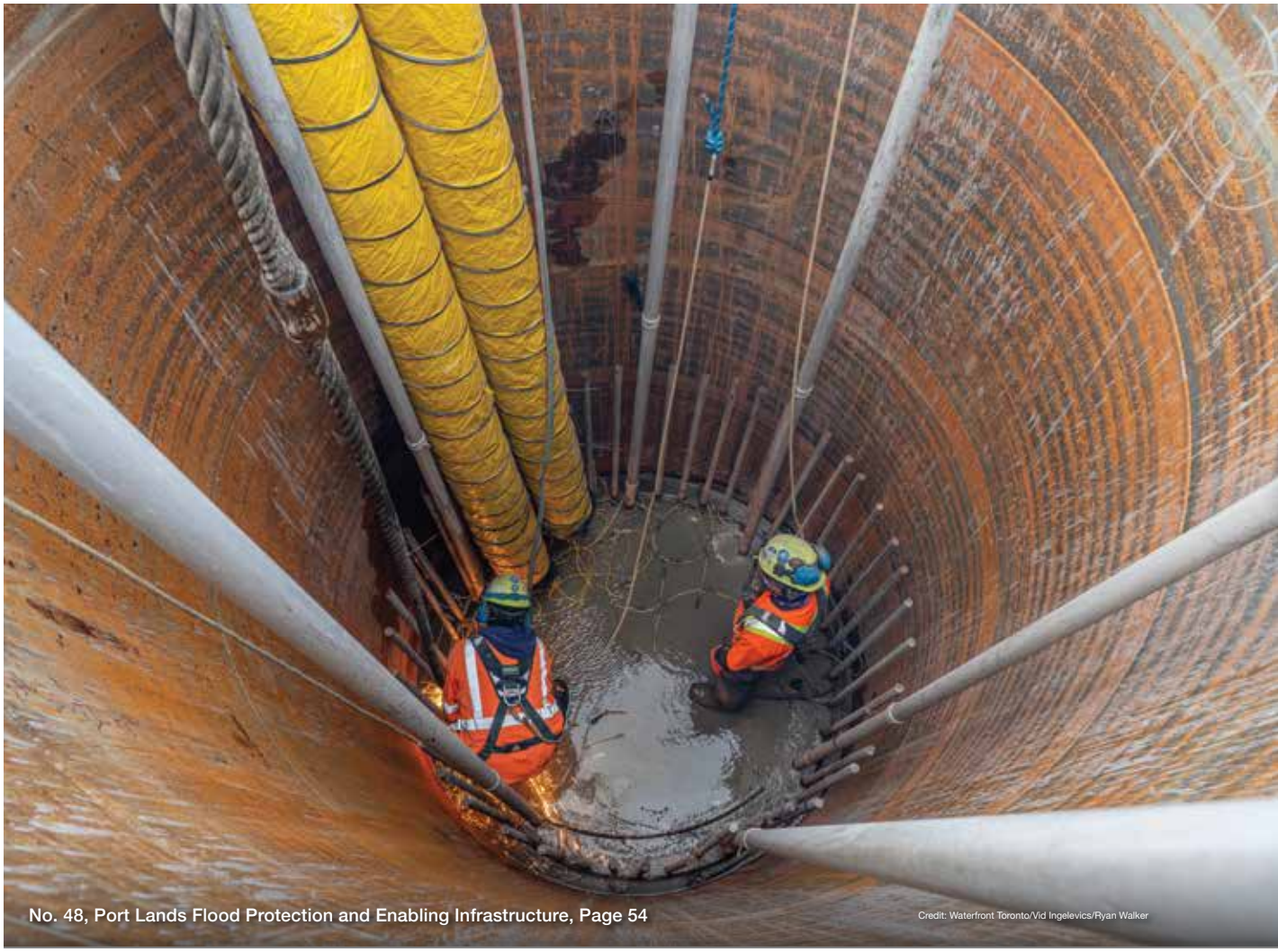
Top100

Canada's Biggest Infrastructure Projects

ReNew CANADA
The Infrastructure Magazine

2021

top100projects.ca



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Credit: Waterfront Toronto/Vid Ingelevics/Ryan Walker





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ReNew CANADA
The Infrastructure Magazine

Top100 Projects — 2021
An annual report inserted in ReNew Canada's January/February 2021 issue

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GENUINE CANADIAN MAGAZINE

Changing the Language of Infrastructure

I had an interesting encounter following the release of last year's report, and I wanted to share in an effort to get feedback from the rest of the industry.

We had released the 2020 Top100 Projects report and were getting set for the Key Players and Owners Dinner, which we host every February in Toronto as a celebration of the accomplishments of the industry in developing infrastructure megaprojects. I had heard through one of my colleagues that a couple of well-respected members of the industry wanted to chat with me at the event and I should seek them out. So I did.

My first thought was that, not having nearly the expertise as many of you, that I had somehow managed to royally screw something up. Or perhaps they wanted to tell me that I should try a different tact to the report? Maybe a new idea for adding a complementary piece for this report? But as it turned out, they wanted to have a conversation with me about… language.

The language of this report has become, to some, quite convoluted. As different jurisdictions use the language familiar to them, it can often mean that, from one project to the next, different words are used to describe the same thing. And yet, if you are not familiar with jurisdictional preferences, this can become quite confusing.

We agree.

So in this version of the report, and in the reports of the years to follow, we are going to work diligently to present a universal set of terms regardless of where the project originates. We've done some of that tweaking in this report, but will be doing even more over the next few years. We'll also be doing this in our publication, trying to create a universal language we can all agree on. No, we're not picking favourites here; we're trying to use terminology that can be a common language of infrastructure for everyone to use from coast-to-coast-to-coast.

We think it's time for the industry to all speak with one voice, and that includes one set of clearly understood industry terms. So we are going to put our best foot forward to help make this happen.

As we make this change, we want to hear from you. Where do you see confusion in industry terminology that should be made universal? Contact me at **andrew@actualmedia.ca** to discuss. Thanks, as always, for your input.

Andrew Macklin, Managing Editor, ReNew Canada

To create your own report, visit **top100projects.ca** and sort by **project cost**, **key players**, **location**, **sector**, and more.

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Top100 Project Index

By Rank, Project Title, and Page Reference

Buildings

Energy

Other

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Top100 Project Index (continued)

By Rank, Project Title, and Page Reference

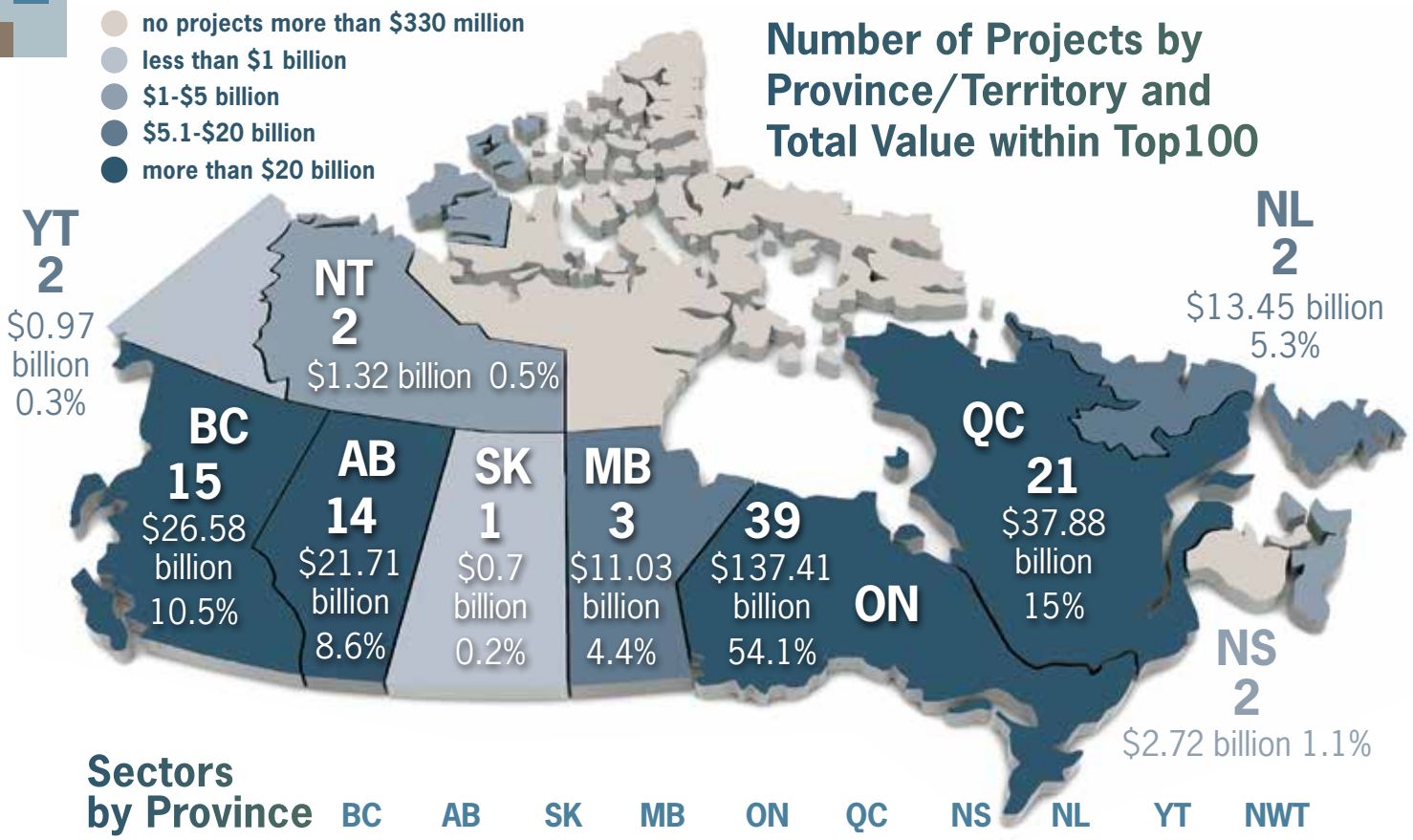
Transit

Transportation

Figures

Acronym Legend

AFP: Alternative financing and procurement
DBF: Design-build-finance
DB(F): Design-build-partial finance
DBFM: Design-build-finance-maintain
DBFOM: Design-build-finance-operate-maintain
EPC: Engineering, procurement, and construction
EA: Environmental assessment
JV: Joint venture
LRT: Light rail transit
P3: Public-private partnership
RFP: Request for proposals
RFQ: Request for qualifications
SUB: Subcontractor
TEUs: Twenty-foot equivalent unit containers



Sectors by Province

	BC	AB	SK	MB	ON	QC	NS	NL	YT	NWT
Buildings	5	4	–	–	10	4	1	1	–	–
Energy	2	2	1	1	4	6	–	1	–	–
Transit	2	3	–	–	18	6	–	–	–	–
Transportation	4	3	–	–	3	5	1	–	1	1
Other	2	2	–	2	4	–	–	–	1	1

The ESAP Energy Services Modernization has been counted in the 'Buildings' category for both ON and QC.

Projects by Sector

Energy

Hydroelectric	Transmission	Nuclear	Natural Gas	Solar
9	3	2	2	1

Transit

LRT	Rail	Subway	BRT
15	6	4	4

Buildings

Health Care	Public Spaces	Military	Social Infrastructure
13	8	2	1

Transportation

Highway	Bridge	Port
13	3	2

Other

Water/Wastewater	Remediation	Communications
9	2	1

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Credit: Metrolinx

1 GO Expansion Projects – On Corridor

$15.705 billion

2020 Rank: 1

Location: Greater Toronto and Hamitlon Area

Owner: Metrolinx

Project Manager: Infrastructure Ontario

Engineer: Morrison Hershfield (planning and environmental); Wood (consulting); WSP (design)

Other Key Players: Dillon Consulting (architectural services); Golder (geotechnical studies); EY (mgmt. consultant); Deloitte (mgmt. consultant); Comtech (project mgmt. consultant); Entuitive

Funding: P3

Substantial Completion: 2025

The GO Expansion Projects – On Corridor work consists of the core infrastructure and services that will allow Metrolinx's rail corridor to run two-day, all-day service at a frequency of every 15 minutes, throughout the Greater Toronto and Hamilton Area (GTHA) network.

The scope of the work, as defined by Infrastructure Ontario through the procurement process, includes:

- Operation of train services including train driving;
- Timetable planning, train control and dispatch for all operators across the GO-owned rail network;
- Design, build, integration, maintenance, rehabilitation or renewal of the railway corridor (civil infrastructure, tracks, systems, signaling, rolling stock, etc.);
- Refurbishment, maintenance, servicing and cleaning of all rolling stock and procurement of new rolling stock;
- Construction of new maintenance and train storage and/or layover facilities;
- Reconstruction of Union Station track and platforms; and
- Compliance with Metrolinx safety, security and emergency management policies.

Four prequalified consortiums were announced on May 30, 2019. The proposal process is underway with two teams remaining to bid on the project, and a successful team is expected to be announced late 2021.

Transit Expansion

The Top100 includes **$106 billion** invested in **LRT**, **rail**, **subway**, and **BRT** infrastructure.

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Top100 Projects PLATINUM 2021

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Photos: Bruce Power

2 Bruce Power Refurbishment

$13 billion

2020 Rank: 2

Location: Tiverton, Ontario

Owner: Bruce Power

DBFM Team (Office Complex and Training Facility): Concert Infrastructure—Bird Construction, Stantec
Concert Realty Services—Stonebridge Financial Corp.

Engineer: Hatch (preliminary/planning study); Wood (design); Tetra Tech (MCR)

Contractor: AECOM, Aecon, AREVA NP (Unit 6 steam generator replacement); Black & McDonald (Unit 6 mechanical and electrical projects); Shoreline JV: Aecon, AECOM, SNC-Lavalin (Fuel Channel Feeder Replacement program)

Other Key Players: WSP (drafting support); Golder; Deloitte; AGAT Labs (analytical testing); Burns & McDonnell (integrated project controls support)

Supplier: Laker Energy Products (end fittings, liners, and flow elements); BWXT Canada Inc. (steam generators); Nu-Tech Precision Metals (zirconium alloy pressure tubes); Cameco Fuel Manufacturing (calandria tubes and annulus spacers); DECAST

Legal: Osler (lead counsel); Torys (acting for the lender)

Funding: Private

Substantial Completion: 2030

In December of 2015, Bruce Power announced its plan to refurbish six of its eight nuclear reactors at its plant near Kincardine, Ont. The project, originally scheduled to commence in 2016, was postponed until 2020 based on the usable life of the reactors. The 15-year refurbishment project will include work on six of the plant's eight CANDU reactors. The eight reactors produce 6,300 MW of power annually, approximately 30 per cent of Ontario's current energy usage.

The Bruce Power refurbishment project will make up to 23,000 jobs possible and generate about $6.3 billion in annual economic benefits in communities throughout the province.

The new agreement between the Ontario government and Bruce Power has achieved $1.7 billion in savings for electricity customers when compared to the forecast in the 2013 Long-Term Energy Plan (2013 LTEP). This means a reduction in forecast household electricity bills by about $66 each year over the next decade according to the Ontario government.

Bruce Power is investing approximately $13 billion of its own funds to cover the costs associated with the refurbishment, and agrees to take full risk of cost overruns on refurbishments of the six nuclear units.

In October 2020, the project reached an important milestone as workers have completed the preparations to begin the major component replacement with the successful installation of protective shielding and 16 bulkheads, weighing over seven tons each, to isolate Unit 6 from the operating units.

Energy Development in Canada

Total investment in Energy: **17 projects at $75.6 billion**

Generation
- 14 projects
- $72.2 billion

$43.7 billion	$25.8 billion	$3.4 billion	$2.2 billion	$0.5 billion
9 projects	2 projects	3 projects	2 projects	1 project
Hydroelectric	Nuclear	Transmission	Natural Gas	Solar


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brucepower.com

Photos: OPG

3 Darlington Nuclear Refurbishment

$12.8 billion

2020 Rank: 3

Location: Clarington, Ontario

Owner: Nalcor Energy; Ontario Power Generation

Project/Construction Manager: Aecon Group Inc./SNC-Lavalin JV (execution phase of the retube and feeder replacement)

Engineer: Wood (consulting)

Contractor: Generation: Andritz Hydro Canada; Astaldi Canada; Barnard-Pennecon JV

Transmission: GE Energy (formerly Alstom Grid Canada and Alstom Renewable Power Canada); Andritz Hydro Canada; H.J. O'Connell Construction; Valard Construction

Other Key Players: GE Power; ABB; Deloitte; Kiewit; Black & McDonald; Tetra Tech; BDI Canada; Burns & McDonnell/Modus (Independant Project Oversight); Cameco (calandria tubes and annulus spacers); Alstom AA6Power & Transport Canada Inc. (turbine generator refurbishment); Hatch (engineering services); Armtec; Comtech (Project Control Consultant Services); Golder

Supplier: DECAST Ltd.; Laker Energy (nuclear components); Nu-Tech Precision Metals (calandria tubes)

Legal: Blake, Cassels & Graydon; Torys (acting for the owner)

Funding: Public

Substantial Completion: 2026

The commencement of the execution phase marks the joint venture's (JV) successful delivery of the definition phase (2012-2016) of the project, which included the construction of a full-scale reactor mock-up facility to simulate key elements of the refurbishment work and the testing of specialized tooling and to help prepare a comprehensive estimate and schedule for the project.

A $35-million reactor vault mock-up and re-tube and feeder replacement (RFR) was completed as part of the preliminary phase of the refurbishment project. Led by SNC Lavalin Nuclear (SLN) and Aecon Nuclear, the mock-up helped to train the team for feeder and fuel channel replacements to be undertaken as part of the overall refurbishment project.

The execution phase of the project will involve the replacement of main reactor components using tools and methods that were developed and tested during the project's definition phase, carried out by the JV. Each of the four Darlington Candu reactors will be taken out of service sequentially for approximately three years to allow for the replacement of fuel channels, feeder pipes, calandria tubes and end fittings. The first outage took place in October of 2016, with the first reactor scheduled to be down for 40 months. The overall project is scheduled for 112 months.

In September, work commenced on the refurbishment of Unit 3. Work was originally set to commence in May, however it had to be delayed as a result of the pandemic.

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Credit: Nalcor Energy

4 Muskrat Falls Project

$12.7 billion

2020 Rank: 4

Location: Muskrat Falls, Newfoundland and Labrador

Owner: Nalcor Energy; Emera (Labrador–Island Transmission Link)

Contractor:

- Generation: Andritz Hydro Canada; Astaldi Canada; Barnard-Pennecon JV
- Transmission: GE Energy; Andritz Hydro Canada; H.J. O'Connell Construction; Valard Construction; Pomerleau

Engineer: Nalcor Energy; SNC-Lavalin; Wood (consulting)

Other Key Players: IKC-ONE—Innu Kiewit Constructors: IKC-ONE—Innu Kiewit Constructors: H.J. O'Connell, Neilson, and EBC Inc. (rock and overburden excavation); Hatch (engineering services); Golder; EY (advising gov't.); Aon (risk advisor) (risk/insurance advisor to authority); KPMG (advisory services); EXP (quality control work); CRT Construction (subcontractor for concrete installation); Morrison Hershfield (code); AGAT Labs (analytical testing); Deloitte

Supplier: Lafarge and Holcim Canada (cement); GE (transformers, rotors, and stators); Mammoet; McKeil Marine; Canam Group

Financier: TD Securities and Goldman Sachs (co-lead arrangers)

Legal: Cassels Brock & Blackwell (Government of Canada); Dentons (advisor to owner); Fasken Martineau DuMoulin (finance counsel to Nalcor); Gowling WLG (counsel to Emera); McCarthy Tétrault (TD Securities/Goldman Sachs); Borden Ladner Gervais (legal advisor)

Funding: Public/Private

Substantial Completion: 2021

Nalcor Energy leads this development, which includes construction of an 824-megawatt hydroelectric generating facility at Muskrat Falls on the lower Churchill River in Labrador and more than 1,600 kilometres of associated transmission lines and infrastructure that will deliver electricity to Newfoundland and Labrador.

The Government of Newfoundland and Labrador sanctioned the Muskrat Falls Project in December 2012, and construction of the project began in January 2013. Construction has started as planned on all major work sites for the project, including Muskrat Falls, Soldiers Pond, Churchill Falls, the Strait of Belle Isle, and the transmission routes.

Once completed, the project will provide sustainable energy production for residential, commercial, and industrial growth throughout Newfoundland and Labrador in the coming decades.

The Muskrat Falls project reached a major milestone in 2020, with first power flow from Muskrat Falls, as the first unit was successfully synchronized with the electricity grid in Labrador. Power was able flow from units 1 and 2 by the end of 2020, with units 3 and 4 coming online in 2021.

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Photos: Metrolinx

5 Eglinton Crosstown LRT

$11.996 billion

2020 Rank: 5

Location: Toronto, Ontario

Owner: Metrolinx

DBFM Team: Crosslinx Transit Solutions—ACS Infrastructure Canada, Aecon, EllisDon, SNC-Lavalin, and Dragados Canada

Contractor: Design-Build JV: Aecon Infrastructure Management, Dragados Canada, EllisDon, and SNC-Lavalin Constructors (Pacific)

Engineer: Jacobs and 4 Transit (WSP, Hatch, and Parsons) (consulting engineer, technical advisor, construction oversight); AECOM (consulting engineer, preliminary planning/study, design); Wood (consulting)

Architect: Station Architects; IBI Group; NORR Limited Architect & Engineers; DIALOG; Daoust Lestage

Other Key Players: AECOM (consulting engineer, preliminary planning/study, design); Aon (risk advisor); Arup (preliminary design work); BTY Group (independent certifier); Caterpillar; Entro; Entuitive (structural eng. consultant); EY (advising gov't.); EXP (instrumentation and monitoring); Golder; Hanscomb (preliminary and concept designers' cost consultant for 7 stations); Infrastructure Ontario; INTECH Risk Management (insurance advisor); McCormick Rankin; Munro (concrete); Obayashi Canada; Kenny Construction; Kenaidan Contracting; Technicore (contractors); URS/Parsons JV (systems design); WSP (program manager and engineer, GIS); CRH Canada (cement supply); Dufferin Construction (prep work); McMillen Jacobs Associates (independent verifier); Mott MacDonald (track design review and tunnel construction management); Englobe (geotechnical studies); CIMA+ (traffic mgmt. and road safety audits); Morrison Hershfield (transit operations and maintenance advisory services); GHD (traffic mgmt., site civil support); AGAT Labs; Comtech (consulting services); Deloitte; Geosolv

Supplier: Bombardier (vehicle); DECAST Ltd. (precast tunnel liner segments); CRH Canada (cement); Canam Group (steel fabricator)

Financiers/Banks: National Bank Financial and Scotiabank Global Banking and Markets (underwriters); Alberta Treasury Branches; Caisse Centrale Desjardins; Bank of Nova Scotia; Bank of Tokyo-Mitsubishi UFJ; and Toronto-Dominion Bank (mandate lead arrangers); BMO Capital Markets (financial advisor)

Legal: Blake, Cassels & Graydon (Metrolinx legal advisor); Fasken Martineau DuMoulin (advising lenders to consortium); Borden Ladner Gervais (legal advisor); DLA Piper (Canada); Norton Rose Fulbright

Funding: P3

Substantial Completion: 2022

This light-rail transit line will run along Toronto's Eglinton Avenue between Mount Dennis (Weston Road) and Kennedy Station. Part of the Government of Ontario's light-rail transit plan for the city, this 19-kilometre corridor will include an 11-kilometre underground portion between Keele Street and Laird Drive. When running at street level, the line will carry passengers in dedicated right-of-way transit lanes separate from regular traffic with priority signaling at intersections. Travelling at an average speed of 28 km/h, it will link to 54 bus routes, three subway stations, and various GO Transit lines. The capacity of the LRT vehicles is 15,000 passengers per hour per direction, with the flexibility to easily remove or add cars. Projected ridership is 5,400 passengers per hour in the peak direction by 2031.

