



Toronto

# GETTING TO TRANSIT ORIENTED COMMUNITIES

Experiences in Canada



# GETTING TO TRANSIT ORIENTED COMMUNITIES

The Greater Toronto Region is the fastest growing metropolitan region in Canada and the US with 128,000 more people living in the region over the course of 2019. As with many cities across North America this growth puts strain on housing supply and local infrastructure. A greater emphasis on the connection between infrastructure and land use within Ontario through the development of Transit Oriented Communities provides an opportunity boost housing supply, reduce regional congestion, boost economic development, and reduce environmental impact.

Ontario has committed C\$62 billion of investment in transit including dramatically expanding service on the regional rail system, new and expanded subways, new and expanded light rail, and enhanced bus services. With this historic investment being made transit infrastructure, there is an opportunity to leverage the value being created into transforming communities and providing a lasting benefit to all.

These investments involve federal, provincial, and municipal funding. Each level of government also plays different interconnected roles around planning, approvals, subsequent development around transit development, and public service provision. The picture becomes more complex with the local transit agencies, companies delivering infrastructure, real estate developers, landowners, local residents, transit agencies, community groups, and other stakeholders all having different priorities and perspectives on value. These competing perspectives can erode the overall value that should derive from these investments.

There is no singular precedent for the development of TOC in Ontario that can be reviewed as being truly integrated and transformative. While there are many good examples of transit adjacent or oriented development, we are yet to see an example that has been a catalyst for community level transformation. Integrating transit infrastructure with the community is a challenge in the following key areas:

- Value creation, value capture and who benefits
- Time of delivery to success
- Matching the vision with the expectation

The Urban Land Institute Toronto and the Future of Infrastructure Group worked together to organize four workshops based on three station developments in the Toronto region, and one transit system development in Montreal. A mix of expertise examined the challenges and learnings to provide recommendations on unlocking the potential of Transit Oriented Communities. This report provides a summary of the insights gathered.

## BARRIERS

- Organizational and responsibility fragmentation
- Established, inflexible processes
- Lack of dedicated personnel and resources
- Different mindsets between infrastructure and development
- Accepted concept of fair value capture
- Technical challenges and physical barriers
- Integration of stations with other transit and the community
- Availability and provision of public services
- Land ownership and multiple owners
- Role of cars and relationship with transit and development
- Competing priorities

## LEARNINGS

- Starting from a clear, shared vision across stakeholders
- Clear governance, expedited processes, and dedicated resources
- Integrating the station into the community through design and land use
- Policies that enable prioritization of pedestrians and transit
- Building in adaptability to processes by focusing on vision and outcomes
- A fair and consistent mechanism to capture value from transit and infrastructure investment
- Building a mixed-use community where people can live, work, and play that becomes a destination

# CONTENTS

SUMMARY	2
SITUATION & OPPORTUNITY	5
CASE STUDIES	7
BARRIERS	10
KEY LEARNINGS	11
SCIENCE CENTRE TORONTO	12
UNIONVILLE MARKHAM	16
UPTOWN BRAMPTON	20
REM MONTREAL	24

The Future of Infrastructure Group (FIG) and the Urban Land Institute Toronto (ULI) brought together leading experts from the developer and infrastructure communities, and the public sector to host workshops around four transit projects to develop recommendations for building successful transit oriented communities.



## ABOUT THE URBAN LAND INSTITUTE TORONTO

Our mission is to shape the future of the built environment for transformative impact in communities worldwide. We provide our members with independent forums for discussion and debate about city building issues and best practices. ULI Toronto carries forth that mission, while helping to shape a sustainable and thriving future for the Toronto Region. We are supported by over 2500 public and private sector members.



## ABOUT THE FUTURE OF INFRASTRUCTURE GROUP

The Future of Infrastructure Group brings together industry leaders in the sector to provide a positive, and coherent voice to help governments across Canada deliver the best value from infrastructure investments. To make the most out of Canada's planned investments, this group discusses and shares their expertise on best approaches to prioritizing, planning, purchasing, constructing, maintaining, and operating infrastructure.

## 2022

### With thanks to working group leads:

Rowan Mills, Colliers Project Leaders  
 Yvonne Yeung, City of Brampton  
 Ken Greenberg, Greenberg Consultants  
 Matti Siemiatycki, University of Toronto  
 Cary Mignault, Infrastructure Ontario  
 Richard Joy, ULI Toronto  
 Alexandra Rybak, ULI Toronto  
 Jess Neilson, Future of Infrastructure Group  
 John Allen, Future of Infrastructure Group



With thanks to the **ULI Curtis Infrastructure Initiative** for supporting this work. The ULI Curtis Infrastructure Initiative aims to build a movement to promote infrastructure solutions that are equitable and resilient and that enhance long-term community value. By creating new global and strategic partnerships, providing technical assistance, building capacity at the local level, and acting as a feedback loop to promote the most innovative and effective best practices, the Curtis Infrastructure Initiative supports ULI's mission to positively shape the future of the built environment for transformative impact in communities worldwide. A thoughtful approach to infrastructure planning and implementation addresses the pressing needs of today and improves diverse communities for the long term.

