-term.

In the coming months, Van Buren expects the U.S. steel tariffs to inflict “some pain” on the construction industry, but if time drags on with no resolution, she anticipates a “real impact” on the industry.

“Our hope is of course that this is a short-term tactic on the U.S. side,” Van Buren says. “The jury’s still out on that, but we remain optimistic that the Canadian government... will come to a positive solution for Canada and the Americans are interested in doing that as well.”

According to the Canadian Coalition for Construction Steel, Canadian manufacturers produce only half the steel the Canadian construction industry consumes. The sector relies on the U.S. for about a quarter of its total demand. With tariffs

BIG TICKET PROJECTS TO RECEIVE FEDERAL FUNDING

| Project | Estimated total value |
|---|-----------------------|
| Calgary Green Line Light Rail Transit Project | \$4.6 billion |
| Ottawa Light Rail Transit (LRT) Stage 2 | \$3.0 billion |
| Finch West Light Rail Transit Project | \$2.5 billion |
| Southwest Calgary Ring Road Project | \$2.2 billion |
| GO Transit RER - Kitchener Corridor | \$1.5 billion |

AS OF AUGUST 2018



PHOTO: INFRASTRUCTURE ONTARIO

A rendering of the soon-to-be-built Finch West Light Rail Transit Project.

increasing prices for buyers, budgets for infrastructure projects will need to keep pace. In other words, \$180 billion will not go as far as it used to.

Van Buren says the higher prices could also cause problems for contractors that have entered into contracts with certain assumptions about material prices. The CCA is already working on mitigation should the international trade turmoil continue.

Even within Canada, numerous road-blocks threaten several big-ticket infrastructure projects.

The Site C hydro project in British Columbia, for instance, was recently put through the wringer by its own government. It barely escaped cancellation, despite more than two years of construction. Several months later, the federal government spent \$4.5 billion to purchase the Trans Mountain Pipeline from Kinder Morgan Canada Ltd. The deal safeguarded

a project to expand the pipeline, which appeared increasingly uncertain due to opposition.

While both West Coast projects seem to be back on course, projects to build energy infrastructure like dams and pipelines face stronger opposition than ever. Still, so long as the work moves forward, contractors with expertise in the energy sector are poised for a busy few years as firms upgrade aging pipelines and build new routes to export Canadian oil and gas.

Along with the construction ramp-up on Trans Mountain, major pipeline operators Enbridge Inc. and TransCanada Corp. have committed billions to upgrading their systems within Canada over the next few years. Meanwhile, a consortium of energy heavyweights, including Shell, Petronas and PetroChina are inching toward green-lighting a \$40 billion project to build a liquefied natural gas export terminal in Kitimat, B.C. □



The newly-formed Canada
Infrastructure Bank has

\$35 BILLION

to invest over the next 10 years

More than

30%

of Ottawa's infrastructure spending will go
toward public transportation projects



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Closing the loop

Builders of Calgary ring road moving rivers to stay on schedule

BY SAUL CERNOS

Calgary's new ring road is well on its way to becoming a full-fledged loop. Northeast and northwest sections opened to motorists wanting to bypass the city in 2009, and a southeast section was added four years later. If all goes according to plan, a southwest quadrant will open in late 2021, with the remaining nine kilometres on the westernmost fringe scheduled to be

complete by 2022.

Ring roads hasten the flow of traffic around some of the world's biggest cities. The Boulevard Périphérique circumnavigates Paris, and rings feature prominently from Melbourne, Australia to Lahore, Pakistan. The terminology often differs – Washington D.C.'s Capital Beltway harbours Inner and Outer Loops, and the London Orbital runs 188 kilometres. In Canada,

Circle Drive in Saskatoon opened in 2013, while Highway 216 in Edmonton ranks as one of the busiest roadways in Western Canada. Partial rings include Autoroute 30, which circumnavigates southeastern Montreal, and the Regina Bypass, which rounds just a portion of the prairie city.