Steady progress was made across the entire project in 2020 despite a legal battle between owner Metrolinx and the Crosslinx Transit Solutions consortium building the project. In February, it was also announced that the delivery of the completed project would be delayed, shifting the date of substantial completion from September 2021 to sometime in 2022.

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Credit: Metrolinx

6 Ontario Line

$10.9 billion

NEW

Location: Toronto, Ontario

Owner: Metrolink

Project Manager: Infrastructure Ontario

Other Key Players: Aon (risk advisor); Golder (geotechnical studies); Hanscomb (cost consultant); EY (mgmt. consultant); Jacobs; Comtech; HDR (technical advisory services); Hatch; Wood; Entuitive; WSP (TTC Operators representative)

Suppliers: DECAST

Funding: Public

Substantial Completion: 2028

The Ontario Line is a 15.5-kilometre stand-alone rapid transit line that will connect the Ontario Science Centre to Exhibition/Ontario Place. Over half of the route is planned to run underground through new tunnels, with the remainder running along elevated and at-grade rail corridor sections of track. Fifteen stations are proposed, with numerous connections to the broader transit network, including GO Transit rail services, the Toronto Transit Commission's subway Lines 1 and 2, the future Line 5 (Eglinton Crosstown LRT), as well as numerous bus and streetcar routes.

The Ontario Line is one of four priority transit projects announced by the Province in 2019 for the Greater Toronto and Hamilton Area. Planning is underway for all four subway projects and procurements for the subway program are being staged to ensure each project is delivered successfully.

In June 2020, a Request for Qualifications was issued for the Southern Civil, Stations, and Tunnel project, one of three P3 contracts to be issued in the delivery of the Ontario Line.

Funding Source Breakdown

Sector	Total Investment	Federal	Provincial	Municipal	Private
Energy	75.6 billion	3.5 billion	50.7 billion	–	21.4 billion
Transit	106.1 billion	10.6 billion	81.4 billion	11.1 billion	3.0 billion
Transportation	27.1 billion	9.8 billion	13.2 billion	2.0 billion	2.1 billion
Buildings	33.6 billion	10.0 billion	20.0 billion	0.6 billion	3.0 billion
Water/Wastewater	7.9 billion	1.0 billion	1.4 billion	5.5 billion	–
Remediation	2.7 billion	2.7 billion	–	–	–
Communications	0.8 billion	–	0.8 billion	–	–
2021 Top100	**253.8 billion**	**37.6 billion**	**167.5 billion**	**19.2 billion**	**29.5 billion**

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Photos: BC Hydro

7 Site C Clean Energy Project

$10.7 billion

2020 Rank: 6

Location: Near Fort St. John, British Columbia

Owner: BC Hydro

DB(F)OM Team (Site C accommodation lodge): ATCO Two Rivers Lodging Group—ATCO Structures & Logistics Ltd. and Bird Design Build Construction Inc.

Contractor: Peace River Hydro Partners—ACCIONA Infrastructure Canada, Petrowest Corp., and Samsung C&T Canada (main civil works construction)

AFDE Partnership—Aecon, Dragados, Flatiron, EBC (spillways civil works)

Allteck Line Contractors Inc. (transmission line, Site C to Peace Canyon generating station)

Engineer: Klohn Crippen Berger and SNC-Lavalin (engineering and design – dam and reservoir); Tetra Tech; BGC Engineering; WSP; R.F. Binnie & Associates; Lasalle | NHC (engineering and design – other); Associated Engineering (owner's team – design); Wood (consulting)

Environmental Services: Golder (EA and permitting, archaeology, agriculture, fisheries and aquatics, socio economics); Pathfinder Endeavours Ltd.; Keystone Wildlife Research Ltd.; McMillen; RWDI Air Inc.; Knight Piésold; Industrial Forestry Service Ltd. (environmental and regulatory work); Morrison Hershfield (project review for EA authority); Hemmera

Other Key Players: AL Sims and Sons (road improvements); Aon (risk advisor); BTY Group (cost consultant); Hatch (environmental permitting); KPMG (lead commercial advisor); McElhanney (engineer, materials testing, environment, and survey); McMillen Jacobs Associates (dam/tunnel analyses: design of tunnel support); Morgan Construction and Environmental (north bank); Paul Paquette & Son's Contracting (south bank); Kasian Architecture Interior Design and Planning Ltd.; WSP; ATCO Two Rivers Lodging Group (worker accommodation lodge); Paul Paquette and Son's Contracting Ltd. (south bank clearing); Morgan Construction and Environmental Ltd. (north bank site preparation); Englobe (quality assurance services); Colliers Project Leaders; AGAT Labs; Hanscomb (cost consultant); Deloitte (risk advisor)

Suppliers: Voith Hydro (turbine and generator); ATB Riva Calzoni Hydro Canada Inc. (hydromechanical equipment); Advanced Precast

Legal: Dentons Canada (owner's counsel); Borden Ladner Gervais (legal advisor); Bennett Jones (acted for successful proponent)

Funding: Public

- **Provincial** BC Hydro: $10.7 billion

Substantial Completion: 2024

This hydroelectric earthfill dam on the Peace River includes several components: an earthfill dam 1,050 metres long and 60 metres high, a 1,100-MW generating station and associated structures, an 83-kilometre-long reservoir, realignment of six sections of Highway 29, and two 77-kilometre transmission lines along an existing transmission line right-of-way, connecting Site C to the existing provincial power grid.

The project's rigorous environmental assessment was completed in October 2014 and approval granted after numerous consultation meetings, presentations, and events with the public, Aboriginal groups, and local governments. Preliminary engineering work has been done, including the development of plans for construction access roads, clearing plans, construction materials, geotechnical shoreline investigations, and reviews of highway realignment plans.

In 2017, the new NDP-Green coalition government called for an independent review of the Site C project by the B.C. Utilities Commission to determine if it should be continued, delayed, or cancelled outright. As a result of the delays caused by the investigation, BC Hydro president and CEO Chris O'Riley announced that the project cost had risen by $610 million. The total forecast project cost now sits $8.945 billion, with the additional project cost set aside as a contingency fund.

In the fall of 2020, the issue of project cancellation was raised again during the provincial election, with Premier John Horgan restating that, because of the estimated $4 billion spent prior to his government taking power, proceeding with the project was the most responsible action.

In October, the Peace River was diverted around the Site C dam site. This diversion will now be in place until construction is complete.

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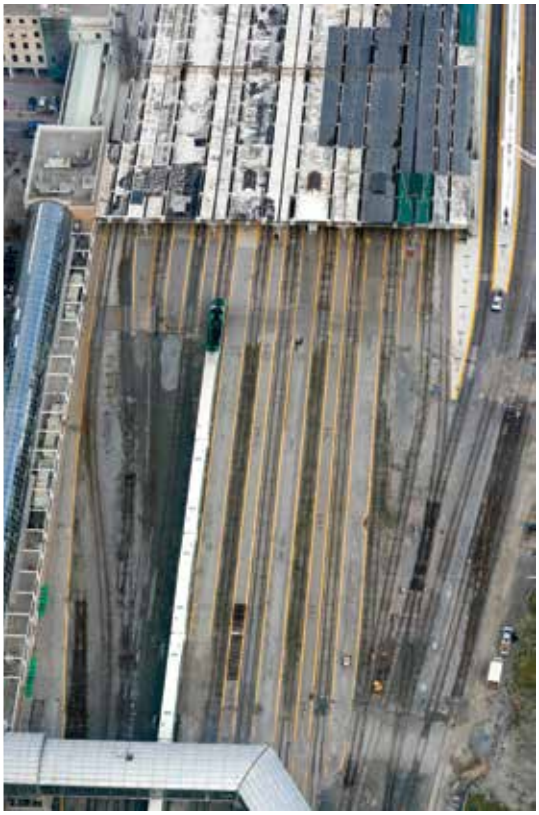

8 GO Expansion Projects – Early Works

$10.513 billion

2020 Rank: 7

Location: Greater Toronto and Hamilton Area

Owner: Metrolinx

DBF Team (Highway 401 Rail Tunnel): Toronto Tunnel Partners

- Applicant Lead: EllisDon Capital Inc. and STRABAG Inc.
- Construction: EllisDon Civil Ltd. and STRABAG Inc.
- Design: WSP Canada Inc., Dr. Sauer & Partners, Amec Foster Wheeler (Wood)
- Financial Advisor: EllisDon Capital Inc. and STRABAG Inc.

DBF Team (Davenport Diamond Grade Separation project): Graham Commuter Rail Solutions

- Applicant Lead: Graham Capital Partners LP and Gracorp Capital Ltd.; Graham Construction and Engineering LP
- Construction: Graham Construction and Engineering LP
- Design: LEA Consulting Ltd. as Design Lead; EXP; International Bridge Technologies; Brown & Storey Architects Inc.
- Financial Advisor: Graham Capital Partners LP

Contractor: EllisDon (Dufferin/Queen bridge); Kenaidan/Cole Engineering (rapid pedestrian tunnels)

Engineer: Wood (consulting); Parsons; Hatch; AECOM

Other Key Players: 4-Transit JV (technical advisory services): Hatch, Parsons, WSP; CIMA+ (utilities relocation); Morrison Hershfield (owner's technical advisors team (sub-consultant to Gannett Fleming); Comtech (program/project consulting); Jacobs (program mgmt.); A.W. Hooker Associates Ltd. (cost consultant); Golder (environmental services); INTECH Risk Management, CIMA+ ; Deloitte (transaction advisor); Aon (risk advisor); Comtech (mgmt. consulting services); Arcadis (environmental services); DECAST; Hemmera; Entuitive

Legal: Borden Ladner Gervais

Funding: Public

Substantial Completion: 2025

The Early Works portion of the GO Expansion project is one of three blocks of works to be done to accommodate two-way, all-day transit throughout the GTHA corridor. According to the Fall 2018 business case, this work represents: "including both on-corridor and off-corridor civil works such as new track, station improvements, grade separations and utility relocations, that are either enabling infrastructure for future service increases, needed state of good repair improvements or components that can be delivered early, to reduce schedule risk for the program."

There are over 50 individual projects included in the early works program, including 40 smaller projects delivered as Design-Build or Design-Bid-Build, along with 12 larger projects delivered as Build-Finance and Design-Build-Finance. The latter includes the Davenport Diamond Rail Grade Separation Project, for which the winning bidder was selected in July 2019, and the Highway 401 Rail Tunnel, which began construction in March 2019, and the Stouffville Corridor Stations Improvement project.

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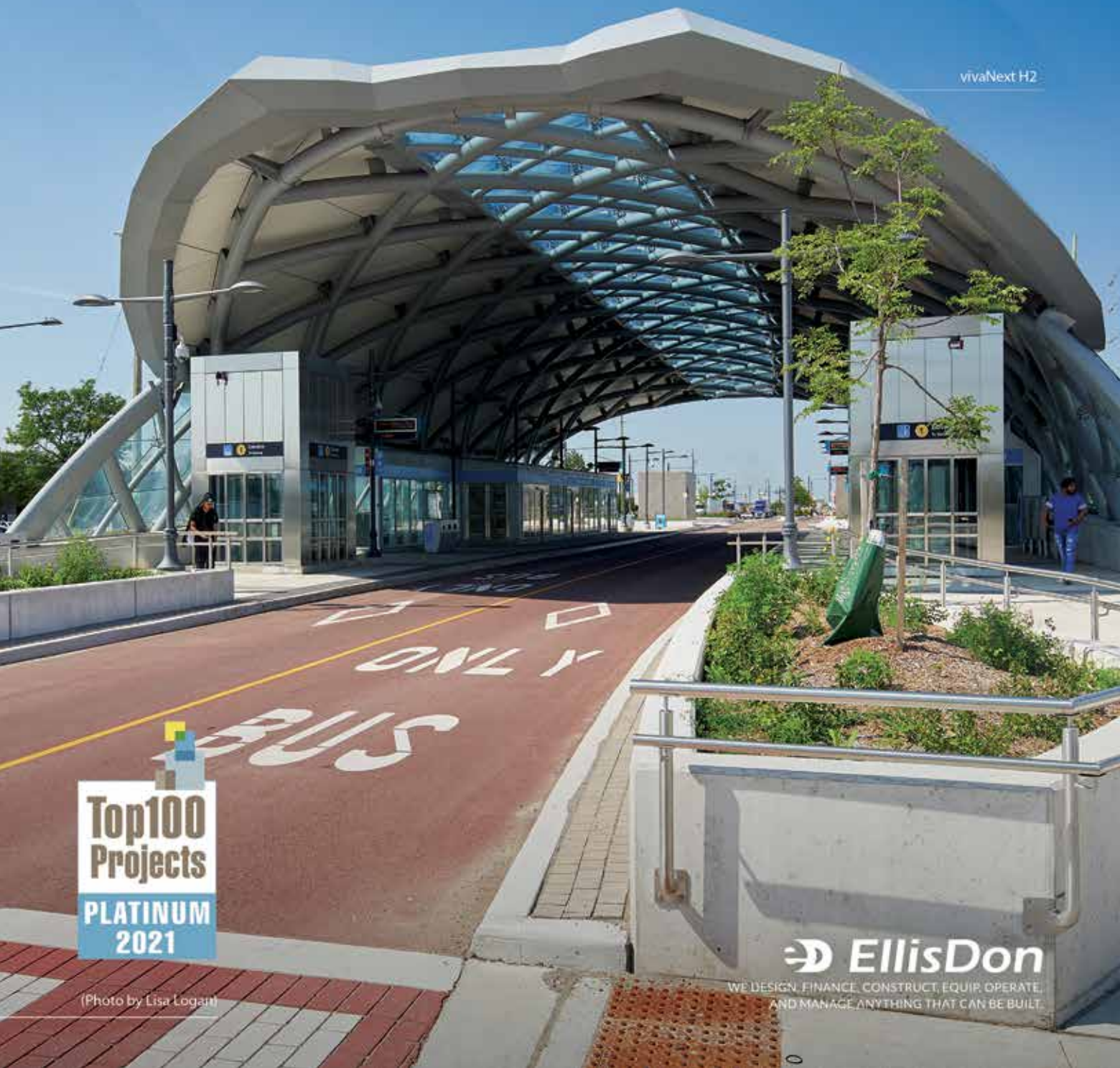

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Top100 Projects
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(Photo by Lisa Logan)

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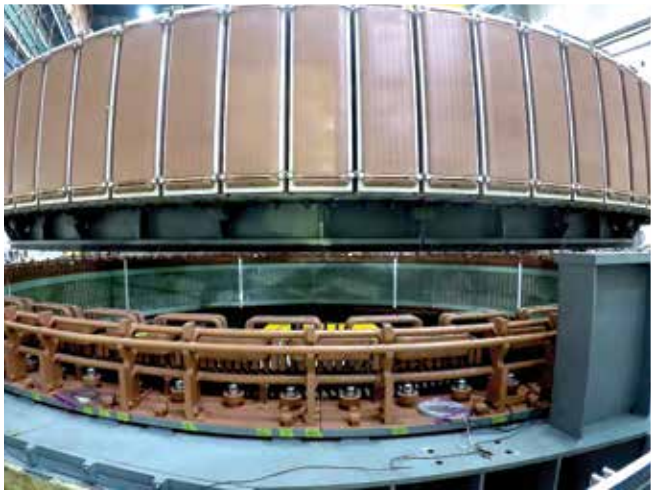


Photos: Keeyask Hydropower Limited Partnership

9 Keeyask Hydroelectric Project

$8.7 billion

2020 Rank: 8

Location: Lower Nelson River, Manitoba

Owner: Keeyask Hydropower Limited Partnership

Project/Construction Manager: Manitoba Hydro (acting as project manager and will operate plant on behalf of KHLP once completed); Tetra Tech (construction management support)

Contractor: BBE Hydro Constructors Ltd.—Bechtel, Barnard, and EllisDon

Engineer: SNC-Lavalin; Hatch (engineer); KGS Group; AECOM; Wood (consulting)

Environmental Services: Arcadis Canada Inc.

Other Key Players: Aon (risk/insurance advisor to authority); Golder (info mgmt. solution services); Hanscomb (owner's cost consultant and special advisor); Boston Consulting Group (capital project analysis); Englobe (quality assurance inspection services); WSP (construction surveying); Dillon Consulting (engineering and environmental services)

Supplier: Voith Hydro

Legal: Fasken Martineau DuMoulin LLP (advised Manitoba Hydro); Borden Ladner Gervais (legal advisor)

Funding: Public

Substantial Completion: 2021

This 695-megawatt hydroelectric generating station will be a source of renewable energy, producing an average of 4,400 gigawatt-hours of electricity each year. The scope of work includes rock excavation, concrete for the powerhouse and spillway, earthen structures, electrical and mechanical work, and the construction and removal of temporary cofferdams needed to manage the river flow during construction.

Energy produced will be integrated into Manitoba Hydro's electric system for use in Manitoba and for export. Keeyask will be Manitoba's fourth-largest generating station. The design for the project agreement is based on a partnership model between Manitoba Hydro and the four Keeyask Cree Nations, including the Tataskweyak Cree Nation, War Lake First Nation, Fox Lake Cree Nation, and York Factory First Nation.

A work disruption and subsequent road blockade, both due to the pandemic, delayed some construction works on the project in the spring. However, with its first generators still having come online in fall 2020, there were no significant project delays expected.

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Credit: Hydro-Québec

10 Romaine Complex

$6.5 billion

2020 Rank: 9

Location: Havre-Saint-Pierre, Quebec

Owner: Hydro-Québec

Contractor:

- Romaine-1: Hamel-CRT, Cegerco, Construction Proco, a consortium of Cegerco and Fernand Gilbert, Groupe Hexagone, Pomerleau, a consortium of J. Euclide Perron and Inter-cité Construction, a consortium of Neilson & EBC Construction, LAR Machinerie and Canmec Industriel.
- Romaine-2: RSW/SNC-Lavalin
- Romaine-3: Hamel-CRT, EBC-Neilson, Canmec Industriel, Construction Proco, Couillard Construction, Groupe Hexagone, Groupe LAR, COH, HMI Construction, Neilson-EBC, Cégerco, Nordex, Consortium ATA
- Romaine-4: EBC Inc.; Pomerleau

Engineer:

- Romaine-1: AECOM
- Romaine-2: Groupe RSW and SNC-Lavalin
- Romaine-3: AECOM

Other Key Players: Tetra Tech (design and construction support); WSP (EA and access roads); CRT Construction (excavation and concreting, road and dam construction); GHD (geotechnical and material technology); CIMA+ ; Englobe (QA inspection services); EXP (Building plans and specifications and addition/modifications to positions (substations); Deloitte

Supplier: Les Excavations Marchand et Fils (cement); Voith Hydro (turbine for Romaine-1); GE Energy (turbine for Romaine-3)

Legal: Borden Ladner Gervais

Funding: Public

Substantial Completion: 2022

This 1,550-MW hydroelectric complex on the Romaine River involves four generating stations and reservoirs spaced over 150 kilometres along the Romaine River, located on the North Shore of the Gulf of St. Lawrence. Each station will have an associated rockfill dam, two generating units, and a spillway. One permanent access road 150 kilometres long will also be built as part of the project linking the generating station to the regional highway.

Hydro-Québec began its work in summer 2009. Romaine-2 was commissioned in 2014, followed by Romaine-1 in 2015, and Romaine-3 in 2017. Work on Romaine-4 is underway, and includes building of all the structures associated with a new power generation facility: generating station, dam, diversion, spillway, tailrace canal, headrace tunnel, etc. Excavation of the spillway and water intake, along with the temporary diversion structure, were completed in 2018.

Romaine-4 is expected to add 245-Megawatts of power to the Quebec grid in 2021.

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Photos: Caisse

11 Réseau express métropolitain

$6.32 billion

2020 Rank: 10

Location: Montreal, Quebec

Owner: Caisse de dépôt et placement du Québec

Contractor:

- EPC contract: Groupe NouvLR— SNC Lavalin Grands Projets Inc.; Dragados Canada Inc.; Groupe Aecon Québec Ltée; Pomerleau Inc.; EBC Inc.
- RSSOM Contract: Groupe des Partenaires pour la Mobilité des Montréalais—Alstom Transport Canada Inc.; SNC-Lavalin O&M Inc.
- Conception: SNC Lavalin Inc.; Aecom Consultants Inc.