## WORKSHOPS

ULI Toronto and the Future of Infrastructure Group held four workshops as a basis of this report. Thank you to the City of Brampton, the City of Markham, the City of Toronto, CDPQ Infra, Infrastructure Ontario, and Metrolinx for participating in this program.



## MEMBER COMPANIES



# SITUATION & OPPORTUNITY

## GROWING POPULATION, UNPRECEDENTED TRANSIT INVESTMENT

The Greater Toronto and Hamilton Area lays claim to being the fastest growing metropolitan region in Canada and the US. In 2019, the Toronto region grew by 128,000 people, with Dallas Fort Worth Arlington the next at 117,000 people. The population across the region is expected to grow by over one third to 9.5 million people by 2046.

There are consequences to this growth. House prices in the city have risen by 128% in the last 10 years, and Toronto saw house prices rise 18.3% from September 2020 to September 2021 alone. Housing affordability became a major issue across the country in the 2021 federal election. Research from the Toronto Region Board of Trade also found that a lack of affordable housing for the workforce is costing the region \$7.98 billion per year.

### Transit Investment

There has been a shift in mindset in governments across Canada recognizing that investment in infrastructure is an investment in future prosperity. The province has committed C\$145 billion over the next 10 years including new hospitals and care homes, funding for schools and colleges, highway expansion and maintenance, broadband, and C\$61.6 billion for public transit. The majority of this investment is being managed through Metrolinx (regional transit agency that operates GO Transit) and Infrastructure Ontario (the provincial infrastructure procurement agency).

This transit investment aims to double the share of travel by transit in the region, tripling rapid transit, and quadrupling the regional rail service.

Investments include:

- Four subway projects, including a new line and three extensions
- New light rail, and construction underway on three light rail projects in the region and bus rapid transit lines
- GO Rail Expansion providing two-way, all-day service every 15 minutes across the network

These investments have the potential to transform the region, unlock more accessible and affordable housing, and connect people with job opportunities. It also helps to reduce traffic congestion and meet climate goals by moving people out of cars and onto transit and active travels modes.

**Transit Oriented Communities (TOC)** are higher density, mixed-use development that is connected, next to, or within a short walk of transit stations and transit stops. This type of development is designed to increase transit ridership and reduce traffic congestion, increase housing supply and jobs with access to transit, catalyze complete communities based on good planning principles, and provide positive value capture for the government to maximize transit investment while reducing taxpayer burden.

[Metrolinx]

### Benefits of Transit Oriented Communities:

- increasing transit ridership and reducing traffic congestion
- increasing housing supply (including affordable housing) and jobs
- catalyzing complete communities based on good planning principles
- offsetting the cost of station construction which would save taxpayers' money
- stimulating the economy through major projects for years after COVID-19

[Government of Ontario]

## Transit Oriented Communities

With huge outlays on transit investment the Ontario government looked at other jurisdictions to identify how they could tap into the value created to fund part of the investment. With two early announcements around station developments that would be totally funded by the private sector, the government released a plan they labelled Transit Oriented Communities where they would collaborate with municipalities and the private sector to deliver more development around transit.

The provincial government initially introduced the Building Transit Faster Act in February 2020 to help streamline the delivery of their priority subway projects. In July 2020 the government passed the Transit-Oriented Communities Act. This act gives the government the ability to designate land as transit-oriented community land. The legislation gives the government greater powers and a faster process around land expropriation around the priority subway projects. Finally, the Ontario Rebuilding and Recovery Act passed in December 2020 expanded the Transit Oriented Communities act beyond priority subway projects to other transit projects including GO Expansion and light rail projects.

Metrolinx and Infrastructure Ontario are leading the way together with municipal and private sector partners in implementing the plan across a wide portfolio of station sites. This involves providing a way forward in the following areas:

- **Planning:** In a place where rail infrastructure meets the urban fabric, challenges are present in how best to connect and enhance the public realm and the transit user experience, and how to use the planning process to streamline approval processes.
- **Financial:** With infrastructure and real estate taking markedly different approaches to financing, governments provide clarity and certainty how infrastructure will be financed, and the role developers could play.
- **Development and Construction:** Providing certainty to balance the requirements of the station and enable flexibility and innovation to deliver vibrant surrounding developments.
- **Commercial:** Developing a common governance structure that tackles risk allocation, manages interfaces, and enables swift decision-making to the benefit of the ultimate station and community development.