Calgary's ring road, alternatively known as Stoney Trail and Highway 201, will still technically classify as "partial" even



with the southwest expansion. However, the work will add 31 kilometres of mostly eight-lane expressway to the current ring road, provide connections to several east-west highways, and serve as a major north-south corridor for avoiding Calgary's increasingly clogged arteries.

"The city's growing pretty fast and there's a need for more highways to ensure efficient movement of traffic," says Rizwan

Hussain, who oversees construction of major capital projects for Alberta Transportation. "This is part of the long-term transportation and economic corridor. It will enhance safety, support the economy and improve quality of life because people will be spending less time in traffic."

Planning for the southwest component began in the 1970s, when the province started assembling land for a transporta-

tion utilities corridor (TUC). With development pushing outwards, the province approached the Tsuut'ina First Nation to negotiate for land.

"We were given only seven years from the date of the land transfer (2015) to hire a contractor and finish this road," Hussain says. "If we fail to finish in seven years, the land will go back to the First Nation, all the money the province has given to

ROAD WORK



Along with all the conventional construction challenges, work on the new southwest segment of Calgary's ring road has involved diverting rivers and disposing of unexploded ordinance.

them will remain with them, and whatever infrastructure we have built will also go to them.”

The province quickly put the project to tender and selected Mountain View Partners (MVP) to design, build, operate and partially finance the Southwest Calgary Ring Road project. MVP, in turn, subcontracted design and construction to KGL Constructors, and work began early last year.

The \$2.2-billion total projected cost includes project planning, real estate, utility relocation and a \$1.42-billion contract with MVP. That contract, in turn, covers design, construction, 30 years of operation and maintenance and has MVP raising 40 per cent of project financing. The private sector financing will arrive first and cover design and construction. Once the project is complete, the province will make monthly payments to MVP for ongoing operations and maintenance. The federal government will also provide roughly \$250 million in infrastructure funding.

“It’s a huge undertaking,” Hussain says. “It’s a 31-kilometre-long section with environmentally sensitive areas, 49 bridges and 14 interchanges.”

To meet the tight deadline, proponents have taken pains to expedite activity,

reduce costs and avoid conflict with adjacent landowners and nearby residents. Rather than trucking gravel from afar, crews are mining aggregate underneath the corridor and crushing it into useable gravel at two facilities on-site. “It means we’re not transporting gravel using hundreds of trucks every day,” Hussain says. Proponents have also located two asphalt plants within project boundaries.

To minimize noise from gravel and asphalt processing, proponents invested in low-noise mufflers and generators for the plants and opted against back-up alarms. As a result, Hussain says, noise levels average 50 decibels, well below the 65 dBA standard. To keep dust at bay, crews water gravel from the moment it’s mined using special spray nozzles as well as filtering screens. The asphalt operations run on natural gas, further reducing emissions and odours.

“Alberta Environment and Alberta Health are checking our gravel operations and we are well within the thresholds in the regulations,” Hussain says, noting that in the absence of provincial and federal standards for silica dust emissions, Alberta uses Ontario Ministry of Environment standards.

Environmentally sensitive areas have

also proven challenging. Sections of the Elbow River and Fish Creek were relocated because the waterways happened to lie along the planned route. “We did it in stages,” Hussain explained. “We built the new channels first, then we blocked the old channels.” Crews transplanted 16,000 fish and worked to stabilize banks, prevent erosion and create suitable habitat for aquatic and shoreline vegetation.

Considerable attention is also being paid to flood mitigation and bridges are being designed to accommodate sudden storm surges and rapidly melting mountain snowpacks. “The 2013 flood was a significant event,” Hussain says. “We’ve done all the hydraulic modelling and we’ll be able to safely accommodate the flow of water underneath bridges.”