Engineer: CIMA+ ; Hatch; Parsons (consulting)

Design: Lemay; Bisson Fortin; Perkins + Will; Provencher Roy

Other Key Players: Hanscomb (advisory services for design, engineering, and costing); EXP (feasibility and diligence studies); WSP (geotechnical); Aon (risk advisor); GHD (geotechnical/testing); INTECH Risk Management; Deloitte (due diligence advisor); Englobe; Canam Group; Jacobs (independent certifier)

Legal: Norton Rose Fulbright (advising CDPQ Infra); Lavery de Billy (advising CDPQ Infra); Borden Ladner Gervais (advised NouvLR); Davies Ward Phillips & Vineberg (advised PMM); Stein Monast (advised the Quebec Government); Fasken Martineau DuMoulin (advisor for ARTM)

Funding: Public-Private

- CDPQ Infra – $2.95 billion
- Government of Quebec – $1.28 billion
- Government of Canada (through the Canada Infrastructure Bank) – $1.28 billion
- Hydro Quebec – $295 million
- ARTM – $512 million

Substantial Completion: 2024

The Réseau express metropolitain (REM) will be a new integrated network linking downtown Montreal, South Shore, West Island, North Shore, and the airport. Once completed, the REM will be the fourth largest automated transportation system in the world after Singapore (82 kilometres), Dubai (80 km) and Vancouver (68 km). For the metropolitan area, the REM also represents the largest public transportation infrastructure since the Montreal metro, inaugurated in 1966.

Combined with existing transportation networks (metro, trains and buses), the REM opens a new era of public transit development in the Greater Montreal area:

- 27 stations—67 kilometers—20 hours a day—7 days a week
- This constitutes Québec's first "public-public" partnership project

Construction of the line began in April of 2018, following the contract award two months earlier.

Despite construction delays due to COVID-19, progress has been made along the entire length of the project. This includes the construction of a new North Shore bridge using the counterweight launching methodology.


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12 Gordie Howe International Bridge

$5.7 billion

2020 Rank: 11

Location: Windsor, Ontario to Detroit, Michigan

Owner: Windsor-Detroit Bridge Authority (WDBA)

Project/Construction Manager: Deloitte

DBFOM Team: Bridging North America—ACS Infrastructure Canada Inc.; Fluor Canada Ltd.; Aecon Concessions; RBC Dominion Securities Inc.; AECOM; Carlos Fernandez Casado S.L/FHECOR Ingenieros Consultores, S.A.; Moriyama and Teshima Architects; Smith-Miller + Hawkinson Architects LLP; Dragados Canada Inc.; Aecon Infrastructure Management Inc.; Turner Construction Company; Aecon O&M, a division of Aecon Construction Group Inc.; DBI Services, LLC; URS Federal Services, Inc. (AECOM)

Engineer: Morrison Hershfield (PDC consultant); Davis Langdon (an AECOM company); Parsons (owner's engineer); Wood (consulting)

Environmental Services: Jacobs (environmental monitoring)

Other Key Players: EY (advising team); Golder (geotech./foundation engineering); Hanscomb (owner's cost consultant and special advisor); Kasian (PDC team); LeighFisher (lender's technical advisor); INTECH Risk Management (insurance advisor); CIMA + (transmission relocation design); WSP (environmental services); Aon (risk advisor); Parsons (bridge technical advisor); Tetra Tech; Rider Levett Bucknall; A.W. Hooker Associates Ltd. (cost consultant); Canam Group; Englobe; EXP (engineering and testing services)

Supplier: Entro (signage and wayfinding)

Legal: Fasken Martineau DuMoulin (transaction advisor); Blake, Cassels & Graydon (legal advisor to the proponent)

Funding: P3

Substantial Completion: 2024

This crossing is the largest and most ambitious binational border infrastructure project along the Canada–United States border. It includes a new six-lane bridge across the Detroit River, associated border inspection plazas, and connections to the freeway systems in Ontario and Michigan. This project will provide a new alternative crossing for this trade corridor.

The Canada-Michigan Crossing Agreement, signed in June 2012 by Canada and Michigan, provided a framework for the construction, financing, operation, and maintenance of the new publicly owned bridge. The agreement called for the establishment of both a crossing authority, known as the WDBA, to deliver, procure, and fund the project through a P3 and an international authority to oversee the project procurement and the compliance with the agreement.

Both the formation of the WDBA (a Canadian Crown corporation) and the international authority were announced in July 2014.

Work on all four components of the project is being conducted simultaneously: Canada and U.S. Points of Entry, the Michigan I-75 Interchange, and the bridge itself. Current work including earthworks and utility locations at the Points of Entry and the start of construction on the tower footings.

13 Hurontario LRT

$5.632 billion

2020 Rank: 16

Location: Mississauga and Brampton, Ontario

Owner: Metrolinx

Project Manager: Infrastructure Ontario

DBFOM Team: Mobilinx Hurontario General Partnership

- Applicant Lead: John Laing, Astaldi, Hitachi, Transdev, Amico Concessions, Salini Impregilo
- Construction: Astaldi, Hitachi, Amico, Bot, Salini Impregilo
- Design: IBI Group, Hitachi, Morrison Hershfield, Arcadis, Daoust Lestage, EXP
- Operation Maintenance & Rehabilitation Provider: Transdev, Hitachi, Astaldi, Salini Impregilo
- Financial Advisor: National Bank, HSBC

Engineer: SNC-Lavalin (project lead); Steer Davies Gleave (preliminary engineering)

Other Key Players: DIALOG (urban design); Dufferin Construction; Golder (preliminary geotechnical services); Hanscomb (preliminary design engineer's cost consultant); Hatch; LEA Group (ITS); Aon (owner advisor and construction insurance broker); AECOM (owner's representative/technical advisor); EY (financial and transaction advisory); Morrison Hershfield (transit O&M advisors); AGAT Labs; Comtech (program/project consulting); DECAST; RLB; Jacobs (program mgmt.); INTECH Risk Management; Arcadis (environmental services); Deloitte (financial advisor); Englobe; WSP (QA)

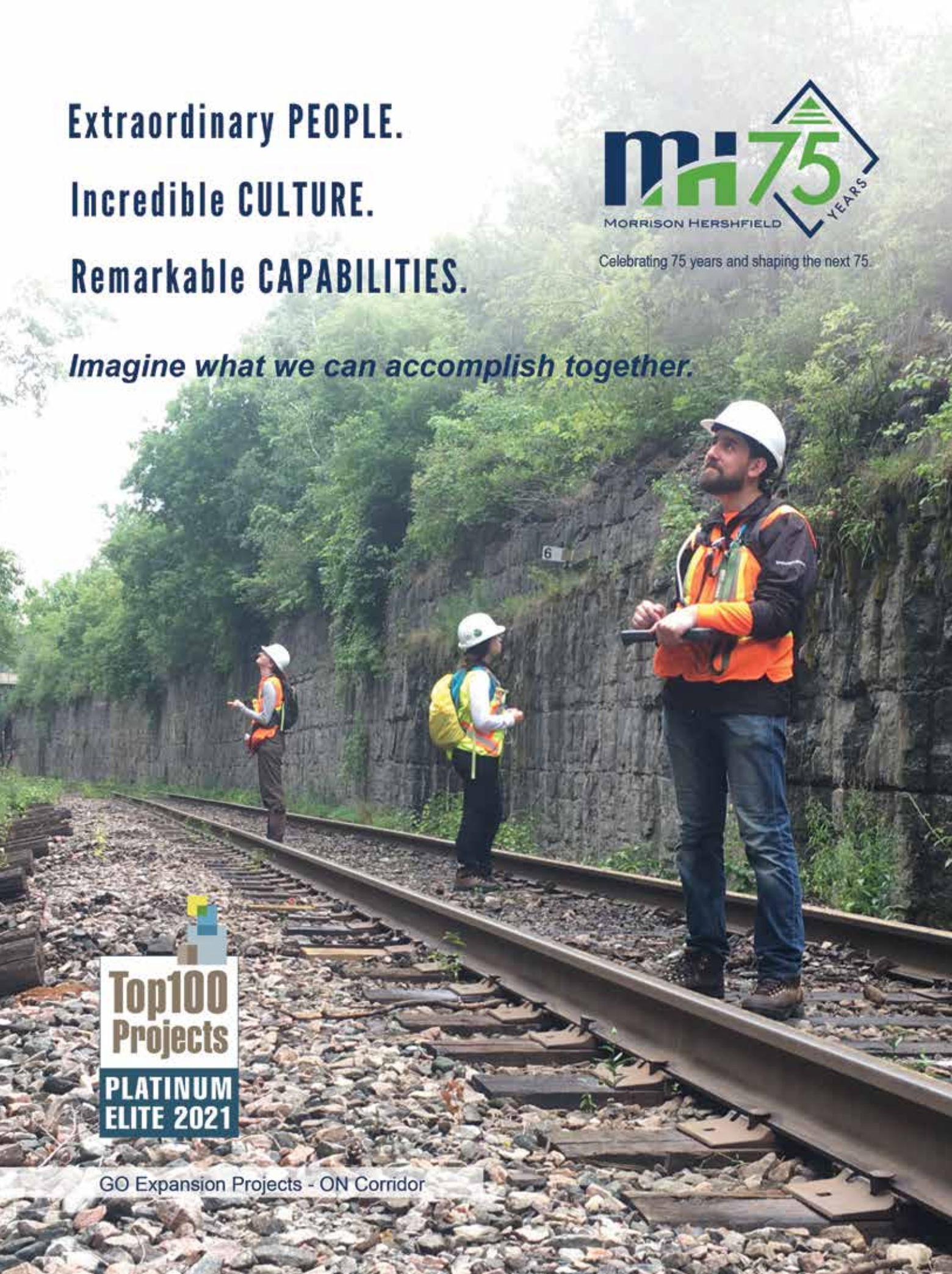
Legal: Borden Ladner Gervais (legal advisor); Torys (acted for lender); McMillan LLP (for the proponent)

Funding: Public

Substantial Completion: 2024

The Hurontario Light Rail Transit (LRT) project will bring 18 kilometres of fast, reliable, rapid transit to the cities of Mississauga and Brampton along the Hurontario corridor. New, modern light rail vehicles will travel in a dedicated right-of-way and serve 19 stops with connections to GO Transit's Milton and Lakeshore West rail lines, Mississauga MiWay, Brampton Züm, and the Mississauga Transitway BRT. Funded through a $1.4 billion commitment from the Province of Ontario, the Hurontario LRT is a signature project of the Moving Ontario Forward plan.

Early works on the new transit project are underway, with median removal and utility relocations being the key tasks to be undertaken before rail and station construction begins.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PLATINUM ELITE 2021
GO Expansion Projects - ON Corridor

14 Southwest Calgary Ring Road

$5 billion

2020 Rank: 12

Location: Calgary, Alberta

Owner: Alberta Transportation

DB(F)O Team: Mountain View Partners—Meridiam, Kiewit, Ledcor, Connor Clark and Lunn (project lead); Meridiam (financing lead); Kiewit, Graham, Ledcor (design-construction lead); Alberta Highway Services Ltd. (O&M lead)

Contractor: KGL Constructors (Elbow River bridge)

Engineer: Jacobs (owner's engineer); COWI North America (concept design of highway interchange structures); ISL Engineering and Land Services (owner's engineer); Tetra Tech (owner's engineer); Wood (consulting); Parsons (consulting)

Other Key Players: EY; LeighFisher (lenders technical advisor); WSP (functional planning and preliminary eng. services); Aon (risk advisor); INTECH Risk Management (insurance advisor); Golder; Englobe (concrete quality control); EXP (geotechnical); ARUP (technical advisory services); Morrison Hershfield (structure design review); Parsons; GHD (dust & air monitoring); McElhanney; Deloitte; Hemmera; Canam Group

Legal: Gowling WLG (counsel to Alberta Transportation); Borden Ladner Gervais (legal advisor); Torys (lenders to MVP); Osler

Funding: P3

Substantial Completion: 2022

In May 2015, a historic land transfer between Alberta and the Tsuu T'ina Nation was finalized, providing certainty that the construction of the southwest segment of the Calgary Ring Road could go forward. This will extend from Lott Creek Boulevard on Glenmore Trail/Highway 8 south to Macleod Trail (Highway 2A) and is approximately 21 kilometres long. The project will also include approximately 10 kilometres of connector road upgrades.

In June 2020, the provincial government announced the project had reached 80 per cent completion. In October, a 12-kilometre portion of the Southwest Calgary Ring Road, from Sarcee Trail to Fish Creek Boulevard, opened to traffic

Photos: City of Calgary

15 Green Line LRT

$4.87 billion

2020 Rank: 13

Location: Calgary, Alberta

Owner: City of Calgary

Engineer: Hatch; Wood (consulting); Tetra Tech (design)

Architect: Sturgess Architecture, IBI Group (consulting)

Other Key Players: Colliers Project Leaders; CIMA +; RLB; A.W. Hooker Associates Ltd. (cost consultant); INTECH Risk Management; Deloitte (pre-procurement assessment); Aon (risk advisor)

Legal: Blake, Cassels & Graydon (advising the City of Calgary); Borden Ladner Gervais

Funding: Public

Substantial Completion: 2027

The Green Line Light Rail Transit system will add 28 stations and 46 kilometres of track to Calgary's existing LRT system. The line will run from 16th Avenue north to 126 Avenue SE, with an underground tunnel for the downtown portion of the system. The initial plans were for the Green Line to be constructed as a bus-only transitway, but was later converted to LRT as funding became available.

In June 2018, project engineers announced that technical challenges would prevent them from moving forward with plans for a four-kilometre tunnel underneath the Bow River. Then in September 2019, the transportation committee for the City of Calgary informed council that the project budget could expand by up to 10 per cent following a constructability review. In June 2020, Calgary City Council approved the final plans for LRT, which included a new alignment from 16th Avenue N. to Shepard, as well as changes to construction staging.

Green Line Stage 1 will now be built in three stages: Segment 1: Elbow River to Shepard; Segment 2A: 2 Avenue SW station to Elbow River; Segment 2B: 16 Avenue N to north of 2 Avenue SW station

Procurement for the design-build-finance of Stage 1 is underway, with detailed design and construction to begin in 2021.

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For more information on this project: http://www.cpci.ca/en/about_us/project_month/january_2020/

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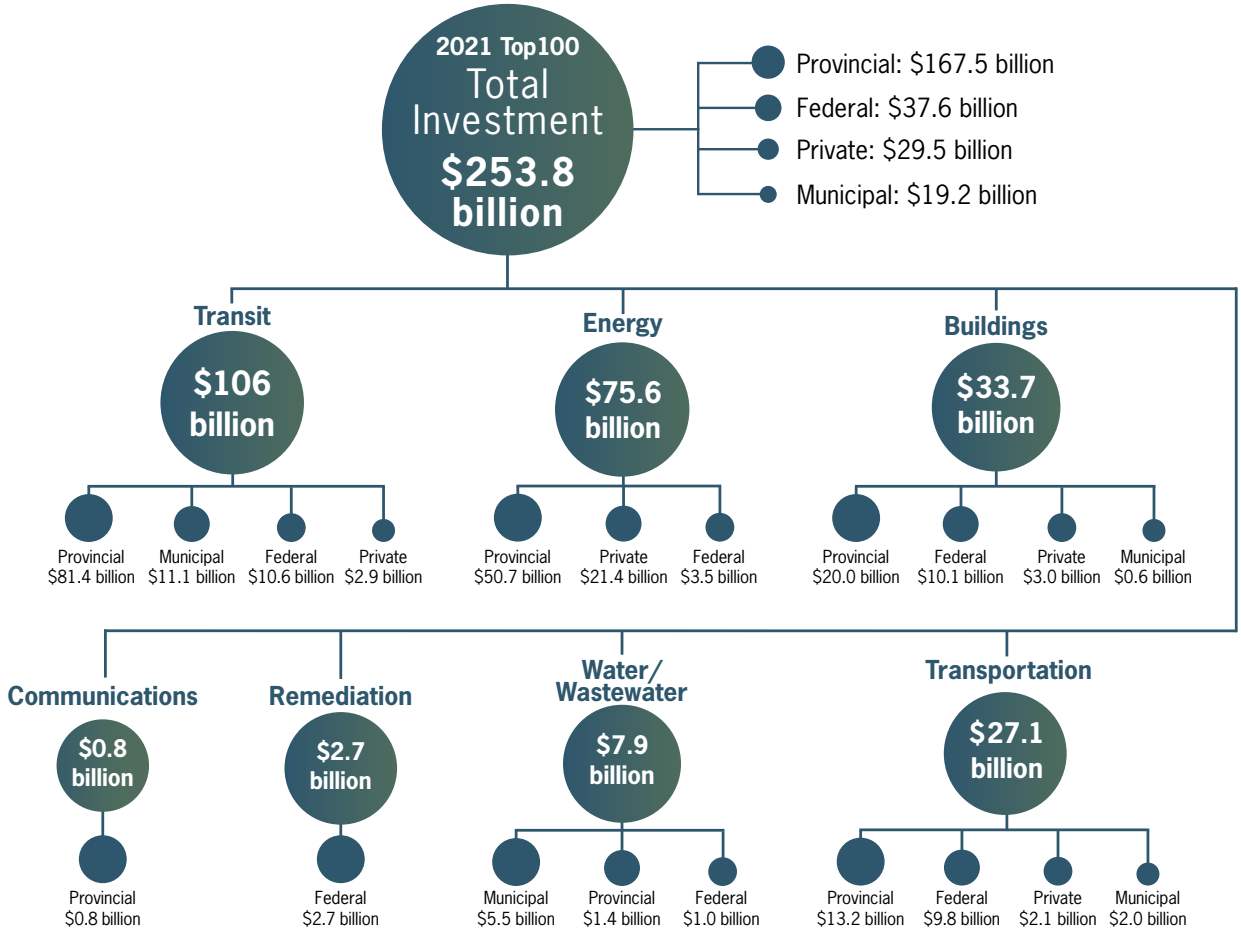

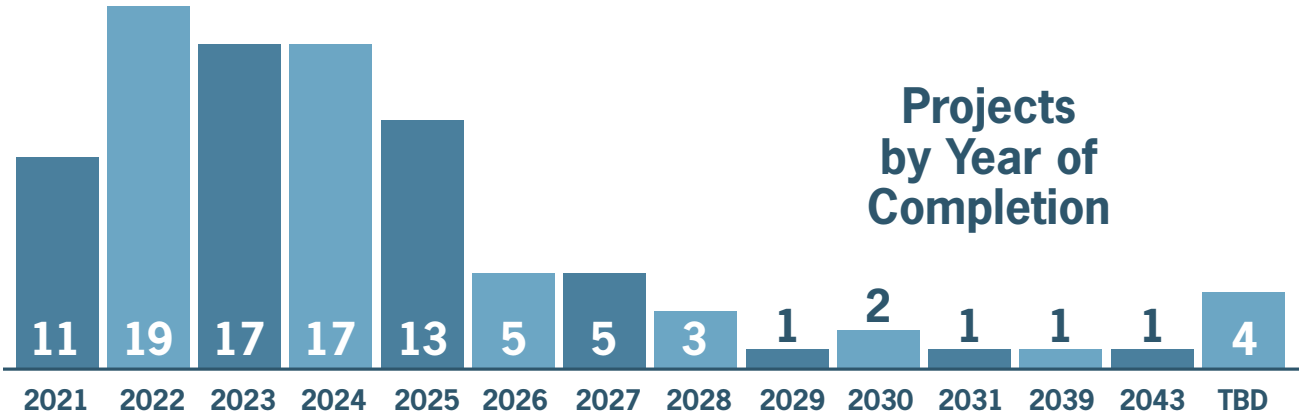

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PLATINUM ELITE 2021	PLATINUM 2021	GOLD 2021	SILVER 2021	BRONZE 2021
20 projects or more	10 to 19 projects	6 to 9 projects	3 to 5 projects	2 projects

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Photos: Government of Canada

16 Parliamentary Precinct Rehabilitation Project

$4.7 billion

2020 Rank: 14

Location: Ottawa, Ontario

Owner: Government of Canada

Project/Construction Manager: PCL/EllisDon (West Block); PCL/EllisDon JV (Centre Block)

Architect: Arcop (WSP)/Fournier Gersovitz Moss & Associates (West Block)

Other Key Players: Turner & Townsend (risk management services); Colliers Project Leaders Inc. and Tiree Facility Solutions (project management support services for Centre Block); Atwell-Morin (northern ventilation towers rehabilitation for Centre Block); Golder; Morrison Hershfield (code consulting); Engineering Harmonics; EY (business case advisor); Aon (risk advisor); Kasian, Moriyama & Teshima Architects (West Memorial Building architectural and interior design); Hanscomb (cost consultant); Englobe

Funding: Public

Substantial Completion: 2027

The Government of Canada is undertaking an extensive rehabilitation of the Parliament Buildings in Ottawa. The West Block and Centre Block will all undergo intensive interior and exterior upgrades throughout the buildings, and extensive work is also being done on the building grounds and support structures.

The West Block, the first scheduled for completion, has included repairs to the exterior masonry, replacement of electrical, mechanical, and life-safety systems, asbestos abatement, window and door replacement, structural reinforcement, and technology upgrades to modern standards.

The original plan was to have parliament move to the West Block in time for the fall session, but the timeline has been adjusted to have MPs move in time for the 2018-19 winter session, scheduled to begin on January 28, 2019. Construction of the Centre Block however, began in the fall of 2018 as scheduled. The Senate Chamber has been moved to the Government Conference Centre.

To date, the Treasury Board has approved an investment of $4.7 billion dollars for the delivery of the Long Term Vision and Plan for the Parliamentary Precinct, of which $3 billion was spent as of March 31, 2018. Included within the approved funding are major projects such as the rehabilitation of the West Block, Visitor Welcome Centre Phase 1, Government Conference Centre, Sir John A Macdonald Building, the Wellington Building, along with the initial spending authority for the rehabilitation of the Centre Block, the East Block, 100 Wellington, and funding for other projects in the Parliamentary Precinct.The work is expected to take until at least 2027, but could be extended as far as 2033.

17 Eglinton Crosstown West Extension

$4.7 billion

NEW

Location: Toronto, Ontario

Owner: Metrolinx

Project Manager: Infrastructure Ontario

Engineer: Parsons (consulting); Morrison Hershfield (consulting); Hatch (consulting)

Environmental Services: WSP (environmental lead)

Other Key Players: Dillon Consulting (technical advisory services); Golder (geotechnical studies); Jacobs (quality mgmt. and risk assessment); Comtech, ARUP (technical advisory services)

Supplier: DECAST

Funding: P3

Substantial Completion: TBD

The Eglinton Crosstown West Extension is an approximately 9.2 kilometre extension of the Eglinton Crosstown LRT (future Line 5), from Mount Dennis to Renforth Drive. Metrolinx is actively collaborating with the GTAA and municipal partners on the proposed alignment from Renforth Drive to the airport, which takes into account the GTAA's plans for a Regional Transit Centre. Tunnelling is one of the first phases of work for the project. A separate advance tunnelling contract will be issued to help move the project forward on an accelerated timeline.