There are experiences across each site selected that provides a basis to build an approach to better integrate housing, workspace, public services, and entertainment into transit development. These experiences are examined below.



# CASE STUDIES

Municipalities across the Greater Toronto Area are leveraging transit investments to help transform their communities, often making it part of their long-term vision. The examples selected provide a mixture of stations with established urban communities and suburban communities which are becoming denser. Another workshop studied the changes underway across Montréal as part of a new light rail network.

## TORONTO SCIENCE CENTRE (DON MILLS) STATION

1

Transit: Eglinton Crosstown  
Description: Urban light rail  
Former use: Celestica office site and parking

Opening in 2022 in an established city it is a site that will be a future transit hub and will transition from being an office and car park into a mixed-use community.



## MARKHAM MARKHAM CENTRE UNIONVILLE STATION

2

Transit: GO Stouffville Line  
Description: Suburban heavy rail  
Former use: Parking, low rise development

A new all-day rail service provides the opportunity for Markham to become a destination in its own right by encouraging jobs and residents to the area.



## BRAMPTON UPTOWN HURONTARIO-STEELES

3

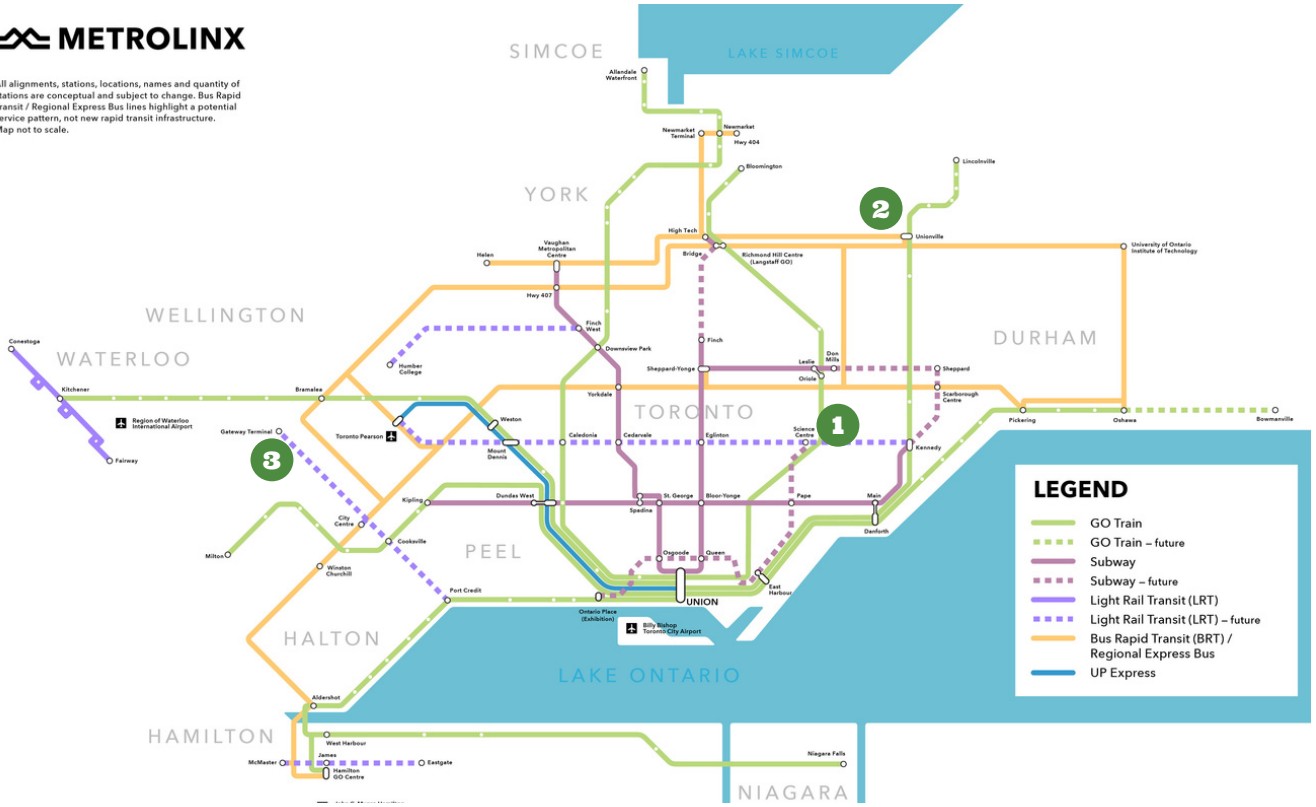
Transit: Hurontario light rail  
Description: Suburban light rail  
Former use: Shoppers World mall and parking

A new light rail in a suburban area is providing a catalyst to densify the area, with a new community hub and private development building a vibrant, welcoming community.