Another challenge arose from the corridor partly sitting on a former military base, with unexploded ordinance left behind from weapons testing. “It’s a huge risk for our contractors,” Hussain says, adding that the Department of National Defence and Alberta Transportation scoured the area and decommissioned numerous potentially lethal explosives, while the contractors have unearthed a few additional ones.

Generally though, the challenges have

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CALGARY SOUTHWEST RING ROAD BY THE NUMBERS

- 1 railway crossing
- 31 km of six and eight lane divided highway
- 49 bridges
- 14 interchanges
- 1 culvert set
- 1 tunnel
- 3 river crossings

been routine. To manage traffic, proponents have designed detour routes that match the number of lanes displaced by adjacent road closures. With multiple contractors and a crew of 1,400 strong, it's taken considerable effort to communicate effectively, build a coherent team and manage expectations. Nevertheless, Hussain sees the glass as half full. "When you have more contractors and more parties involved, there's more opportunities to innovate, brainstorm and have a better product. We're lucky to have experienced contractors and professionals working together to ensure safety, environmental protection and project quality."

While the province bears overall responsibility, the City of Calgary is significantly involved as the central stakeholder. "We're working closely with Alberta Transportation on all the interface issues we have with each other and to help them successfully deliver this project," says Julie Radke, the City of Calgary's manager of ring road integration and special projects.

Calgary isn't contributing any funding towards the ring road itself because it's built within the TUC and thus, under provincial authority. However, the city is

Bridges crossing the Elbow River and Fish Creek are being built with wildlife corridors for animals small and large. Corridors range from 15 to 30 metres wide and feature native grasses and shrubs. Fencing will direct wildlife away from motorists and towards these passages.

funding connections and related integration, much of which is scheduled to open in advance of the ring road extension. "Our budget on that is \$133 million," Radke says, adding that the money is coming from Calgary's capital infrastructure planning budget.

Some city work was completed even before crews began work on the southwest extension. One example is a pedestrian overpass at Anderson Road. "That was done so that not only can the pathway have a place to go while the construction is being done, but it will serve as the long-term link," Radke says.

There's also cooperation in other areas. While the province is overseeing traffic management, including detour designs and plans, Calgary's transportation division provides ongoing feedback because city roads are involved.

It's the same with utilities, drainage and flood-risk mitigation. "We've partnered with [Alberta Transportation] on a study review of river crossings," Radke says. "The city did quite an involved study [in 2015] to review the Elbow River Bridge, to make sure what they were proposing was appropriate and satisfactory from a flooding and water quality perspective."

While heavy machinery almost always hogs the spotlight at road-work sites, computer-driven digital technologies have been prominent both in project boardrooms and out in the field. In a written response to questions, Tim Rule, project director with KGL Constructors, says crews are using drones to take aerial photographs. "[It] allows us to plan material

placement and reduce site congestion," Rule says. "KGL can use photogrammetry techniques to get 3D pictures of the current ground and calculate quantities to plan effective earthwork operations."

KGL has also equipped tablet computers with an app that lets team members see designers' models in the field within a five-metre accuracy. "Those who have it set up can determine what is happening and where it's happening with a few swipes of the finger," Rule says. "This technology is also very useful for identifying existing utilities in an area of operations."

With the project in full swing, all eyes are on the 2021 deadline and on what matters most in the end. While Alberta Transportation is driving the ring road's construction, the benefits to Calgary are considerable. "It's an important part of the good movement network for getting into and around the city," Radke says. "We've been lacking a north-south connection along the west side of the city, and this provides it for us. It will form part of our skeletal road network system and will help move people around."

Presuming all goes according to plan, Calgary's Ring Road will be just nine kilometres shy of forming a full circle when 2021 draws to a close. However, the province has already paved the way for the route's eventual completion. Just last month, Alberta earmarked the funds to pay for the final westernmost segment. The procurement process is expected to kick off shortly, while the province plans to fully complete its 101-kilometre ring by 2022. □