The Eglinton Crosstown West Extension is one of four priority transit projects announced by the Province in 2019 for the Greater Toronto and Hamilton Area. Planning is underway for all four subway projects and procurements for the subway program are being staged to ensure each project is delivered successfully.

The project is being delivered in two separate P3 contracts, although the type of P3 has yet to be determined:

- Advance Tunnelling (RFP issued August 2020)
- Stations and remaining works (procurement dates TBD)

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Credit: City of Ottawa

18 Ottawa LRT – Stage 2

$4.657 billion

2020 Rank: 15

Location: Ottawa, Ontario

Owner: City of Ottawa

DBFM Team: Rideau Transit Group—ACS Infrastructure Canada, SNC-Lavalin Capital, EllisDon

Engineer: McMillen Jacobs Associates (owner's tunnel engineer); Morrison Hershfield (owner's engineer); Golder (owner's engineer team); Parsons; Hatch (design)

Environmental Services: WSP (environmental lead)

Other Key Players: EXP (instrumentation and monitoring); Hanscomb (owner's cost consultant and special advisor); Aon (owner advisor and construction insurance broker); INTECH Risk Management (insurance advisor); AECOM (owner's representative); GHD (testing, inspection, and geotechnical services); Enstoa; SNC-Lavalin; WSP (geotechnical); Dragados (vehicles and systems provider); Deloitte; A.W. Hooker Associates Ltd. (cost consultant); EY (bid advisor); Englobe; EllisDon (O&M)

Supplier: DECAST; Thales (signaling technology)

Legal: Borden Ladner Gervais (legal advisor); Norton Rose Fulbright (advisor for project owner); Osler; Torys (acted for lender); McMillan LLP (for a proponent)

Funding: P3

Substantial Completion: 2023

Ottawa's mayor, council, and representatives from the city's business, tourism, and academic communities officially launched the Ottawa LRT Stage 2 funding request to the federal and provincial governments. Stage 2 will further reduce commute times by adding 19 new stations and 30 kilometres of rail to Ottawa's O-Train system between 2018 and 2023. It was recently confirmed through EA work it can be constructed within the $3-billion budget established in the city's 2013 Transportation Master Plan.

The project will:

- Extend the Confederation Line east from Blair to Orléans, with stations at St.Joseph, Jeanne D'Arc, Orléans Drive, and Place d'Orléans;
- Extend the Confederation Line west to Algonquin College and Bayshore, with stations at Westboro, Dominion, Cleary, New Orchard, Lincoln Fields, Queensview, Pinecrest, Iris, Baseline, and Bayshore; and
- Extend the O-Train to Riverside South and Bowesville, with a new station at Gladstone, and stations at Walkley, South Keys, Leitrim, and Bowesville.

In October 2020, tunnelling work get underway on the three-kilometer Parkway tunnel, which will run between Dominion Station and Lincoln Fields Station underneath the Sir John A. Macdonald Parkway and Byron Linear Park.

19 Blue Line Extension

$3.9 billion

2020 Rank: 17

Location: Montreal, Quebec

Owner: Société de transport de Montréal

Project Manager: ARTM

Engineer: EXP (JV for engineering services); Tetra Tech (owner's engineer)

Other Key Players: AECOM; EY (business case advisor); Englobe

Funding: Public

Substantial Completion: 2026

The Blue Line Extension project will add 5.8 kilometres of track and five new stations to the current 12-station Blue Line, one of four Metro lines that runs through the Greater Montreal Area. The extension will run along Jean-Talon Street, ending at the Galeries D'Anjou shopping mall next to Highway 25.

In 2019, funding support from the federal government was announced, with one-third of the proposed project price ($1.3 billion) allocated. However, two months earlier, it was reported that the cost of the project could escalate by $600 million to $4.5 billion, based on increased expropriation and tax bill costs. But the final cost will not be announced until the final business case is presented by the Société de transport de Montréal (STM). Work is expected to start in the winter of 2021.

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TBM "Alice" from Réseau express métropolitain

1. Finch West LRT (Toronto, ON) 2. Highway 427 Expansion (Toronto, ON) 3. Centerm Expansion (Vancouver, BC) 4. Réseau express métropolitain (Montreal, QC) 5. Eglinton Crosstown LRT (Toronto, ON) 6. Gordie Howe International Bridge (Windsor, ON)

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20 Centre hospitalier de l'Université de Montréal (CHUM) and research centre

$3.63 billion

2020 Rank: 19

Location: Montreal, Quebec

Owner: Centre hospitalier de l'Université de Montréal

Project/Construction Manager: Groupement SLDG, led by SNC-Lavalin

Research Tower DBFM Team: Accès Recherche Montréal—Pomerleau and Verreault, a subsidiary of Dessau.

Hospital DBFM Team: Collectif Santé Montréal—Laing O'Rourke, Obrascón Huarte Lain, Innisfree, and Dalkia Canada

Contractor: EBC Inc.

Engineer: AECOM; Consortium Pageau Morel, BPR Bâtiment, LBHA, and SDK NCK (Research Centre); HH Angus, Pasquin St-Jean, and Groupe SMi International (Hospital); Tetra Tech (mechanical/electrical engineering)

Financiers/Banks: Research Centre: Axium Infrastructure and Meridiam Infrastructure; Hospital: Innisfree (30%), Laing O'Rourke (25%), Obrascon Huarte Lain (25%), Dalkia Canada (20%), and RBC Dominion Securities (underwriter)

Architect: Research Centre: NFOE et Associés, Menkès Shooner Dagenais LeTourneux, Jodoin Lamarre Pratte (sub-consultant), Lemay et Associés, Parkin Architects; Hospital: Cannon Designs, NEUF Architectes

Other Key Players: BTY Group (lenders technical advisor); Hatch (independent certifier); Hanscomb (mechanical and electrical cost consultant and special advisor); INTECH Risk Management (insurance advisor); Société québécoise des infrastructures; SNC-Lavalin, WSP (owner's advisor); Colliers Project Leaders; GHD (geotechnical & materials); EXP (MEP services); Deloitte (financial advisor); Aon (risk advisor); Englobe; A. W. Hooker Associates Ltd. (cost consultant)

Supplier: Demix Beton (concrete); Canam Group

Legal: Research Centre: Blake, Cassels & Graydon; Hospital: Fasken Martineau DuMoulin (advised authority), Lavery, de Billy (legal counsel); Blake, Cassels & Graydon (legal advisor); Gowling Lafleur Henderson (repped consortium); McCarthy Tétrault (advised RBC); Stikeman Elliott (repped Dalkia); Raymond Chabot Grant Thornton (financial and process advisor); Dentons Canada (legal advisor); Torys (owner); Borden Ladner Gervais

Credit: CHUM

Funding: Public/Private

Substantial Completion: 2021

A new hospital and research centre will replace the three facilities which currently make up the Centre hospitalier de l'université de Montréal (CHUM): Hôtel-Dieu in Montréal, Notre-Dame Hospital and Saint-Luc Hospital. The project received the go-ahead in 2010, which brings all three francophone university hospitals together under one roof.

Phase one, construction of the research centre, was opened in the fall of 2013. Phase two of the project, three 25-storey buildings that will each house therapeutic and hospital diagnostic services, emergency, and clinical follow-ups as well as clinical and logistical support, welcomed its first patients in early October of 2017. Phase three of the project, now underway, consists of the construction of an adjacent building to accommodate part of the outpatient clinics, clinico-administrative offices, library, archives, a 500-seat amphitheater, and another parking section. Phase three is scheduled for completion in 2021.

21 Scarborough Subway Extension

$3.56 billion

2020 Rank: 20

Location: Scarborough, Ontario

Owner: TTC

Project Manager: Scarborough Link Joint Venture—Parsons, Hatch, WSP

Engineer: Wood (consulting)

Design: Hatch (tunnel design); WSP (systems design and management); AECOM (station design)

Environmental Services: AECOM

Other Key Players: Aon (risk/insurance advisor to authority); EY (advising gov't.); Golder (owner's consultant); Hanscomb (station designer's cost consultant); Englobe (geotechnical investigation); AGAT Labs; Comtech (property consulting services); Jacobs (quality mgmt. and risk assessment); GHD (geotechnical studies); Entuitive

Funding: P3

Substantial Completion:: 2026

The Scarborough Subway Extension is a 7.8 kilometre extension of TTC's Line 2 Bloor-Danforth Subway, from the existing Kennedy Station northeast to McCowan Road/Sheppard Avenue. The line will include three new stations at Lawrence Avenue and McCowan Road, Scarborough Centre and a terminal station at McCowan Road and Sheppard Avenue. Tunnelling is one of the first phases of work for the project. A separate advance tunnelling contract will be issued to help move the project forward on an accelerated timeline.

On August 20, 2020, the province invite the selected teams from the Request for Qualifications process to respond to an RFP that details how they plan to design and deliver the tunnelling work for the SSE. Upon evaluating the proposals received, Infrastructure Ontario and Metrolinx expect to award this tunnelling contract in mid-2021.

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Photos: Metrolinx

22 Finch West LRT
$3.433 billion

2020 Rank: 21

Location: Toronto, Ontario

Owner: Metrolinx

Project/Construction Manager: Parsons (project management, engineer, and environmental assessment); Infrastructure Ontario

DBFM Team: Mosaic Transit Partners—ACS Infrastructure Canada Inc.; Aecon Concessions; CRH Canada Group Inc.

Construction: Aecon Infrastructure and Management Inc.; Dragados Canada Inc.; Dufferin Construction Company—a division of CRH Canada Group Inc.

Design: Arup Canada Inc.; Dillon Consulting Limited; DPM Energy Inc.; DTAH; Perkins + Will Canada Inc.; Sener SES Canada Inc.

Maintenance: ACS Infrastructure Canada Inc.; Aecon O&M—a division of Aecon Construction Group Inc.

Engineer: Jacobs (owner's engineer and project manager); WSP (engineer/sustainability consultant); Hatch (owner's engineer)

Other Key Players: AECOM (technical advisor); Aon (risk/insurance advisor to authority); EY (advising gov't.); LeighFisher (lenders technical advisor); Parsons (overseeing technical advisor); INTECH Risk Management (insurance advisor); Morrison Hershfield (MEP design services); GHD (traffic mgmt.); Golder; Comtech (program/project consulting); Rider Levett Bucknall; Englobe; WSP (geotechnical consultant); A. W. Hooker Associates Ltd. (cost consultant); Deloitte (mgmt. consultant); Entuitive

Supplier: Bombardier (vehicles); Dufferin Concrete; DECAST (precast infrastructure)

Financial Advisor: RBC Dominion Securities Inc.

Legal: Norton Rose Fulbright; McMillan LLP (for the lender)

Funding: P3

Substantial Completion: 2023

This new LRT, located along Finch Avenue West in the city's northwest end, will be integrated with the city's existing transit system. The project includes 11 kilometres of new semi-dedicated rapid transit between Humber College and the new Finch West subway station on the Toronto-York Spadina subway extension; 18 surface stops and a below-grade interchange station to connect with the new Finch West subway station; and a maintenance and storage facility for the light rail vehicles.

Construction is underway throughout the length of the project. Key 2020 accomplishments include the installation of the new Highway 400 bridge, the start of track installation at the Maintenance and Storage Facility, and the extensive installation of utilities along the corridor.

23 Energy Services Acquisition Program's Energy Service Modernization
$2.95 billion

2020 Rank: 22

Location: Ottawa, Ontario and Gatineau, Quebec

Owner: Government of Canada

DBFOM Team: Innovate Energy—Black & McDonald Capital Limited; Black & McDonald Limited, ENGIE Services Inc. PCL Constructors Canada Inc., PCL Investments Canada Inc.; BBB Architects Ottawa/WSP (design partners)

Other Key Players: EY (oversight advisor); Aon (risk advisor)

Legal: Norton Rose Fulbright (advisor to project owner)

Funding: Public

Substantial Completion: 2025

Public Works and Government Services Canada (PWGSC) is responsible for heating and cooling services for 80 and 67 buildings respectively within the National Capital Region (NCR). The Energy Services Acquisition Program was established in 2009 to "explore new business models for the provision of energy services in the NCR."

The modernization project looks for an energy services solution for PWGSC's five Central Heating and Cooling Plants (CHCP) and their associated distribution networks within the four National Capital region service areas, three of which are in Ottawa and one in Gatineau. The five CHCP's service 79 total buildings.

Innovate Energy was announced as the successful proponent in June 2019. The contract includes a $1.1 billion investment for the design and construction of the new system, to be completed by 2025, and an additional $1.6 billion will cover the cost of operation and maintenance of the system through to 2055.

24 Broadway Subway Extension

$2.83 billion

2020 Rank: 23

Location: Vancouver, British Columbia

Owner: TransLink

DBF Team: Acciona-Ghella Joint Venture
- Proponent: Acciona Infrastructure Canada Inc./Ghella Canada Ltd.
- Design-build contractor: Acciona Infrastructure Canada Inc./ Ghella Canada Ltd.
- Design contractor: IBI Professional Services (Canada) Inc./DIALOG BC Architecture Engineering Interior Design Planning Inc./ Mott MacDonald Canada Ltd./Ingenieria Especializada de Obra Civil e Industrial, S.A.
- Systems integration contractor: Acciona Infrastructure Canada Inc./Ghella Canada Ltd./Parsons Inc.
- Tunnel contractor: Acciona Infrastructure Canada Inc./Ghella Canada Ltd.

Engineer: Hatch; Wood (consulting)

Other Key Players: Golder; McElhanney (assessment and surveying services); Aon (risk advisor); Hanscomb (cost consultant)

Credit: TransLink

Funding: Public
- **Federal:** $888.4 million
- **Provincial:** $1.82 billion
- **Municipal:** City of Vancouver: $99.8 million (in-kind land contribution), Phase 1 Mayors' Vision plan: $17 million

Substantial Completion: 2025

The Broadway Subway Extension will see the addition of six underground stations and 5.7 kilometres of track to the Millenium Line. The extension will run from VCC-Clark Station to Arbutus Street. The line will replace the existing B-line bus service, increasing transit capacity in the corridor by 250 per cent.

In September of 2018, the provincial and federal governments announced more than $3 billion in funding for both this and the Surrey LRT project.

In September 2020, the Acciona-Ghelia Joint Venture was awarded the contract to design, build, and partially-finance the project at a value of $1.728 billion. Early construction works got underway before the end of 2020.

25 Montreal Metro AZUR Car Purchase and Replacement

$2.7031 billion

NEW

Location: Montreal, Quebec

Owner: STM

Supplier: Bombardier, Alstom (joint venture vehicle supplier)

Funding: Public

Substantial Completion: TBD

The Société de transport de Montréal, with support from the Government of Québec, continues to invest in the replacement of new AZUR métro cars for the Montréal transit network. To date, 54 AZUR trains have been delivered to STM, with 17 additional nine-car trains having were ordered in June 2018.

As part of the 2018 announcement, the Government of Canada provided an investment of over $215 million. The remaining part of this additional fleet upgrade, over $580 million, is being provided by STM and the Government of Quebec.

Credit: STM

26 Valley Line West LRT

$2.63 billion

2020 Rank: 24

Location: Edmonton, Alberta

Owner: City of Edmonton

DB(F) Team: Marigold Infrastructure Partners—Colas, Parsons, Standard General, Francl Architecture, Fast & Epp, Stantec

Engineer: Hatch; Morrison Hershfield (design); AECOM (owner)

Other Key Players: EY (financial advisor); Deloitte (financial advisor); Aon (risk advisor); Golder (geotechnical studies); Hanscomb (cost consultant)

Funding: Public
- **Federal** $948.56 million
- **Provincial** $1.03876 billion
- **Municipal** $637.08 million

Substantial Completion: 2026

The Valley Line West LRT project is the next phase of Edmonton's light rail expansion. This project represents a 14-kilometre extension of the existing system from downtown to Lewis Farms. After announcing the three pre-qualified bidders for the project on May 31, 2019, two of the three proponents subsequently withdrew from the process. The City has since conducted a market sounding initiative to understand the reasons for the withdrawal. This is not expected to impact the overall schedule for the project. In October 2020, Marigold Infrastructure Partners was named as the preferred proponent for the project. Construction is scheduled to begin in 2021.

27 New Hospital for Sick Children

$2.4 billion

2020 Rank: 25

Location: Toronto, Ontario

Owner: Hospital for Sick Children

Contractor: Patient Support Care Project Team
- Construction manager: PCL Constructors Canada Inc. (Toronto)
- Architect: B + H Architects
- Structural Consultant: Entuitive
- Electrical Consultant: Mulvey & Banani
- Mechanical Consultant: The Mitchell Partnership
- Demolition: Priestly Demolition

Other Key Players: Hanscomb (cost consultant); EY (mgmt. consultant)

Engineer: WSP (planning)

Legal: Borden Ladner Gervais, McMillan LLP (for the owner)

Funding: Public

Substantial Completion: 2031

Dubbed 'Project Horizon' by SickKids, the three-phase project to rebuild and rehabilitate The Hospital for Sick Children in Toronto is well underway.

There are three phases to the project, which are expected to take a total of 10 years to complete:
- A new 22-storey Patient Support Centre (ground was broken on this project in October 2019);
- The Peter Gilgan Family Patient Care Tower; and
- Renovations to the existing campus.

In June 2020, work began on laying the foundation for the Patient Support Centre, which is scheduled for completion in the summer of 2022. The Patient Care Tower is scheduled for completion in 2029, followed by the completion of the renovations by 2031.

28 F.G. Gardiner Expressway Strategic Rehabilitation Plan

$2.3 billion

2020 Rank: 26

Location: Toronto, Ontario

Owner: City of Toronto

Contractor: Aecon (Section 1)

Engineer: Morrison Hershfield (baseline study of substructure components)

Environmental Services: Dillon Consulting Limited (environmental assessment); Perkins + Will; Hargreaves Associates

Other Key Players: EY, Hanscomb, and HDR (advisory support); Aon (risk advisor); WSP (design work); Englobe; Entuitive

Supplier: Canam Group

Legal: Blake, Cassels & Graydon (City of Toronto); Osler

Funding: Public

Substantial Completion: 2021

Credit: City of Toronto

The City of Toronto is taking a proactive approach to managing the rehabilitation of the Gardiner to keep the roadway in safe and operable condition. City staff have evaluated the procurement options and are recommending an AFP approach to rehabilitate the Gardiner in the most efficient way for Toronto residents and businesses.

The proposed plan addresses the rehabilitation of the expressway, extending from Highway 427 to the eastern limit at Logan Avenue, including the 11-kilometre at-grade section from Highway 427 to Dufferin Street with its 32 bridges and structures, and the seven-kilometre elevated section from Dufferin Street to Logan Avenue with 335 spans. It incorporates the change of scope for the rehabilitation of the Gardiner Expressway east of Jarvis Street based on the future outcome of the environmental assessment.

In June 2018, a $308.5-million contract for Phase 1 of the project between Cherry Street and Jarvis Street. Construction began on this section of the project in 2019, and is expected to be completed in early 2021.

29 Ville-Marie and Viger Tunnels

$2 billion

NEW

Location: Montréal, Quebec

Owner: MTQ

Engineer: AECOM (design)

Other Key Players: WSP (construction supervision services)

Funding: Public

Substantial Completion: 2030

The Ville-Marie and Viger tunnels are integral parts of the Montreal transportation network. The two tunnels are located in the axis of Autoroute 720 along a stretch commonly referred to as the Ville-Marie highway. The Ville-Marie tunnel was inaugurated in 1974, followed by the Viger in 1986.

From the MTQ: "The tunnels crisscross a densely built environment, both on the surface and in depth, since they coexist with underground Montreal where there are pedestrian tunnels, metro tunnels, commercial spaces and parking lots, not to mention the Ville- tunnel. Marie includes the only underground interchange in Quebec and one of the few in North America."

Renovation work on the tunnels will take part in four phases (anticipated work time in brackets): The replacement of 37 exhaust fans (three-and-a-half years); the complete repair of the tunnels at the exit from the Mountain, including the dismantling of the last paralumes (two years); the beginning of electrical migration work towards 25 kilovolts (two years); and the reconstruction of the decks of the Saint-Urbain and Saint-Laurent bridges (one and a half years).

30 81-141 Bay Street

$2 billion

2020 Rank: 27

Location: Toronto, Ontario

Owner: Metrolinx and Ivanhoé Cambridge

Project Manager: Hines (project development)

Contractor: EllisDon (general contractor)

Engineer: TMP (mechanical); Wood (consulting)

Architect: Wilkinson Eyre Architects (design); Adamson Associates Architects (executive architect); DBOX

Other Key Players: Arup (pedestrian modelling); INTECH Risk Management (advisor to developers); KPMG (advisor to Metrolinx for initial planning stage); Morrison Hershfield (building envelope consultant); WSP (sustainability consultants, geotech./env. work); Cushman & Wakefield

Legal: Torys (representing project owner)

Funding: Public/Private

Substantial Completion: 2023

The Bay Street project (CIBC Square) involves the construction of two new commercial buildings, joined by a one-acre elevated park over the rail corridor near Union Station in downtown Toronto. A key component of the construction is the new Union Station Bus Terminal. Construction got underway on the terminal in June of 2017. The terminal will provide stronger connections for users of the rail and bus networks, and provide straightforward access to the Gardiner Expressway. The new terminal also includes over 1,000 bicycle parking spots and integrated green space. The south tower was scheduled for completion by the end of 2020. However, at press time, there was no clear indication if the deadline would be reached. In March 2020, a modified site plan for the second building, 141 Bay Street, which will include accommodation for the potential future LRT along the Bay Street corridor.

31 Don River and Central Waterfront & Connected Projects

$2 billion

2020 Rank: 28

Location: Toronto, Ontario

Owner: City of Toronto

Contractor: Graham

Engineer: Hatch (outfall tunnel); AECOM; Wood (consulting); Jacobs

Other Key Players: Golder; Rider Levett Bucknall; The Walsh Group; DECAST

Funding: Public

Substantial Completion: 2043

The Don River and Central Waterfront Wet Wester Flow System & connected Projects is a 25-year program aimed at improving water quality in Toronto's Lower Don River, Taylor-Massey Creek, and the Inner Harbour. In August 2019, Toronto City Council endorsed a plan to reach out to both the provincial and federal governments for funding assistance for the project, funding that would allow for the project to be completed up to eight years ahead of its current schedule. The Coxwell Bypass Tunnel, as well as the integrated pumping station at the Ashbridges Bay Wastewater Treatment Plant, and new outfall at the plant, are among the first work to be undertaken as part of the overall program. Construction of the tunnel is underway now, and is scheduled for completion in 2023. The station project is anticipated to be completed by 2026, and the new outfall by 2025.

32 QEII New Generation Project

$2 billion

2020 Rank: 29

Location: Halifax, Nova Scotia and surrounding communities

Owner: Government of Nova Scotia

DBFM Contract (Bayers Lake Community Outpatient Centre) EllisDon Infrastructure HealthCare

- P3 Electrical Design Team: Mulvey & Banani International Inc./ Dillon Consulting Limited, led by Plan-Group/Cahill.
- P3 Mechanical Design Team: HHA/Dillon Consulting Limited, led by Plan-Group/Cahill.

Contractor: PCL Constructors Canada Ltd. (Hants Community Hospital renovation); Pomerleau (lab relocation)

Other Key Players: Contracting Specialties (2005) Inc.; Coastal Woodworkers Ltd.; Dantra Specialty Products; Duron Atlantic Limited; Twin City Painting (1979) Limited; Northfield Glass Group Ltd.; Apex Industries; Atlantica Mechanical; Bond and Coolen Contracting Ltd.; Life Safety Systems; RKO Steel Ltd.; Southeast Drywall Ltd.; Inflector Environmental Services; Darim Masonry Limited; Flynn Canada Limited; McCarthy's Roofing Limited; Royal Door Limited; Kasian (planing and design compliance team); Deloitte (financial advisor); Hanscomb (cost consultant); Entuitive; EXP

Legal: Borden Ladner Gervais; Osler (for the proponent)

Funding: Public/P3

Substantial Completion: TBD

The redevelopment of the QEII Health Science Centre is a multi-phase project involving several health care sites throughout Halifax and the surrounding area. The project will transform health care delivery in Nova Scotia, providing modern services for patients throughout the province. The primarily project elements include: the renovation of Hants Community Hospital in Windsor; renovation of Dartmouth General Hospital; a new Community Outpatient Centre in Bayers Lake; expansion of the Halifax Infirmary site; anew hospice residence in Halifax; and movement of the QEII Cancer Centre to the new Infirmary site. Completion of these projects will result in the closure of Centennial, Dickson, and Victoria buildings on the QEII Victoria site in Halifax. In 2020, significant progress was made in the procurement of multiple projects as part of the expansion, including the awarding of the contract for the Bayers Lake Community Outpatient Centre.

33 Roberts Bank Terminal 2 Project

$2 billion

2020 Rank: 30

Location: Delta, British Columbia

Owner: Port Metro Vancouver

Project/Construction Manager: WorleyParsons (project management); WSP (construction management, quality assurance, reporting to the project manager, construction contract administration, geomatic scanning); Hatch (project manager)

Engineer: Parsons, Tetra Tech

Environmental Services: Hemmera (supporting project planning and leading the EA); WSP (air quality assessment); Golder

Other Key Players: Aon; Deloitte; Hanscomb (cost consultant)

Legal: Blake, Cassels & Graydon (counsel to owner); Borden Ladner Gervais (legal advisor)

Funding: Private

Substantial Completion: 2024

Credit: Port Metro Vancouver

This is a proposed new three-berth container terminal that would provide additional capacity of 2.4 million TEUs per year to meet the port's forecast demand until 2030. The project would be approximately 5.5 kilometres offshore, northwest of the existing Roberts Bank terminal facilities. The new rectangular terminal would have a berth length of 1,300 metres, long enough for the mooring of three ships, and a width of 700 metres to support terminal components, such as a container storage yard and rail intermodal yard. The existing causeway would also be widened to accommodate road and rail improvements, and the tug basin at Deltaport would be expanded. As part of the environmental assessment (EA) process for the project, the Vancouver Fraser Port Authority submitted an environmental impact statement for the project to the Canadian Environmental Assessment Agency in March 2015. The Environmental Assessment and public consultation for the project are ongoing.

34 Quebec City University Hospital Centre – Laval University

$1.97 billion

2020 Rank: 31

Location: Quebec City, Quebec

Owner: CHU de Québec-Université Laval

Engineer: SNC-Lavalin; CIMA+ ; Stantec

Other Key Players: Englobe (geotechnical/ environmental investigation, quality control); GHD (vibration monitoring); Golder; Deloitte

Funding: Public/Private

Substantial Completion: 2025

In April of 2017, the Government of Québec formally announced plans to move forward with the replacement of the Hôpital Enfant-Jésus de Québec (Hospital of the Child Jesus) in Québec City. The project will consolidate the research and clinical activities of L'Hôtel-Dieu de Québec on the site of the new hospital. The first phase of the multi-phase project includes the construction of the Integrated Cancer Centre, along with a new generator building, power plant, and parking. In March 2020, construction was forced to shut down for a period of seven weeks due to the pandemic. It has not been confirmed whether this will impact the date of substantial completion for the project.

35 Wataynikaneyap Transmission Project

$1.9 billion

2020 Rank: 32

Location: Northern Ontario

Owner: Wataynikaneyap Power in partnership with FortisOntario and RES Canada

Contractor: EEPC Contract: Valard

Engineer: Hatch (owner's engineer); Wood (consulting)

Environmental Services: Golder (Phase 1 EA)

Other Key Players: PowerTel, Deutsche Bank (MOU for design, construction, and financial services); PwC (financial feasibility study and socioeconomic impact analysis); Arcadis Canada Inc. (Phase 2 routing study); EY (consultant); INTECH Risk Management; Englobe

Legal: Torys (legal advisor); McMillan LLP (for the federal government)

Funding: Public/Private

Substantial Completion: 2023

Wataynikaneyap Power—composed of 24 Northwestern First Nations communities—partnered with FortisOntario and RES Canada in August 2015 to develop and operate the transmission facilities to connect 17 remote reserves to the power grid and transition them away from diesel generation. The plan calls for a 1,800-kilometre transmission line broken into two phases: a 300-kilometre line to Pickle Lake ($200 million), and transmission lines to connect the communities north of Pickle Lake and Red Lake ($1.15 billion). In January 2019, two new First Nations communities joined the project with a minority ownership stake: Mishkeegogamang First Nation and Ojibway Nation of Saugeen's utility partner, Algonquin Power & Utilities Corp.(Algonquin). In July 2020 the project reached a key milestone, with the first structure erected in the Sioux Lookout area near Highway 516. Potential remote electrification is anticipated in 2022, with build-out to 2023.

36 St. Paul's Hospital Redevelopment

$1.9 billion

2020 Rank: 33

Location: Vancouver, British Columbia

Owner: Fraser Health Authority

Engineer: Tetra Tech (geotechnical design)

Other Key Players: IBI Group (early design works); KPMG (clinical planning services); Entuitive; EY (mgmt. consultant); McElhanney (site surveyor)

Funding: Public/Private

- **Provincial:** $1.8 billion
- **Private:** Providence Hospital Foundation (minimum $100 million)

Substantial Completion: 2026

In February 2019, the Government of British Columbia approved the business plan for a new St. Paul's Hospital in downtown Vancouver. The new hospital will continue to serve as a an acute-care hospital and integrated health campus. The new facility will be expanded to a capacity of 548 beds, which represents 115 net new beds, and "will be the home of several leading provincial programs and referral centres, including for heart and lung care, renal, eating disorders and specialty surgeries and transplants," according to a government release. It will also be a teaching hospital for both University of British Columbia medical students and British Columbia Institute of Technology nursing students. The project will be done in two phases, with phase 1 consisting of the new core hospital and phase two is expected to include a clinical support and research centre. Two teams have been shortlisted for the project, with the preferred proponent to be named in late 2020. However, that decision was likely delayed by the October 2020 election.

37 Edmonton Valley Line – Stage 1

$1.8 billion

2020 Rank: 34

Location: Edmonton, Alberta

Owner: City of Edmonton

DBFOM Team: TransEd Partnership—AECOM, Hatch, Mott MacDonald, DIALOG, ISL Engineering and Land Services Ltd., GEC Architecture; Associated Engineering (engineering & environmental services); Wood (consulting)

Other Key Players: Aon (risk/insurance advisor to owner); BTY Group (cost consultant); EY (advising team); KPMG (financial and process advisor); LeighFisher (equity O&M advisor); Morrison Hershfield (transit O&M consultant); INTECH Risk Management (insurance advisor); Englobe (quality control); Tetra Tech (geotechnical and environmental services); AGAT Labs; GHD; McElhanney (surveying services)

Supplier: Canam Group

Legal: Borden Ladner Gervais (legal advisor); McCarthy Tétrault; Norton Rose Fulbright

Funding: P3

- **Federal** Building Canada Fund: $150 million; PPP Canada: $250 million
- **Provincial** GreenTRIP: $310 million; Building Canada Fund matching: $150 million; interest-free loan: $140 million
- **Municipal:** $800 million

Substantial Completion: 2021

The Valley Line is the largest single infrastructure project in the history of Edmonton. It consists of a 27-kilometre low-floor urban line running from Mill Woods to Lewis Farms that crosses downtown. It will be separate from the city's existing high-floor LRT system. This line will feature modern, low-floor, light-rail vehicles running segregated along existing streets and integrating with Edmonton's surrounding neighbourhoods. The first stage of the project is the 13.1-kilometre southeast section from Mill Woods to 102 Street. Construction is progressing on all areas of the project, with target service commencement scheduled for December 15, 2020. However, the project has hit delays, and will now be operational sometime in 2021.

38 North End Sewage Treatment Plant Upgrades

$1.789 billion

2020 Rank: 35

Location: Winnipeg, Manitoba

Owner: City of Winnipeg

Engineer: AECOM (owner's advocate/consultant); Wood (consulting)

Other Key Players: Hanscomb (independent/engineer's design stage cost consultant); Veolia (professional services); P1 Consulting Ltd.; KGS Group Ltd. (owner's advocate/consultant)

Legal: Blake, Cassels & Graydon

Funding: Public

- **Provincial:** $195 million
- **Municipal:** $1.594 billion

Substantial Completion: 2023

The Province of Manitoba has issued the City of Winnipeg an Environment Act License requiring the treatment of nutrients (such as nitrogen and phosphorus) among other requirements at the treatment facility. The implementation of a nutrient-removal process will require a major plant expansion and, given the age of the infrastructure and the complexity of phasing the construction, several new facilities will be constructed. The addition of wet weather treatment processes associated with combined sewer overflow control must be considered in the overall nutrient-removal process design and operational effluent disinfection for wet weather. In February 2019, Winnipeg City Council approved a request to break the overall project into three separate capital projects: North End Sewage Treatment Plant Upgrades: Power Supply & Headworks Facilities – $408 million; North End Sewage Treatment Plant Upgrades: Biosolids Facilities – $553 million; North End Sewage Treatment Plant Upgrades: Nutrient Removal Facilities – $828 million. Work on the project in recent months has focused on the development of project plans, including an interim phosphorous reduction plan.

39 Surrey Langley SkyTrain Project

$1.65 billion

2020 Rank: 38

Location: Surrey, British Columbia

Owner: TransLink

Contractor: WestPro (Pomerleau) (Bear Creek Bridge replacement)

Engineer: Hatch (lead engineer)

Other Key Players: Deloitte; Golder; McElhanney Consulting Services; Stewart Group Strategic Consulting; Hemmera; Morrison Hershfield (early works)

Legal: Borden Ladner Gervais

Funding: Public

Substantial Completion: 2024

The Surrey Langley SkyTrain project is the current iteration of the former Surrey-Newton-Guildwood LRT system. The change from the original 11-stop, 10.5-kilometre LRT to SkyTrain has reduced the current scope of the project to a four-stop system running along the Fraser Highway from King George Station to Fleetwood. In January 2020, the Mayors' Council approved the business case for the project. Phase 2 of the project, the additional nine kilometres to Langley, is estimated to cost an additional $1.5 billion. Premier John Horgan committed to providing the additional funding during the fall 2020 election, however the funding has not yet officially been committed by the provincial government.

40 Renovations to Beauharnois Generating Station

$1.6 billion

2020 Rank: 41

Location: Beauharnois, Quebec

Owner: Hydro-Québec

Project/Construction Manager: Hydro-Québec Équipement

Contractor: HMI Construction Inc.

Engineer: Stantec; SNC-Lavalin; CIMA+

Other Key Players: GHD (geotechnical and material testing); Englobe (quality assurance inspection services)

Legal: Borden Ladner Gervais

Funding: Public

- **Provincial** Hydro-Québec: $1.6 billion

Substantial Completion: 2021

Since 1994, this hydroelectric station has been undergoing gradual renovations and replacement of its generation units. The plant was powered by the Beauharnois Canal, which had been newly dredged and expanded to one kilometre in width for that purpose. At the time of its construction, it was considered to be the largest hydroelectric station in Canada. Today, at 1,900 MW, it is still one of the largest run-of-river plants in the world. The current project also includes restoration of the station's historic art deco architecture, which led it to be designated as a National Historic Site. Renovations continue, and work is expected to be completed in 2021.

41 Macdonald Block Reconstruction Project

$1.536 billion

2020 Rank: 42

Location: Toronto, Ontario

Owner: Ontario Ministry of Government and Consumer Services

Project Manager: Infrastructure Ontario

DBFM Team: Fengate PCL Progress Partners (FP3) Developers: Fengate Asset Management and PCL Investments Canada Inc.

- Design-Builder: PCL Constructors Canada Inc.
- Design Architect: WZMH Architects
- Facilities Management: Johnson Controls Canada
- Financial Advisor: National Bank Financial

Engineer: TMP (mechanical)

Other Key Players: Aon (risk advisor); Hanscomb; Morrison Hershfield; Entuitive; EY (mgmt. consultant); Comtech (project mgmt. consultant); WSP (independent certifier)

Funding: P3

Substantial Completion: 2024

The Macdonald Block Complex is the hub for administrative services for the Government of Ontario. The complex consists of five buildings, including four office towers, with a total of approximately 1.7 million square feet. From Infrastructure Ontario: "Each building in the complex will be taken back to its original building core, remediated and rebuilt using modern technologies, systems and materials while preserving the integrity of its many heritage features. The newly reconstructed complex will meet current building, health, safety, and accessibility standards and will accommodate significantly more employees through more efficient use of this government-owned office space." Construction commenced in August 2019. Substantial completion is expected in the spring of 2024.

42 Bloor-Yonge Station Capacity Improvements

$1.514 billion

NEW

Location: Toronto, Ontario

Owner: Toronto Transit Commission

Other Key Players: AECOM (preliminary design and early works); Golder (geotechnical studies); WSP (consulting services)

Funding: Public

Substantial Completion: 2029

Bloor-Yonge station is at the heart of the Toronto transit network, and represents one of the busiest stations in the entire system. It is one of three stations where Line 1 and Line 2 of the Toronto transit system intersect. The Toronto Transit Commission (TTC) has identified that, without significant work to improve station capacity, severe overcrowding and bottlenecks will occur, even moreso once work is completed on the Yonge North Subway Extension over the next decade. In February 2020, Toronto City Council approved the TTC's 2020-2029 Capital Budget, which includes $1.514 billion for this project. The project is still in the preliminary design phase, with completion targeted for Q4 2029.

43 Cascade Power Project

$1.5 billion

NEW

Location: Yellowhead County, Alberta

Owner: Kineticor Resource Corp.

Construction Manager: PCL

Contractor: Graham (Phase 1)

Engineer: PCL/ Black & Veatch JV (engineering design); McElhanney (consulting)

Supplier: Siemens (2x SCC6-8000H Power Trains)

Financier: Macquerie Capital, OPTrust (joint development sponsoirs); OPTrust, Axium Infrastructure, DIF Capital Partners (project sponsors)

Legal: Osler (advisor for Kineticor)

Funding: Private

Substantial Completion: 2023

The Cascade Power Project is a 900-Megawatt (MW) combined cycle natural gas-fired generating facility, being constructed approximately 12 kilometres southwest of Edson in Alberta's Yellowhead County. Upon completion, the new plant will have the capacity to supply up to eight per cent of the province's overall current energy needs. Financial close on the project was reached in August 2020. Construction is underway, and is scheduled for completion sometime in 2023.

44 Calgary Cancer Centre

$1.4 billion

2020 Rank: 43

Location: Calgary, Alberta

Owner: Alberta Health Services

Design-Build Team: PCL; Stantec; DIALOG

Architect: HKS and Marshall Tittemore Architects (subconsultants); DIALOG; Stantec

Other Key Players: Arup (technical advisor and prime consultant); EY (advising gov't.); KPMG (commercial advisor); Morrison Hershfield (commissioning study); Colliers Project Leaders; Aon (risk advisor)

Supplier: Canam Group

Legal: Norton Rose Fulbright (for the authority)

Funding: Public

Substantial Completion: 2023

Credit: Alberta Health Services

This new comprehensive cancer centre is currently under construction at the Foothills Medical Centre site in Calgary. The 95,000-plus-square-metre complex will include 160 inpatient beds, outpatient facilities with over 100 exam rooms, systemic treatment and radiation treatment technologies, clinical trial units and research laboratories, a knowledge exchange centre and 1650 stalls of underground parking. The centre will provide much-needed access to cutting-edge treatment and care for residents of Calgary and southern Alberta. Despite the impacts of the COVID-19 pandemic, the project reached its topping off point in late April 2020, and remains on schedule for completion in 2023.

45 Pattullo Bridge Replacement Project

$1.377 billion

2020 Rank: 44

Location: New Westminster, British Columbia

Owner: Government of B.C.

DBF Team: Fraser Crossing Partners

- Proponent: Acciona Infrastructure Canada Inc. and Aecon Group Inc.
- Design-build contractor: Acciona Infrastructure Canada Inc. and Aecon Constructors
- Long-span bridge design contractor: SNC-Lavalin Inc., Leonhardt, Andrä und Partner Beratende Ingenieure VBI AG, Hatch, EXP Services Inc., Acciona Infrastructure Canada Inc.

Engineer: Parsons (Owner's Engineer); Hatch; Wood (consulting); Tetra Tech (environmental)

Other Key Players: Golder; Morrison Hershfield (engineering services); Deloitte (commercial advisor); Hemmera; Hanscomb (cost consultant); McElhanney, G. Ho Engineering Consultants (road safety audits); WSP (independent certifier)

Legal: Borden Ladner Gervais; McMillan LLP (for the lender)

Funding: Public

Substantial Completion: 2023

In February of 2018, the Government of British Columbia announced its plans to replace the Pattullo Bridge. Built in 1937, the bridge is one of the oldest in the Metro Vancouver Area, and was built for a 50-year lifespan. The new bridge will be four lanes that will be built to modern safety standards, featuring a centre safety median barrier and wider lanes to accommodate both passenger and commercial vehicles. The bridge will also have walking and cycling lanes, separated from traffic, on both sides of the bridge. In February 2020, Fraser Crossing Partners reached financial close on the project. The $967.5-million contract includes the design and construction of the new bridge, the road connections at the bridgeheads and the removal of the old bridge.

46 Burnaby Hospital Redevelopment

$1.3 billion

NEW

Location: Burnaby, British Columbia

Owner: Fraser Health Authority

Project Manager: Partnerships BC

Funding: Public

Substantial Completion: 2027

In September 2019, the Government of British Columbia announced plans for the $1.3 billion Burnaby Hospital Redevelopment Project. The redevelopment begins with a new six-storey, 11,858 square-metre, 78-bed, patient-care tower. The tower will include an upgraded mental health and substance use inpatient unit, and a new maternity ward to offer enhanced care for new parents and their families. The tower is expected to open in 2023, with construction starting in 2021. The second patient-care tower will have 160 new beds and a state-of-the-art cancer treatment centre. It is expected to open in 2027. Detailed business planning for the tower is underway, with construction expected to begin in 2024. In July 2020, the provincial government announced that Canadian Turner Construction Company Ltd., EllisDon Design Build Inc. and Ledcor Design-Build (B.C.) Inc. had qualified for the RFP for the $413-million phase one project. The winning bidder is expected to be announced by May 2021, which construction to proceed shortly thereafter.

47 Port Hope Area Initiative

$1.28 billion

2020 Rank: 46

Location: Port Hope and Clarington, Ontario

Owner: Atomic Energy Canada Limited, Natural Resources Canada

Project/Construction Manager: Canadian Nuclear Laboratories

Contractor: Wood-CB&I Joint Venture; ECC/Quantum Murray Limited Partnership; Wood; Maple Reinders; Kenaidan Contracting Ltd.; Northwind Portage; Milestone Environmental; WSP; Graham

Engineer: GHD/MMM Joint Venture; AECOM; Wood (consulting)

Environmental Services: Golder (contamination investigation/remediation; Phase I ESA; geotechnical); Arcadis Canada; Dillon Consulting

Other Key Players: Hanscomb (owner's preliminary design stage cost consultant and special advisor); Arcadis (excavation and waste removal); Tetra Tech; SNC-Lavalin; Colliers Project Leaders; CIMA + ; Aon (risk advisor)

Credit: Atomic Energy Canada Limited, Natural Resources Canada

Financiers/Banks: Natural Resources Canada

Legal: Osler; Torys (acted for the lender)

Funding: Public

- **Federal** Atomic Energy of Canada Limited: $1.28 billion

Substantial Completion: 2022

The Port Hope Area Initiative (PHAI) is a federal environmental clean-up program. Its mandate is the remediation and local, long-term, safe management of approximately 1.7 million cubic metres of historic low-level radioactive waste in the municipalities of Port Hope and Clarington in southern Ontario, Canada. The historic waste resulted from the radium and uranium refining operations of the former Crown corporation, Eldorado Nuclear Limited, and its private sector predecessors, which operated from the 1930s to 1988.

The PHAI has two projects: the Port Hope Project and the Port Granby Project. The Historic Waste programs Management Office, led by Canadian Nuclear Laboratories (CNL), is implementing these projects on behalf of Atomic Energy of Canada Limited, a federal Crown corporation.

The Port Hope Project involves the construction of an engineered aboveground mound and supporting infrastructure for the safe, long-term management of approximately 1.2 million cubic metres of historic low-level radioactive waste, cleanup of the waste from various major sites and small-scale sites in Port Hope and transportation of the waste to a new long-term waste management facility currently under construction. After the facility is capped and closed, anticipated to be in 2023, ongoing maintenance and monitoring will continue for hundreds of years.

The Port Granby Project involves the relocation of approximately 450,000 cubic metres of historic low-level radioactive waste, located at an existing site on the shoreline of Lake Ontario in Southeast Clarington, to a new, engineered aboveground mound at a long-term waste management facility being constructed approximately 700 metres north of the lake.

In June 2020, Canadian Nuclear Laboratories announced it had ended its agreement with the contractor working on the Port Hope Harbour and Centre Pier site. The new contractor is expected to be in place in time for the start of the 2021 construction season. As a result of the pandemic-related work stoppage and change in contracting study, work in the harbour area is expected to be extended by an additional year.

48 Port Lands Flood Protection and Enabling Infrastructure

$1.25 billion

2020 Rank: 47

Location: Toronto, Ontario

Owner: City of Toronto

Project Manager: Waterfront Toronto; City of Toronto

Construction Manager: EllisDon

Contractor: EllisDon (Cherry Street Lakefilling Project)

Engineer: Wood (consulting)

Architect: Michael Van Valkenburgh Associates Inc. (Port Lands Estuary Plan)

Environmental Services: Arcadis Canada

Other Key Players: MVVA (design of parks, flood protection, rover valley); WSP and DTAH (roads and municipal infrastructure); Entuitive with Grimshaw and SBP (bridges); Jacobs (env. services); Toronto Region Conservation Authority; Golder; INTECH Risk Management; Dillon Consulting (planning services); GHD (geotechnical and environmental services); A.W. Hooker Associates Ltd. (cost consultant); Englobe; Hanscomb (cost consultant); Entuitive

Supplier: DECAST

Funding: Public

- The federal, provincial, and municipal governments are each contributing an equal share of $416.6 million to this project.

Substantial Completion: 2024

The Port Lands Flood Protection and Enabling Infrastructure project is the redevelopment of one of the largest portions of under-developed land in a major urban core in North America. Located along the shore of Lake Ontario southeast of Toronto's downtown core, the project will include substantial soil remediation, a new month for the Don River, and critical infrastructure for flood resilience to unlock the 325-hectare site for residential and commercial development. In the fall of 2020, the first of four bridges that will connect Toronto to Villiers Island (Cherry Street North) was being shipped to the jobsite. Bridge foundations for the Cherry Street South Bridge were also underway, and excavation work continues throughout the project.

49 West Park Healthcare Centre

$1.2 billion

2020 Rank: 49

Location: Toronto, Ontario

Owner: West Park Healthcare Centre

Project Manager: Infrastructure Ontario

DBFM Team: EllisDon Infrastructure Healthcare—CannonDesign, Montgomery Sisam Architects (design); EllisDon (constructor); EllisDon Facilities Services Inc. (facilities management provider); EllisDon Capital Inc. (financial advisor); Modern Niagara Toronto Inc., Ozz Electric (mechanical and electrical subcontractor)

Engineer: TMP (mechanical); Entuitive (structural)

Other Key Players: EXP (PDC services); Deloitte; A.W. Hooker Associates Ltd. (independent certifier); EY (financial advisor); Aon (risk advisor); Hanscomb (cost consultant)

Funding: P3

Substantial Completion: 2023

The West Park Healthcare Centre is a new 730,000-sq.-ft hospital that will replace the existing facility. The new hospital will feature: 314 beds, with 80 per cent of beds in single-patient rooms; three-piece private washroom for each patient, even in double occupancy rooms; significant increase in outpatient care space to accommodate current and new services such as geriatric clinics and day hospital, and satellite hemodialysis; demolition of three existing hospital buildings—Main, Ruddy, and Gage—as well as the existing maintenance buildings; new campus entrance with new public and private roads within the campus; and increased green space, landscaping for outdoor therapy, therapeutic gardens, walking paths and courtyards, plus terraces on every floor. The project is to be completed in early 2023.

50 Louis-Hippolyte-Lafontaine Tunnel Project

$1.143 billion

NEW

Location: Montréal, Quebec

Owner: MTQ

Project Manager: Renouveau La Fontaine CC s.e.n.c

DBF Team: Vinci (subsidiaries Eurovia and Dodin Campenon Bernard); Pomerleau (50-50 JV)

Engineer: Parsons, Tetra Tech (owner's engineer); WSP; Hatch (lead); Lombardi (tunnel safety); EXP (design, consulting)

Other Key Players: Aon (risk advisor); CIMA + , Egis (independent certifier); Jacobs (mgmt. consultant); Deloitte (mgmt. consultant); Englobe

Financier: Desjardins Capital Markets

Legal: Borden Ladner Gervais

Funding: P3

Substantial Completion: 2025

The original Louis-Hippolyte Lafontasine Tunnel was constructed in 1967, and was in need of significant rehabilitation or replacement in order to make it viable for residents in Montreal. In August 2020, the contract was awarded for the rehabilitation project. The work to be conducted includes:

- Tunnel: Repairing the structure; installing new fire protection facings; landscaping and architectural finishes; modernizing all electrical, electromechanical, and supervisory infrastructure; and, deploying new technologies to increase operator and user safety.
- Access roads: Widening the A20 motorway with the addition of a new bus and car-sharing lane, as well as rehabilitating 25 km of pavement (on the A25 and A20) and an interchange.

Construction work is expected to begin in early 2021.

Credit: Transport-Québec

51 Yellowhead Trail Freeway Conversion Project

$1 billion

2020 Rank: 53
Location: Edmonton, Alberta
Owner: City of Edmonton
Contractor: Lafarge Canada Inc. (61 Street to North Sask. River)
Engineer: Parsons (owner's engineer); Wood (consulting); AECOM; WSP (design)

Funding: Public
- **Federal:** $241.6 million
- **Provincial:** $241.6 million
- **Municipal:** $516.8 million

Substantial Completion: 2027

The Yellowhead Trail Freeway Conversion Project will transition 15 kilometres of the current west-east roadway in Edmonton's north end to a free-flowing six-lane freeway, with a targeted speed of 80 km/h. The upgrade will eliminate eight intersections, build two new interchanges, modify three existing intersections, and build new collector roads. Construction of the 61 Street to North Saskatchewan River portion is underway, and is expected to be completed in late 2021. The entire project is projected to be completed sometime in 2027.

52 Toronto Courthouse Project

$956.4 million

2020 Rank: 54
Location: Toronto, Ontario
Owner: Ministry of the Attorney General
Project Manager: Infrastructure Ontario
DBFM Team: EllisDon Infrastructure—EllisDon Capital Inc. (developer); EllisDon Design Build Inc. (constructor); Renzo Piano Building Workshop, NORR Architects & Engineers Limited (design); EllisDon Facilities Services Inc. and SNC-Lavalin O&M (facilities mgmt.); EllisDon Capital Inc. (financial advisor)
Engineer: Wood (consulting); Jacobs (environmental); WSP (consulting)
Other Key Players: Morrison Hershfield (sustainability services for the lead contractor); A.W. Hooker Associates Ltd. (cost consultant); Engineering Harmonics; Aon (risk advisor); WT (independent certifier); Hanscomb (cost consultant)
Legal: Blake, Cassels & Graydon (advisor to the proponent); McCarthy Tétrault (advisor for MAG, IO); Norton Rose Fulbright (advisor for SNC-Lavalin), Farris, Vaughan, Willis & Murphy (advisor for the lenders and hedge providers)
Funding: P3
Substantial Completion: 2022

The new Toronto Courthouse will amalgamate several Toronto courts located throughout the city. The new Toronto courthouse will include: Barrier-free access, to allow visitors and occupants to travel throughout the building with ease, regardless of ability; video conferencing to allow witnesses to appear from remote locations and in-custody individuals to appear from detention facilities; closed-circuit television to enable children and other vulnerable witnesses to appear before the court from a private room; courtroom video/audio systems to allow counsel to display video evidence recorded in various formats and for the simultaneous viewing of evidence; and a single point of entry with magnetometers, baggage scanners, continuous video surveillance, and separate corridors to ensure the security of judges, members of the public, and the accused. Construction began shortly after the project reached financial close in February 2018. Substantial completion is expected in 2022.

53 Route 185 Phase III

$942.9 million

2020 Rank: 55
Location: Saint-Atonin, Quebec to the New Brunswick border
Owner: Transport-Québec
Other Key Players: WSP, Tetra Tech, AECOM (construction supervision); Englobe
Funding: Public
- **Federal:** $389.7 million
- **Provincial:** $553.2 million

Substantial Completion: 2023

This nearly 40-kilometre conversion to two-lane divided highway is the final step in the conversion of Route 185 to Autoroute 85, also known as Autoroute Claude-Béchard. The final portion runs from Saint-Antonin to Saint Louis-du-Ha!-Ha!, connecting Autoroute 20 at Notre-Dame-du-Portage to the New Brunswick border. Work got underway on four of seven sections of the project in August 2019. Sections will be completed starting in 2021.

54 TTC Bus Fleet Renewal

$934 million

2020 Rank: 56

Location: Toronto, Ontario

Owner: Toronto Transit Commission

Other Key Players: Entuitive; WSP

Suppliers: New Flyer Industries Inc; Proterra Inc.; BYD Canada Co. Ltd.

Funding: Public
- **Federal:** $442 million
- **Municipal:** $492 million

Substantial Completion: 2024

The City of Toronto is upgrading its bus fleet, thanks in part to federal funding to help make the project a reality. In total, the City will purchase 1,043 new buses to help green its fleet, as well as refurbish 695 additional vehicles. As part of the acquisition, the City is testing electric buses from three companies, New Flyer Industries Ltd., Proterra Inc. and BYD Canada Co. Ltd., to test the vehicles to see which ones its drivers prefer. In October 2020, the TTC CEO was delegated authority to purchase up to 300 hybrid-electric buses from two suppliers with the buses to be delivered in 2022 and 2023.

55 Giant Mine Remediation Project

$903.5 million

2020 Rank: 57

Location: Yellowknife, Northwest Territories

Owner: The Government of the Northwest Territories and Aboriginal Affairs and Northern Development Canada, with support from Public Works and Government Services Canada

Project/Construction Manager: Aboriginal Affairs and Northern Development Canada and the Government of the Northwest Territories; AECOM (construction management); Parsons (construction manager)

Engineer: Parsons; Wood (consulting); Jacobs (environmental)

Credit: GNWT

Environmental Services: Dillon Consulting

Other Key Players: Golder (multi-disciplinary consulting services, general and civil design); Hatch (design); AECOM (environmental services, preliminary and detail design); KPMG (commercial advisor); SRK Consulting, Arcadis Canada Inc. (lead technical advisors); Colliers Project Leaders; McElhanney (surveying services); Englobe

Funding: Public
- **Federal:** $903.5 million

Substantial Completion: 2025

Between 1948 and 2004, the Giant Mine was a major economic driver for Yellowknife and the Northwest Territories. Mining operations at the site, which grew over the years to encompass more than 870 hectares, including a number of ponds and small lakes, were halted in July 2004. Since 2005, Aboriginal Affairs and Northern Development Canada (AANDC) and the Government of Northwest Territories (GNWT) have co-managed the site, with the Deton'Cho Nuna Joint Venture providing on-site care and maintenance. However, when the mine closed, 237,000 tonnes of arsenic trioxide were left behind in underground chambers.

The remediation project proposes to leave behind a site suitable for future community use as the community sees fit. In August 2014, the decision was made to move forward in implementing the measures outlined in the environmental assessment. The project's goal is to ultimately protect public health and safety and the environment through longterm containment and management of the site's waste, water treatment, and surface cleanup at the site.

In September 2020, a Type A Water Licence was granted to the project. This will allow remediation work to begin in 2021.

A Decade of Top100

The total value of the Top100 projects list has grown over the years (in billions of dollars)

2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
96.0	114.2	140.7	157.9	161.3	187.5	199.0	212.6	240.8	253.8

56 Highway 1 Upgrades – Kamloops to Alberta

$872.7 million

2020 Rank: 58

Location: Kamloops, B.C. to the Alberta border

Owner: B.C. Ministry of Transportation and Infrastructure

Design-Build Team (Kicking Horse Canyon Phase 4): Kicking Horse Canyon Constructors: Aecon Group Inc, Parsons, Emil Anderson Construction

Contractor: Emil Anderson Construction Inc. (Pritchard to Hoffman's Bluff)

Engineer: Wood (consulting)

Other Key Players: Golder (geotech., environmental services); Englobe (pavement engineering services, QA, QV); WSP (construction supervision services); McElhanney (design and planning services); Hanscomb (cost consultant); EY (mgmt. consultant)

Funding: Public

Substantial Completion: 2024

Credit: B.C. Ministry of Transportation and Infrastructure

The Government of B.C. has embarked on a 10-year project to expand the Trans-Canada Highway (Highway 1) between the city of Kamloops and the Alberta border. The focus of the expansion is to four-lane the entire section of roadway, which includes 339 km under the jurisdiction of the B.C. Ministry of Transportation and Infrastructure, as well as 101 km under the jurisdiction of Parks Canada. There are three sections of the work that are scheduled for completed over the next three-to-five years: Hoffman's Bluff to Jade Mountain, at a cost of $199 million, to be completed by 2022; Salmon Arm West, at a cost of $163 million, to be completed by 2023; and Kicking Horse Canyon Phase 4, at a cost of $450 million, to be completed by 2024. Kicking Horse Canyon Constructors was named the successful proponent for the Licking Horse Canyon Phase 4 project in September 2020. The contract was valued at $601 million. This phase is expected to be completed in winter 2023-24.

57 Canadian Forces Base Trenton Expansion

$860 million

2020 Rank: 59

Location: Trenton, Ontario

Owner: Department of National Defence

Contractor: Bird Construction; SNC-Lavalin; Bondfield Construction; Buddy Haegele Enterprises; Budget Environmental Disposal; Dufferin Construction; Graham (general contractor for maintenance hangar); Fitzgibbon Construction; Gordon Barr Limited; Jasper Construction Corporation; Kiley Paving; M.J. Dixon Construction; Miller Group; Mirtren Construction; Strong Brothers Heating & Air Conditioning; Varcon Construction

Engineer: Wood, SNC-Lavalin, Jain & Associates, J.L. Richards & Associates, Peak, Stantec (design)

Architect: Architecture 49; Colbourne & Kembel Architects Inc.; Jacobs Carter Burgess; Kasian Architecture Interior Design and Planning Ltd.; Robertson Martin Architects Inc.

Environmental Services: Englobe

Other Key Players: Engineering Harmonics (AV consultant); Hanscomb (owner and design architect/engineer's cost consultant); DECAST

Supplier: Allen Mechanical; Alliance Forming; Amstel Manufacturing; AZ3; Black & McDonald; Canam Group (steel joists); CBM; Coco Paving; Coreslab Structures; Cremers Brothers Electric; Deep Foundation Contractors; Diamond Electric Contractors; Domson Engineering & Inspection; Dufferin Concrete; Eastern Ontario Terazzo and Tile Co.; Flynn Canada; Gilbert Steel Ltd.; JVH Masonry; Lafarge; LRL Associates Engineers; Presland Iron & Steel; Quinte Mobile Concrete; Select Door 7 Frame; Tri-con Concrete Finishing; Unistrut Canada; Vipond Fire Protection

Funding: Public
- **Federal:** $860 million

Substantial Completion: 2022

Established in 1929, CFB Trenton has traditionally been an air base, home to the 8 Wing unit, and it is one of Canada's primary launching sites for military missions abroad. The base is now undergoing a major expansion that will add the Land Advanced Warfare Centre (a multi-functional training and administrative campus), as well as new hangers and runways to accommodate additional aircraft, and a new fire hall. It will also see the relocation of the elite Joint Task Force 2 to the base, and the addition of a hazardous material transfer facility, among other construction and reconstruction components. Substantial upgrades to the natural gas service and an expansion of the electrical service are underway. The project involves acquiring an additional 401 hectares of land—a move that has been controversial as it involves expropriating neighbouring farms, some more than 200 years old. The 10-year expansion program has already begun construction, with several components already complete. In 2016, Hangar 2 obtained LEED Gold certification. The project continues and is expected to be finalized by 2022. At CFB Trenton, substantial upgrades to the natural gas service, expansion of the electrical service, and construction of the Land Advanced Warfare Centre, hazardous materials transfer facility and fire hall is all complete. Work on new hangars and runways is ongoing.

58 Union Station Revitalization Project

$823.7 million

2020 Rank: 60

Location: Toronto, Ontario

Owner: City of Toronto

Project/Construction Manager: Carillion (Stage 1) and Bondfield Construction (Stage 2/3)

Engineer:: NORR Limited Architects & Engineers (structural, mechanical and electrical); Wood (consulting); TMP (mechanical)

Contractor: Clifford Restoration (building envelope restoration)

Architect: NORR Limited Architects & Engineers (prime design consultant); DIALOG (executive architect of retail features)

Legal: WeirFoulds (acting for architects); Osler

Other Key Players: Arup (4D modelling, pedestrian flow, construction coordination analyses); A.W. Hooker Associates (cost management); Entro (wayfinding and signage); Engineering Harmonics (AV consultant); FGMDA (heritage consultant); Golder (construction mat. engineering/testing); Hanscomb (study and design teams' cost consultant); WSP (geotechnical consultant); Aecon (train shed platform); Aon (risk advisor/ broker for preferred proponent); Morrison Hershfield (conceptual study); Comtech (multidisciplinary consulting services); EXP (train shed roof design and construction admin); Jacobs (project Mgmt. services); EY (mgmt. consultant); Entuitive

Supplier: Canam Group (steel deck); Dufferin Concrete

Funding: Public

Substantial Completion: 2021

The revitalization project includes restoration of many of the station's heritage elements, creation of 160,000 square feet of retail space with the focus of bringing the best of Toronto's independent retailers and restaurants to the station, and expansion of the GO concourses to accommodate the expected doubling of passengers by 2030. In April 2015, the new spacious 62,000-square-foot York Concourse opened to provide almost twice the space of the existing Bay Concourse to help get customers to where they are going faster and easier. In August 2015, the Bay Concourse was closed to undergo renovation. Substantial completion has been delayed, and is now expected to occur in 2021.

59 East-West Tie Transmission Project

$777.1 million

2020 Rank: 62

Location: Municipality of Shuniah, Ontario to Wawa, Ontario

Owner: NextBridge Infrastructure, a partnership with NextEra Energy Canada, Enbridge Inc., and Borealis Infrastructure

Construction Manager: Quanta Services Inc.

Contractor: Valard

Engineer: Burns & McDonnell

Environmental Services: Dillon Consulting (environmental assessment)

Other Key Players: Ontario Energy Board and the IESO; Golder (environmental and social impact assessment, environmental inspection services for geotech. drilling program); Hatch (constructability reviews and access planning); Englobe

Supplier: Canam Group

Legal: Gowling WLG (counsel to NextBridge); Osler; Torys (acting for the owner)

Funding: Public

Substantial Completion: 2021

The East-West Tie Transmission Project is planned to consist of a new, approximately 447-kilometre, double-circuit, 230-kV transmission line, primarily paralleling an existing transmission line corridor. The new East-West Tie will which connects the Wawa Transformer Station to the Lakehead Transformer Station in the Municipality of Shuniah, near Thunder Bay, with a connection approximately mid-way at the Marathon Transformer Station. The need for the project was established by the Independent Electricity System Operator to; (i) increase capacity to meet expected electricity demand growth in northwestern Ontario, (ii) provide two-way power flow across the tie, allowing more efficient use of generation resources, and (iii) create improved electricity system reliability, flexibility and operation. Additionally, in March 2016, Ontario declared that the construction of the East-West Tie Transmission line is needed as a priority project. In October of 2017, the Ontario Energy Board issued the Letter of Direction and Notice of Proceeding for the project. The targeted in-service date in 2020. In early 2018, Hydro One filed for a Leave to Construct, presenting its own vision (Lake Superior Link) for the project. Acting on concerns that the project cost had risen to $777 million, Hydro One announced that it could build the project for $100 million less, by using an existing corridor through Pukaskwa National Park. Construction on the project began in October 2019. it is scheduled for completion by the end of 2021.

60 Ontario Public Safety Radio Network

$765 million

2020 Rank: 64

Location: Province of Ontario

Owner: Government of Ontario

Project/Construction Manager: Bell Mobility

Other Key Players: CIMA+; Entuitive

Funding: Public

Substantial Completion: 2023

In October, the Government of Ontario announced that it had awarded a contract to Bell Mobility to replace the province's aging Public Safety Radio Network. The agreement includes the reconstruction of core infrastructure, replacement of outdated equipment, and maintenance of the new radio network will help keep communities safe. Transition to the new network will begin to take place in 2021. Full transition to the new network is to be completed in 2023.

61 Corner Brook Acute Care Hospital

$750 million

2020 Rank: 65

Location: Corner Brook, Newfoundland and Labrador

Owner: Government of Newfoundland and Labrador (to be turned over upon completion to the Western Health Regional Health Authority)

Project/Construction Manager: Corner Brook Care Team—B + H Architects, Montgomery Sisam Architects, Marco Construction

DBFM Team: Corner Brook Health Partnership—

- Developer and equity member: Plenary Group
- Equity member: PCL Investments Canada Inc.
- Design-builder: PCL Constructors Canada Inc., Marco
- Mechanical-electrical Contractor: Cahill Group, Plan Group
- Architect: B + H Architects, Parkin
- Facilities Management: Johnson Controls

Contractor: Marine Contractors of Pasadena (site excavation and grading); Brook Construction (underground concrete water reservoir)

Engineer: WSP (structural)

Other Key Players: WSP (heliport planning, sustainability consulting); Hanscomb (functional programmer's cost consultant); INTECH Risk Management; EY (financial advisor); AGAT Labs; Aon (risk advisor)

Legal: Torys (owner); Borden Ladner Gervais

Funding: P3

Substantial Completion: 2023

This new hospital will continue to offer the high level of services currently available at Western Memorial Regional Hospital including emergency care, obstetrics, palliative care, rehabilitation, inpatient mental health services and diagnostic services, in addition to new services such as radiation treatment and a dedicated space for a PET scanner. Steel work was completed in the fall of 2020, with concrete pouring continuing until late December. The project is still on track for completion by 2023.

62 Carillon Generating Station Refurbishment Project

$750 million

NEW

Location: Saint-André-d'Argenteuil, Québec

Owner: Hydro-Québec

Design: WSP

Supplier: Andritz (turbines)

Funding: Public

Substantial Completion: 2027

Hydro-Québec will invest $750 million to refurbish its Carillon generating station, mainly to replace six generating units. Carillon generating station is a run-of-river power plant consisting of 14 generating units with a total installed capacity of 753 MW. Built in the early 1960s, it is a key part of Hydro-Québec's hydroelectric generating fleet. The station is close to the greater Montréal area and feeds power into the grid during peak consumption periods. The investment also covers the cost of civil engineering work, including making adjustments to water passageways, upgrading electrical equipment and replacing the station roof. Work will start in 2021 and continue until 2027.

63 CFB Esquimalt A/B Jetty Recapitalization Project

$743 million

2020 Rank: 61

Location: Constance Cove, British Columbia

Owner: Department of National Defence

Construction Manager: WestPro (Pomerleau) (demolition of the existing B jetty)

Contractor: Scansa Construction (utility corridor)

Design: WSP

Engineer: SNC-Lavalin

Other Key Players: Wood (design authority for A jetty); Stantec (design authority for B jetty); BTY Group (cost consultant); Hanscomb (design engineer's cost consultant for Jetty A); McElhanney (survey/geomatics services); Milestone Environmental; Golder; Aon (risk advisor); Hemmera; Englobe

Credit: Department of National Defence

Funding: Public

- **Federal** Department of National Defence: $781 million

Substantial Completion: 2024

The aim of the jetty project is to demolish the existing A and B jetties at CFB Esquimalt's dockyard and construct a new steel-and-concrete-pile A and B jetty facility in the same location. Due to the degraded functional and technical condition of the existing 70-plus-year-old structures, the recapitalization of these facilities has long been an infrastructure priority for the Royal Canadian Navy and the Department of National Defence.

This project will provide sufficient operational berthing space for four Halifax-class frigate, two Arctic/offshore patrol ships, one Queenston-class joint support ship, and one Victoria-class submarine. Significant portions of the dockyard's service-support infrastructure will be recapitalized: both existing jetty cranes will be replaced, and all utility infrastructure to the site will be renewed. The project will also include rebuilding roads and sidewalks as well as the expansion and improvement of the jetty-apron area.

Phase 1 of the A/B Jetty project was completed in 2014. A contract for works involving the replacement of the main substation was awarded in early 2018. The project is expected to be completed by 2024.

64 Highway 104 Project

$717.9 million

NEW

Location: Sutherlands River to Antigonish, Nova Scotia

Owner: Nova Scotia Department of Transportation

DBFOM Team: Dexter Nova Alliance
- Contractors: Dexter Construction, Nova Construction
- Equity Partner: BBGI

Other Key Players: MQO Research (consultation report); Deloitte; CBCL Limited Consulting Engineers (highway corridor study); Englobe; WSP

Funding: P3

Substantial Completion: 2023

The Highway 104 project will see 38 kilometres between Sutherlands River, Pictou County, and Antigonish twinned as well as the construction of new interchanges and bridges. The project includes: approximately 10 km of new, four-lane divided highway; 28 km of twinning existing highway; two new interchanges; 24 new bridges; upgrading and repaving of the existing two-lane section to like-new condition; and environmental enhancements including wildlife corridors and fencing. The total cost of the project includes $364.3 million for construction and $196.4 million for ongoing operations and maintenance and a major upgrade of the existing stretch of highway during the 20-year operating period. Insurance, professional fees and financing and other costs make up the remainder of the total. *Source: Government of Nova Scotia*

65 Union Station Infrastructure Renewal Program

$700 million

2020 Rank: 67

Location: Toronto, Ontario

Owner: Metrolinx

Project/Construction Manager: Joint Venture—Hatch (lead), Parsons, IBI Group

Engineer: Morrison Hershfield (design engineer)

Other Key Players: Entro (signage and wayfinding consultant); Morrison Hershfield (track/signals eng. for conceptual work); WSP (geotechnical consultant, design services); Aon (risk advisor); Hatch (signals specialist); Golder; Rider Levett Bucknall; Deloitte; Comtech (consulting services); EY (mgmt. consultant); McElhanney (transportation planning)

Legal: Torys (owner)

Funding: Public

Substantial Completion: 2021

The Union Station rail corridor is the 6.4-kilometer hub of Toronto's transit network and consists of a complex arrangement of approach tracks, passenger platforms, and four interlockings at Cherry, Scott, John, and Bathurst streets. The corridor supports GO Transit commuter trains, Canadian Pacific, Canadian National, VIA, and ON Rail operations. It has 14 station tracks with platform access and more than 180 signals, 250 switch machines, 40 kilometers of circuited track, and all associated infrastructure, dating back to the late 1920s. This will be replaced with state-of-the-art computer-based interlockings and LED signaling technology. The scope of work has included track additions and upgrading, replacement of all special trackwork in the multi-track rail corridor extending four miles east and west of the station, and replacement of the 90-year old signaling system with new state-of-the-art signals, communications, power supply, CCTV, and SCADA systems. The program will wrap up in 2021.

66 North Shore Wastewater Treatment Plant

$700 million

2020 Rank: 68

Location: North Vancouver, British Columbia

Owner: Metro Vancouver

DB(F) Team: ADAPT Consortium—Acciona Infrastructure; DIALOG; Wood; Tetra Tech

Engineer: AECOM (owner's engineer); Wood (consulting); McElhanney (consulting)

Architect: Miller Hull, HDR/CEI (consulting)

Other Key Players: Space2Place (public consultation, research and analysis, concept development); BTY Group (cost consultant); Golder (geotechnical evaluations); Maple Reinders (compatibility advisor); KPMG (business case financial advisor); Pomerleau; Aon (risk advisor); WSP (procurement); INTECH Risk Management; Deloitte (financial and procurement advisor); Hanscomb (independent certifier)

Legal: Norton Rose Fulbright (counsel for Metro Vancouver); Osler (DBF Counsel); Torys (acted for lender)

Funding: P3

Substantial Completion: 2024

Credit: Metro Vancouver

This greenfield secondary treatment plant will replace an existing primary treatment plant. New federal and provincial regulations require the upgrade of all primary treatment plants. The existing primary plant removes only 40 to 60 per cent of suspended organic matter in the wastewater which, after primary treatment, is discharged directly into Burrard Inlet—a matter of concern for some environmentalists—and is located on land leased from the Squamish Nation. The new secondary plant will be able to remove over 90 per cent of organic matter and will be located two kilometres east of the existing plant. Increased plant capacity will allow up to 320 million litres per day to be treated under storm conditions. Construction officially began in late August of 2018. In 2019, the decision was made to move from secondary to tertiary treatment technology, with project completion now anticipated in 2024.

67 Great Plains Power Station

$700 million

NEW

Location: Moose Jaw, Saskatchewan
Owner: SaskPower
EPC Contractor: Burns & McDonnell

Contractor: KMS Construction Ltd. (road upgrades)
Funding: Public
Substantial Completion: 2024

The Great Plains Power Station is the latest natural gas power plant being constructed in Saskatchewan, following the successful completion of the Chinook Power Station in 2019. The Great Plains Power Station is being constructed as a 350-Megawatt combined cycle plant, very similar to specifications of the Chinook project. Two consortiums were bidding for the EPC project, with the winner expected to be named by the end of 2020. As of press time, that winner had not yet been announced.

68 Micoua-Saguenay Transmission Project

$690 million

NEW

Location: Côte-Nord to Saguenay–Lac-Saint-Jean, Québec
Owner: Hydro-Québec

Contractor: Groupe Conseil Nutshimit Nippour (Section 8 clearing operations); Midifor Inc. (Section 9 and 10 clearing operations)
Other Key Players: Englobe
Supplier: Locweld (steel transmission towers)
Funding: Public
Substantial Completion: 2022

The new 735-kilovolt transmission line will connect Hydro-Québec's Micoua and Saguenay substations. The line will run roughly 262 kilometres through the Côte-Nord region (approx. 200 kilometres north of Quebec City) northwest through to the Saguenay–Lac-Saint-Jean region. The new line will help strengthen the reliability of the transmission system in the province. The project is scheduled for completion by the end of 2022.

69 GO Bus Infrastructure

$656 million

2020 Rank: 70
Location: Greater Toronto-Hamilton Area, Ontario
Owner: Metrolinx
Engineer: Hatch
Other Key Players: Comtech (project mgmt. consultant); Wood
Funding: Public
Substantial Completion: 2025

Metrolinx continues to invest in GO Bus Infrastructure throughout its GTHA network, including significant upgrades to several of its stations. The upgrades are complimentary to the work being done to expand rail service throughout the same corridor. As of mid-2020, more than 60 per cent of the project budget had already been spent ($400 million)

Credit: Metrolinx

70 Highway 401 Expansion Project

$639.8 million

2020 Rank: 72
Location: Milton to Mississauga, Ontario
Owner: Ontario Ministry of Transportation
Project Manager: Infrastructure Ontario
Construction Manager: WSP
DBF Team: West Corridor Contractors

- Developer: Aecon infrastructure Management Inc. (Aecon), Parsons, Amico Design Build Inc. (Amico)
- Constructors: Aecon, Amico, Parsons
- Designers: Parsons (Lead Designer), Hatch, EXP
- Financial: National Bank Financial

Engineer: Hatch; Parsons (consulting)
Other Key Players: Operis (financial services); Morrison Hershfield (structural design review); A.W. Hooker Associates Ltd. (independent certifier); AECOM; Aon (risk advisor); DECAST; EllisDon; Golder (geotechnical services); Comtech (project mgmt. consultant)
Funding: P3
Substantial Completion: 2022

Credit: Ontario Ministry of Transportation

The Highway 401 expansion project consists of an approximately 18 kilometre long stretch within the western part of the Greater Toronto Area, from the Credit River in Mississauga to Regional Road 25 in Milton. This portion of highway feeds into the northwest corner of Toronto, passing by Pearson International Airport before stretching across the top of the city heading east. The expansion project will create: 12 lane core-collector system from the Credit River to Winston Churchill Boulevard; 10 lanes from Winston Churchill Boulevard to Highway 407 ETR/ Highway 401 interchange; 12 lane core-collector system from Highway 407 ETR/ Highway 401 interchange to east of the James Snow Parkway; 10 lanes from the James Snow Parkway to west of Regional Road 25; median HOV lanes; and support facilities and features – drainage, lighting, signage, ATMS, carpool lots etc. Construction on the expansion began in late 2019.

71 GO Expansion Project – Off Corridor

$619 million

2020 Rank: 75

Location: Greater Toronto-Hamilton Area, Ontario

Owner: Metrolinx

Project Manager: Infrastructure Ontario

Other Key Players: Parsons (systems work); Golder (geotechnical services); Deloitte, Comtech (project mgmt. services); AECOM; Wood; WSP (technical advisory services)

Funding: Public

Substantial Completion: 2025

Credit: Ontario Ministry of Transportation

The Off Corridor projects for the GO Expansion is the smallest of the three sections of the project. The work includes "[...] customer and safety-related improvements to existing stations and the introduction of new stations that are delivered in partnership with local municipalities and property developers." *(Metrolinx Business Case, Fall 2018)*. DB and DBF procurement models will be used for the projects in the off corridor portfolio.

72 Rehabilitation of Robert-Bourassa Generating Units

$618 million

2020 Rank: 66

Location:
Baie-James, Québec

Owner:
Hydro-Québec

Contractor:
GE; TRANSAR

Other Key Players:
EXP (plans and specs for mechanical systems); McElhanney; Englobe

Funding: Public

Substantial Completion: 2022

Robert-Bourassa generating station is one of the crown jewels in Hydro-Québec's generating fleet. With an installed capacity of 5,616 MW, it is the most powerful generating facility in Québec. Its longevity is essential to ensuring the long-term supply of reliable power in Québec. This project includes the rehabilitation of eight of the sixteen generating units of the Robert-Bourassa generating station, as well as the speed governors, static excitation systems and cooling systems in all sixteen units. The DEW generating units (made by Dominion Engineering Works) will be the ones rehabilitated, as they show the most signs of wear. This work will allow Hydro-Québec. to optimize its facilities and adequately secure Québec's energy future. Project completion is targeted for 2022.

Photos: Hydro-Québec

73 Highway 427 Expansion Project

$616 million

2020 Rank: 73

Location: Toronto to Vaughan, Ontario

Owner: Government of Ontario

Project Manager: Infrastructure Ontario

DBFM Team: LINK 427—ACS Infrastructure Canada Inc., Brennan Infrastructures Inc. (Miller Group) (developer); Dragados Canada Inc., Brennan Infrastructures Inc. and Bot Infrastructure Ltd. (construction); MMM Group Ltd. (WSP), Thurber Engineering Ltd. (design); ACS Infrastructure Canada Inc. and Brennan Infrastructures Inc. (maintenance)

Engineer: AECOM; Parsons (consulting); Wood (consulting)

Other Key Players: Golder (preliminary foundation and pavement engineering services); INTECH Risk Management (insurance advisor); Aon (risk advisor); Comtech (project mgmt. consultant)

Supplier: DECAST (precast infrastructure); Canam Group

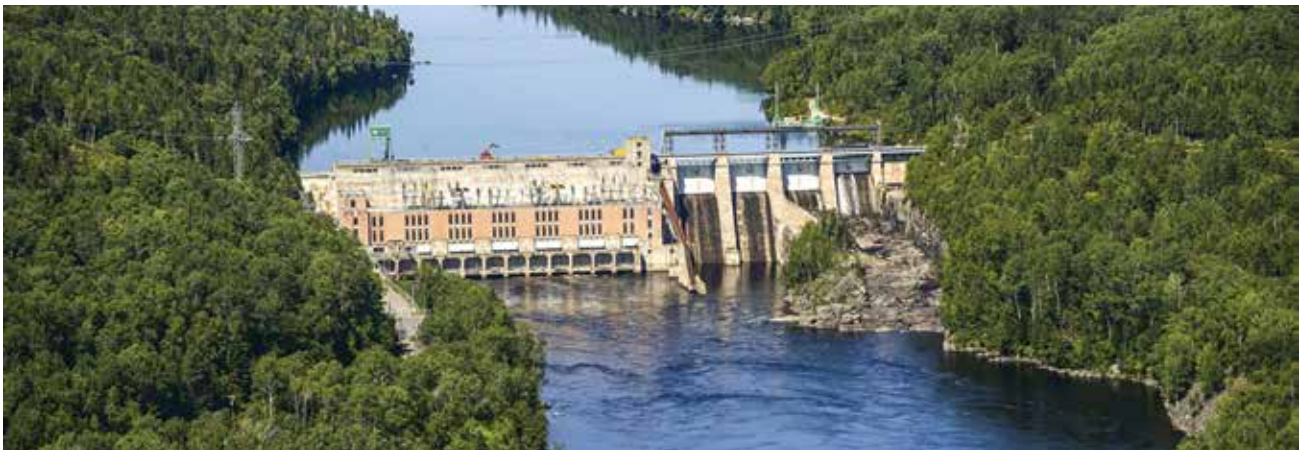
Legal: Torys (acted for the lender)

Funding: P3

Substantial Completion: 2021

The expansion of Highway 427 is a 10.6-kilometre addition to one of Toronto's 400-series highways, which currently runs from the Queen Elizabeth Way north to Highway 7 in the city's west end. There are two sections to the project. The first is the widening of the highway from Finch Avenue to Highway 7 (four kilometres), expanding the highway from four and six lanes to eight lanes. This will include the addition of high-occupancy toll (HOT) lanes. The second section is the 6.4-kilometre extension of the highway from Highway 7 to Rutherford Road. This includes the creation of six- and eight-lane highway sections and three interchanges. As of fall 2020, road construction and paving work was completed in parts of the highway extension. Completion of the project is expected in 2021.

Photos: Hydro-Québec



74 Rapide-Blanc Generating Station Refurbishment Project

$612.9 million

2020 Rank: 74
Location: Northern Quebec
Owner: Hydro-Québec
Contractor: Voith (installation of new turbines, generators, and digital governors, as well as the refurbishment of embedded turbine components)
Engineer: WSP (design); EXP (design)
Other Key Players: Englobe
Funding: Public
Substantial Completion: 2025

The Rapide-Blanc generation station is located on the Saint-Maurice River, 66 km north of La Tuque, Québec. The station's initial construction began in 1930 and was completed in 1934. All of the six units will be replaced. Four of the existing turbines were installed in 1934, which means that by the time the project is complete those units will have been in service for 90 years. The contract for the new units calls for a complete replacement of removable turbine and generator parts, the refurbishment of all embedded components and installation of digitally-controlled governor units. The new units will also be more efficient and allow production of approximately 10 per cent more energy with the same amount of water. The components will be designed to last at least 70 years. The site work and assembly will begin in 2021 and, after commissioning, the contract is expected to be completed by the end of 2025.

75 Gordon M. Shrum Generating Station Refurbishment

$600 million

2020 Rank: 76
Location: Peace River, British Columbia
Owner: BC Hydro
Contractor: Peter Kiewit Infrastructure
Turbine Supplier: Voith Hydro
Supplier: Andritz Hydro (rotor poles), Siemens (replacement transformers); Voith Hydro (turbines); Englobe (turbine QA)
Funding: Public
Substantial Completion: 2023

This generating station, located at the W.A.C. Bennett Dam, provides 24 per cent of BC Hydro's hydroelectric power. Currently, there are several capital projects underway at this generating station and the W.A.C. Bennett Dam to replace the station's 50-year-old equipment. The largest in terms of budget is the replacement of five turbines and this project was completed in fall 2015. Work on the draft tube maintenance gates refurbishment was set to wrap up by the end of 2020, with disconnect switch replacements completed in 2021, followed by HVAC system upgrades and control system upgrades targeted for a 2023 completion date.

Credit: BC Hydro

76 Bonnybrook Wastewater Treatment Plant D Expansion

$600 million

2020 Rank: 77

Location: Calgary, Alberta

Owner: City of Calgary

Project/Construction Manager: Graham

Contractor: KLS Earthworks & Environmental (Bonnybrook emergency outfall channel)

Engineer: Stantec (local); Jacobs; AECOM; Wood (consulting); Tetra Tech

Other Key Players: Hanscomb (owner's design stage cost consultant); Aon (owneradvisor and construction insurance broker); WPC Water Solutions; AGAT Labs; McElhanney (mgmt. services); KLS Earthworks and Environmental (heavy construction works); Englobe

Legal: Blake, Cassels & Graydon (advisor for the City of Calgary)

Funding: Public

Substantial Completion: 2024

Credit: City of Calgary

One of Calgary's three wastewater treatment plants, Bonnybrook is undergoing an expansion with the plant estimated to be able to service an additional equivalent population of 325,000 people. When construction is completed in 2022, the facility will service a population of 1.366 million people. The Plant D expansion is the largest project of the overall upgrade and includes new primary and secondary clarifiers, new bioreactors with biological nutrient removal system, new treated effluent filtration facility, new Thermal Hydrolysis Process facility, and a new flood berm. The City is also upgrading the existing ultraviolet disinfection system, digesters, and primary sludge thickening systems. Three significant construction projects got underway in 2019: the primary treatment expansion, new biogas storage facility, and the cogeneration facility expansion.

77 Library and Archives Canada Preservation Centre

$580 million

NEW

Location: Gatineau, Quebec

Owner: Government of Canada

DBFOM Team: Plenary Partners Gatineau — B + H Architects; Group (Canada) Ltd.; PCL Constructors Eastern Inc.; PCL Investments Inc.; ENGIE Services Inc.

Other Key Players: Morrison Hershfield (BE/CLS work); EY (P3 advisor); Deloitte (financial advisor); Aon (risk advisor); Hanscomb (cost consultant); Englobe

Funding: P3

Substantial Completion: 2022

Photos: Government of Canada

The new preservation centre will be the first net-zero carbon facility dedicated to archival preservation in the Americas, and the first federal building constructed to the requirements of Canada's Greening Government Strategy. The building is being constructed across from the current facility, located in Gatineau, Quebec. The main features of a net-zero carbon building are: Minimal carbon emissions from energy consumption, achieved through building design and efficiency measures; energy needs met through carbon-free fuel sources; and minimal embodied carbon in building materials. Foundation work began in August 2019 and construction of the main structure continued throughout 2020.

78 Réno-Systèmes – Phase IV

$570 million

2020 Rank: 78

Location: Montreal, Quebec

Owner: STM

Engineer: SNC-Lavalin

Other Key Players: Englobe (quality management services); WSP (independent certifier)

Funding: Public

Substantial Completion: 2022

In the fall of 2014, the board of directors of Société de transport de Montréal (STM) announced that it would invest $582.5 million in the replacement of metro stationary equipment in phase 4 of its Réno-Systèmes program. The program calls for the systematic replacement of end-of-life assets in the following categories: energy, accessibility, ventilation, motorized installations, telecommunications and operating process controls, track equipment, and train control. It is expected that work done in 2020-2021 will represent $68.4 million of the province's $394.1 million contribution to the program.

79 West Calgary Ring Road

$552 million

2020 Rank: 80

Location: Calgary, Alberta

Owner: Alberta Transportation

Contractor: EllisDon (north section); Aecon, Flatiron (Bow River Bridge Twinning); Calgary Safelink Partners – Carmacks Enterprises Ltd., Graham Infrastructure LP, VINCI Infrastructure Canada Ltd. (south section)

Engineer: Hatch (lead); Wood (consulting); Tetra Tech (design); Parsons (consulting)

Other Key Players: Deloitte (financial advisor); Burns & McDonnell (electric utility relocations); Parsons; Englobe; Morrison Hershfield (quality control); AECOM

Funding: Public

Substantial Completion: 2022

The 11-kilometre project is divided into three segments: the south one that connects with the Southwest Calgary Ring Road, the north one that meets the Trans-Canada Highway, and a new bridge across the Bow River. The north segment, running between Old Banff Coach Road and the Trans-Canada Highway, will be constructed by EllisDon. The project was tendered at a cost of $463 million. The West Bow River Bridge twinning project will be built by Flatiron and Aecon and has been tendered at a cost of $89 million. The contract for the south portion of the road was awarded in June 2020. The West Calgary Ring Road will be open in 2024, one year following the expected completion of the Southwest Calgary Ring Road project. When complete, the entire Calgary Ring Road will provide travellers with 101 kilometres of free-flow travel.

80 Bowmanville Extension Project

$550 million

2020 Rank: 81

Location: Bowmanville, Ontario

Owner: Metrolinx

Other Key Players: Wood, Stantec (technical advisory services); Deloitte, Golder; AECOM

Funding: Public

Substantial Completion: 2024

Announced in June 2016, the Bowmanville Extension project will see the Lakeshore East train line extended nearly 20 kilometres from Oshawa to Bowmanville. The project includes the creation of four new stations: two in Oshawa, one in Courtice and one in Bowmanville. When service begins, four rush-hour trains will leave from Bowmanville in the morning, and return in the afternoon. When service opens in 2024, the line will provide four morning trips along the line to Union Station in downtown Toronto, and four afternoon trips making all station stops to the new Bowmanville station.

Credit: Metro Vancouver

81 Annacis Island Wastewater Treatment Plant Expansion

$550 million

2020 Rank: 82

Location: Delta, British Columbia

Owner: Metro Vancouver

Construction Manager: Graham/Aecon Joint Venture (Stage 5 expansion); Hatch (outfall project)

Contractor: North American Construction; Kenaidan Contracting (computer control system and laboratory building); Bessac/Pomerleau JV (outfall pipeline)

Engineer: Brown and Caldwell, Stantec, EIC Solutions, Klohn Crippen Berger (stage 5 expansion); CDM Smith, Golder (outfall); Wood/Black & Veatch (cogeneration backup power)

Other Key Players: EXP (vibration monitoring); JJM Construction and Geopac Inc. (prepare the ground and relocate utilities); WSP (materials engineering and testing); Hatch (tunnel design review and outfall construction management); Colliers Project Leaders; Jacobs (construction mgmt. services); McElhanney (surveying services); Aon (risk advisor)

Legal: Norton Rose Fulbright (for Metro Vancouver)

Funding: Public

Substantial Completion: 2022

When this Stage 5 project by Metro Vancouver is complete, the Annacis Island facility will serve 1.5 million people in 14 Metro Vancouver municipalities. Today, it serves 1.25 million people. The previous expansion, Stage 4, was done in the late 1990s. The plant serves much of the Tri-Cities, Burnaby, Maple Ridge, Delta, Surrey, Pitt Meadows, Langley, and White Rock. The $184 million contract for the outfall pipeline was awarded in September 2019. The outfall pipe will be excavated using a tunnel boring machine. In April 2020, the Vancouver Fraser Port Authority declared that in-river work needed for the completion of the project would not have adverse environmental impacts, allowing construction to proceed as scheduled.

82 Calgary Event Centre

$550 million

NEW

Location: Calgary, Alberta

Owner: City of Calgary

Project/Construction Manager: Calgary Municipal Land Corporation; CANA Construction, Mortenson (construction mgmt.)

Designer; DIALOG, HOK (prime design team)

Engineer: Entuitive, Thornton (structural); DIALOG, ME, Designcore (electrical); Remedy, ME (mechanical)

Funding: Public/Private
- **Municipal:** $275 million
- **Private:** $275 million Calgary Sports and Entertainment Corp.)

Substantial Completion: TBD

In July 2019, the City of Calgary, Calgary Sports and Entertainment Corporation, and the Calgary Exhibition and Stampede Limited, agreed to fundamental terms and conditions for the development and construction of a new public sports and entertainment event centre. The new centre will be home to the city's NHL, NLL, and WHL sports teams, as well as serve as a venue to attract top-tier music concerts and international sporting competitions. The project also includes outdoor infrastructure enhancements for Stampede Park. Construction is scheduled to get underway in 2021 and wrap up by the end of 2024.

83 Lake Manitoba and Lake St. Martin Outlet Channels Project

$540 million

2020 Rank: 83

Location: Interlake, Manitoba

Owner: Government of Manitoba

Contractor: 513 Construction Ltd./Glen Hartman Construction Ltd. (all-weather road construction); Interlake Regional Tribal Council/Sigfusson Northern Ltd. (all-weather road construction)

Engineer: Hatch; KGS Group; Dillon Consulting (sub to Hatch)

Environmental Services: North/South Consultants Inc.; M. Forster Enterprises; Stantec; E. Hicks & Associates Ltd.; Szwaluk Environmental Consulting Ltd.; Magellanicum Ecological Services

Funding: Public
- **Federal:** $247.5 million
- **Provincial:** $292.5 million

Substantial Completion: 2025

In 2011, southern Manitoba experienced widespread flooding and Lake Manitoba experienced excessively high inflows through the Waterhen River, Whitemud River, and the Portage Diversion. This flood protection project is intended to improve lake level regulation and consequently reduce the likelihood of flooding along Lakes Manitoba and St. Martin. The $540 million flood protection project consists of two 23-kilometre long outlet channels with associated control structures and bridge crossings as well as an 80km all-weather access road and a 24kV transmission line to the Lake St. Martin outlet channel control structure. The Lake Manitoba outlet channel will connect Watchorn Bay on Lake Manitoba to Birch Bay on Lake St. Martin and the Lake St. Martin outlet channel will drain Lake St. Martin from a point in the southeast to Willow Point in Lake Winnipeg.

84 Metrolinx Light-Rail Vehicles

$528 million

2020 Rank: 84

Location: Toronto, Ontario

Owner: Metrolinx

Engineer: SNC-Lavalin; Wood (consulting)

Other Key Players: Comtech (project mgmt. consultant services); Jacobs (vehicle engineering consultants)

Supplier: Alstom (LRVs)

Funding: Public

Substantial Completion: 2021

Metrolinx announced the purchase of 61 Citadis Spirit light rail vehicles from Alstom in May of 2017. The purchase provides Metrolinx with the flexibility to use the vehicles as needed across its current light rail transit projects, with 17 of the vehicles will be purpose-built for the Finch West LRT project, with the remaining 44 available for additional projects underway including the Eglinton LRT and Hurontario LRT. The vehicles are expected to be available in time for use on any of the aforementioned projects in 2021.

85 BMO Convention and Trade Centre Expansion Project

$503.7 million

2020 Rank: 86

Location: Calgary, Alberta

Owner: City of Calgary

Project/Construction Manager: PCL Construction (construction manager); Calgary Municipal Land Corporation (development manager); M3 Development (project management)

Engineer: Tetra Tech (design); Entuitive

Architect: Stantec, S2 Architecture, Populous (planning and design)

Funding: Public/Private All three levels of government will contribute approximately $166.6 million to the project, while Calgary Stampede and Exhibition Ltd. is contributing $3.9 million

Substantial Completion: 2024

The 50,000 square feet BMO Convention and Trade Centre is Calgary's largest convention centre. The expansion project will create a tier-1 venue, the second largest facility of its kind in Canada. The project will more than double the size of the BMO Centre to almost one million square feet, transforming it into Canada's second-largest facility, and create new spaces for conferences, meetings, exhibitions and consumer shows. In June 2020, Calgary Stampede and the Calgary Municipal Land Corporation unveiled the design for the new Centre. The project is scheduled for completion by June 2024.

86 Faro Mine Remediation Project

$500 million

NEW

Location: Faro, Yukon

Owner: Government of Canada

Environmental Services: Golder (environmental assessment)

Other Key Players: WSP (geotechnical services)

Funding: Public

Substantial Completion: 2039

Faro Mine is a former open-pit lead-zinc mine, one of the largest of its kind in the world at approximately 25 square kilometres. It is located in south-central Yukon near the town of Faro, on the traditional territory of the Kaska Nations. Abandoned in 1998, resource extraction led to 70 million tonnes of tailings and 320 million tonnes of waste rock. Care and maintenance work since then has helped to ensure water quality so that environmental standards are met. Early works projects are underway for the remediation project. including construction of the North Fork Rose Creek diversion. Remediation work is set to get underway in 2024.

87 Travers Solar Project

$500 million

2020 Rank: 88

Location: Vulcan County, Alberta

Owner: Greengate Power

Contractor: Greengate Power

Engineer: Tetra Tech

Other Key Players: Entuitive

Funding: Private

Substantial Completion: 2022

The Travers Solar Project is the largest solar energy project in Alberta history. Located on approximately 4,700 acres of land eight kilometres southwest of the village of Lomond in Vulcan County, the project will include the installation of around 2.5 million solar photovoltaic modules and 166 inverter/transformer stations. At 400 MW, the project will generate enough power to supply more than 111,000 homes, offsetting more than 472,000 tonnes of greenhouse gas emissions annually, Construction work was set to begin in late 2020 or early 2021, with completion by mid-2022.

88 Michael Garron Hospital Project

$498.2 million

2020 Rank: 89

Location: Toronto, Ontario

Owner: Toronto East Health Network

Project Manager: Infrastructure Ontario

DBF Team: EllisDon Infrastructure Healthcare—EllisDon Design Build Inc. (design-builder); B + H Architects, Diamond Schmitt Architects (design); Mulvey & Banani International Inc., Crossey Engineering Ltd., Stephenson Engineering Ltd., WalterFedy (engineer); EllisDon Capital Inc. (financial advisor)

Engineer: Wood (consulting); WSP (consulting)

Other Key Players: EXP (planning design & compliance services); A.W. Hooker Associates Ltd. (prime cost consultant and independent certifier for IO); Aon (risk advisor); Hanscomb (cost consultant)

Legal: Blake, Cassels & Graydon (advisor to the proponent); Borden Ladner Gervais

Funding: P3

Substantial Completion: 2023

The Michael Garron Hospital - Phase 1 New Patient Care Tower Project involves the construction of a new eight-story patient care tower and three-story connection, as well as demolition of some existing space and renovations to the existing hospital. The project will add up to approximately 550,000 square feet to the existing hospital and renovate approximately 100,000 square feet of select areas within the existing hospital. The topping off of the new patient care tower was reached in September 2020. The project remains on schedule for completion in 2023.

89 London Bus Rapid Transit System

$498 million

2019 Rank: 90

Location: London, Ontario

Owner: City of London

Project Manager: Dillon Consulting (East London Link phase)

Other Key Players: IBI Group/WSP JV; AECOM; Golder (geotechnical studies)

Funding: Public

Substantial Completion: 2028

Credit: City of London

The London bus rapid transit (BRT) system is a proposed 23.7-kilometre system that will run throughout the city's busiest corridors. The current iteration's north-south route runs from the downtown to the city's north end past Western University, and to the south end near Highway 401. The west-east corridor will run west from the downtown past Wonderland Road, and east to the campus of Fanshawe College. Funding for transit has been allocated to London from both the provincial and federal government, some of which will allow for early works, and perhaps a phased approach, for the implementation of the bus rapid transit system.

90 Route 389 Improvement Program

$477.5 million

2020 Rank: 92

Location: Baie-Comeau, Quebec to the Newfoundland-Labrador border

Owner: Government of Quebec

Project Manager: AECOM

Contractor: Dexter Quebec (km 240-254)

Engineer: SNC-Lavalin; Tetra Tech

Other Key Players: BPR/AXOR Experts-Conseils Consortium (planning and specifications north of Manic-5); Roche-TDA Consortium, in conjunction with Inspec-Sol (GHD) (environmental assessment); WSP (route design work); Englobe

Funding: Public

Substantial Completion: 2028

This 570-kilometre long highway joins the city of Baie-Comeau in Quebec with the Newfoundland-Labrador border. The improvement program is key in the development of Plan Nord, as it will improve access to lands north of the 49th parallel. The program is divided into five individual projects: Project A: from Fire Lake to Fermont; Project B: Baie-Comeau to Manic-2; Project C: winding sector north of Manic-Five; Project D: Manic-2 north of Manic-3; Project E: Manic-3 North to Manic-5. After the commencement of Project C in 2019, Project B got underway in May 2020. Project C carries a cost of $27 million, while Project B represents an. investment of $121.8 million.

91 Yukon Resource Gateway Project

$468 million

2020 Rank: 91

Location: Yukon Territory

Owner: Government of Yukon

Engineer: Wood (consulting); WSP (bridge design)

Other Key Players: Associated Engineering (preliminary design)

Funding: Public/Private

- **Federal:** $247 million
- **Territorial Government:** $112 million
- **Private:** $108 million (local industry)

Substantial Completion: 2025

The Yukon Resource Gateway Project will provide the bypass at Carmacks and approximately 650 kilometres of needed upgrades of existing road infrastructure in the Dawson and Nahanni ranges—two key areas of high mineral potential and active mining in Yukon. That includes replacing road surfaces, bridges, and culverts in the two regions. In March 2020, a third agreement was signed as part of the project's development, this time with the Ross River Dena Council. This new agreement covers development, environmental, and regulatory aspects of the two road component upgrades: bridge replacement and safety improvements on North Canol Road, and construction and resurfacing of kilometre 354.9 to kilometre 414.4 of the Robert Campbell Highway.

92 Centerm Expansion Project

$454 million

2020 Rank: 93

Location: Vancouver, British Columbia

Owner: Vancouver Fraser Port Authority

Design-Build: Centennial Expansion Partners — Dragados Canada Inc.; Jacob Bros. Construction Inc.; Fraser River Pile & Dredge Inc.

Engineer: AECOM; Hatch

Other Key Players: PBX Engineering; Klohn Crippen Berger; WSP; Proactive Infrastructure Consulting; Deloitte; Aon (risk advisor)

Funding: Public

- **Federal:** $454 million

Substantial Completion: 2022

The Port of Vancouver's Centerm Expansion Project involves a series of improvements to the Centerm container terminal to meet near-term demands for container shipment in the port. The two-thirds increase in capacity would expand by 600,000 twenty-foot equivalent unit containers (TEUs), from 900,000 TEUs to 1.5 million TEUs. The project also includes the South Shore Access project, a wide range of road improvements that will benefit the entire south shore port area, including a new Centennial Road Overpass and an extension to Waterfront Road. In-water and terminal works continue. The project is scheduled for completion in 2022.

93 Mills Memorial Hospital Replacement Project

$447.5 million

2020 Rank: 95

Location: Terrace, British Columbia

Owner: North West Regional Hospital District

Project Manager: Northern Health

Engineer: WSP (consulting)

Funding: Public

Substantial Completion: 2024

The business plan for a new Mills Memorial Hospital in Terrace. B.C. was approved by the provincial government in April 2019. The 78-bed hospital is expected to be more than twice the size of the current facility, going from 11,610 square metres (124,969 square feet), to approximately 26,400 square metres (284,000 square feet). It will feature private rooms, an expanded emergency department including two trauma bays, six stretcher bays, pediatric care space and four operating rooms, as well as the latest diagnostic imaging equipment. In July 2020, Northern Health announced that it was working through a modified RFP process with a qualified bidder. The initial RFP included three pre-qualified bidders, but none met the expectations for overall cost or projected construction schedule.

94 Côte-Vertu Station Underground Garage

$439.2 million

2020 Rank: 96

Location: Montreal, Quebec

Owner: STM

Project/Construction Manager: SNC-Lavalin

Design-Build: Pomerleau

Contractor: Dragados

Design: Provencher Roy & Assoc.

Engineer: Hatch, SNC-Lavalin, Stantec (engineer consortium); Marchand Houle & Assoc. (civil); Pageau Moreal & Assoc. (MEP), SDK & Assoc. (structural)

Other Key Players: Englobe (geotechnical and environmental field surveillance); WSP (geotechnical); Aon (risk advisor)

Legal: Borden Ladner Gervais

Funding: P3

Substantial Completion: 2022

Credit: STM

The new Cote-Vertu underground garage will double the capacity of the train storage available at the end of the Orange line in Montreal, enabling for 20 trains to be stored at the site. A fan of tracks at the entrance of the garage will consist of three tunnels, with two tracks holding eight trains. A connecting track from the garage to the station will provide for space for an extra four trains to be parked if necessary. A maintenance pit will also be built as part of the garage project. The additional space for parking trains will allow for a 20 per cent increase in train frequency during peak periods. The project is expected to be completed by 2022.

95 Springbank Off-stream Reservoir

$432 million

2020 Rank: 97

Location: Calgary, Alberta

Owner: Government of Alberta

Engineer: Stantec; Golder (environmental); Wood (consulting)

Environmental Services: Stantec

Legal: McLennan Ross (Counsel for the Government of Alberta); Osler (advisor to the Government of Alberta)

Funding: Public

Substantial Completion: 2023

The Springbank Off-stream reservoir represents the Government of Alberta's solution to mitigate severe flooding along the Elbow River, similar to what took place in June of 2013. Current plans call for a dry reservoir with a capacity of 70.2 million cubic metres, with an outlet structure to safely release the water back to the river when safe to do so. The reservoir will be located approximately 15 kilometres west of the City of Calgary. The Government of Alberta, under Premier Jason Kenney, hired lawyer Martin Ignesiak in May to explore ways to expedite the project. However in July 2019, the Tsuut'ina Nation Council voted to formally oppose the project, citing environmental impact concerns including the potential for groundwater pollution. This opposition has delayed the project's original anticipated completion date. The Government of Alberta continues to progress with negotiations as well as regulatory approval.

96 Royal Inland Hospital Patient Care Tower

$417.2 million

2020 Rank: 98

Location: Kamloops, British Columbia

Owner: Interior Health

DB(F)M Team: EllisDon Infrastructure

- Respondent team lead: EllisDon Capital Inc.
- Equity providers: EllisDon Capital Inc.
- Design-Builder: EllisDon Infrastructure
- Architect: Parkin Architects Ltd./Kasian
- Architects Service Provider: EllisDon Facility Services Inc.

Engineer: Tetra Tech (design); Entuitive; WSP

Funding: Public/Private

- **Provincial:** $225.2 million (Inland Health and Government of B.C.), Thompson Regional Hospital District ($172 million)
- **Private:** Royal Inland Hospital Foundation ($20 million)

Substantial Completion: 2022

The Royal Inland Hospital, located in Kamloops, B.C., is a 254-bed tertiary acute-care hospital. It is one of two Interior Health tertiary referral hospitals. The Patient Care Tower project will take place in two phases. Phase 1 will be the design and construction of the Patient Care Tower, which will feature single-patient rooms and will bring Royal Inland Hospital up to current standards of care, improving working conditions, as well as infection control and prevention measures. Phase 2 will include significant renovation and expansion to the emergency department, pediatrics, post-anaesthetic recovery, and the morgue. New parking stalls will be added to the site. In September 2020, the concrete phase reached completion with the topping off of the nine-story tower. The patient care tower is scheduled to open in the summer of 2022, with Phase 2 renovations to be completed in the fall of 2024.

97 Tłı̨chǫ All-season Road

$411.8 million

2020 Rank: 99

Location: Whati to Bechocko, Northwest Territories

Owner: Government of Northwest Territories

DBFOM Team: North Star Infrastructure—Kiewit Canada Development Corp., the Tłı̨chǫ Government (as 20 per cent equity provider); and together with Design-Build partners Peter Kiewit Sons ULC, Hatch Corporation, and Thurber Engineering Ltd.

Engineer: Wood (consulting)

Other Key Players: Golder; EY (financial advisor); Aon (risk advisor)

Legal: Borden Ladner Gervais; McMillan LLP (for the Tłı̨chǫ government)

Funding: P3

Substantial Completion: 2022

The new 97-kilometre, permanent all-season road will connect the community of Whati to the territorial highway system. The roadway will be a two-lane gravel road, and will include four bridges and one large arched culvert. In addition to the community benefit that the permanent roadway will create for the people of Whati, the roadway will also provide Fortune Minerals Limited with a means to to transport metal concentrates from its NICO Mine to the company's refinery in Saskatchewan. As of October 2020, 97 kilometres of right-of-way had been cleared, and 85 kilometres of embankment had been constructed. Three key bridges, the La Martre, Unnamed, and Duport, had also been completed.

98 Champlain Bridge Deconstruction Project

$400 million

NEW

Location: Montreal, Quebec

Owner: JCCBI

Construction Manager: CCF (Consortium CIMA+ , FNX Innov)

Contractor: Nouvel Horizon St-Laurent GP: Pomerleau, Delsan AIM Environmental Services Inc.

- Engineer: American Bridge Company, SNC-Lavalin, T.Y.Lin International Group, Harbourside, ARUP
- Design: Universal Structures Inc.

Engineer: PTA – Parsons, TeraTech, Wood (owner's engineer); McElhanney (consulting)

Other Key Players: Aon (risk advisor); EY (mgmt. consultant)

Supplier: Canam Group

Funding: Public

Substantial Completion: 2025

The Champlain Bridge (also known as Pont Champlain) was a steel truss cantilever bridge with viaducts constructed of prestressed concrete beams. It crosses the Saint Lawrence River, connecting the Island of Montreal to its South Shore suburbs. Opened in 1962, the structure was degraded by de-icing salt. In 2015, construction began downstream on a replacement bridge designed to handle higher volumes of traffic. The replacement bridge opened on July 1, 2019, and the old Champlain Bridge was closed to traffic. The deconstruction project of the bridge will consist of three methods: The deconstruction of the shoreline sections will be carried out from jetties set up along the river using standard equipment (excavators and cranes); work from the river, which will be required for over 65 per cent of the project, will be done with a system of platforms attached to high-capacity lifting towers installed on a catamaran barge; work on the steel structure over the Seaway will begin in the fall and winter of 2021-2022. First, the 2,200-ton suspended span will be removed and lowered onto a barge using strand jacks. Nouvel Horizon Saint-Laurent G.P. was named as the preferred proponent for the project in March 2020.

99 SRB PIE-IX BRT Project

$393.8 million

2020 Rank: 100

Location: Montreal, Quebec

Owner: Metropolitan Regional Transit Authority (ARTM)

Contractor: Pomerleau

Engineer: SNC-Lavalin (consulting); CIMA+ ; EXP (consulting)

Other Key Players: WSP (pre-feasibility study)

Legal: Borden Ladner Gervais

Funding: Public

Substantial Completion: 2022

The SRB Pie-IX project consists in setting up permanent high-level dedicated lanes, allowing buses to run on Pie-IX Boulevard, between Saint-Martin Boulevard in Laval and Pie metro station-IX, in Montreal. The 11-kilometre route will have 17 stations, with two in Laval and 15 in Montreal, and a 750-spot parking space at Laval's terminal station. The SRB Pie-IX will provide: An increase of 30,000 trips by public transport per day; a bus frequency similar to that of the subway; an improvement in the comfort of public transit users thanks to bus shelters allowing to accommodate a hundred people simultaneously and simplifying the ascent and descent; better interconnectivity with the public transport network; competitiveness and economic attractiveness of the axis Pie-IX, two of the most important axis of the island of Montreal for public transport and the largest public transportation corridor east of the Orange Line subway from Montreal; and the potential development of several projects focused on public transit, both in Laval and Montreal. The project got underway in fall 2018, as it expected to reach substantial completion in 2022.

100 Zwozdesky Centre

$379 million

NEW

Location: Edmonton, Alberta

Owner: Alberta Health Services

Construction Manager: Clark Builders

Design: DIALOG

Funding: Public

Substantial Completion: 2023

The Zwozdesky Centre Project involves a 40,000 square foot redevelopment of the current CapitalCare Norwood site in Edmonton. The project includes: construction of a new 40,000 square metre main facility; renovation of Angus McGugan Pavilion; and demolition of the North Pavilion building and CHOICE Day Centre. Excavation of the site has been completed, as well as the buildout of the foundation and concrete structure.

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