All alignments, stations, locations, names and quantity of stations are conceptual and subject to change. Bus Rapid Transit / Regional Express Bus lines highlight a potential service pattern, not new rapid transit infrastructure. Map not to scale.



**1** TORONTO SCIENCE CENTRE (DON MILLS) STATION



**2** MARKHAM CENTRE UNIONVILLE STATION

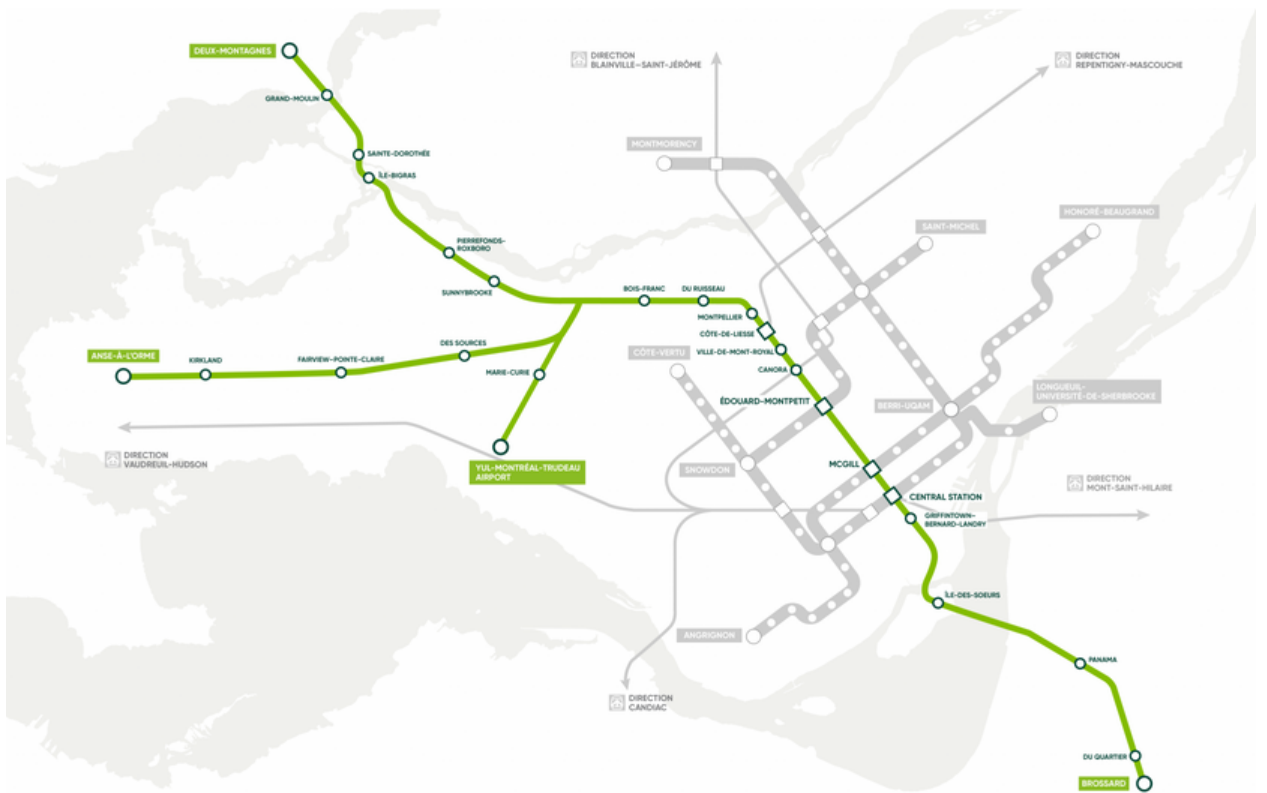


**3** BRAMPTON UPTOWN HURONTARIO-STEELES



Toronto





4

**MONTREAL**  
**RÉSEAU EXPRESS MÉTROPOLITAIN**

**Transit: REM**  
**Description: Urban rail**

The first phase of the REM, which crosses the Champlain Bridge, is slated to open by the end of 2021. Construction of the REM de l'Est should begin in 2023. The REM promises to boost the economy, reduce congestion and provide a transportation option to residents of sectors that otherwise lack fast, reliable public transit.

# BARRIERS

Although there is broad support for the concept of transit-oriented communities across different levels of government, there are many barriers that if not addressed, will prevent these stations from reaching their potential. Every station site also has unique characteristics including site dimensions and constraints, land ownership, existing land use, local infrastructure capacity and public services. Depending on the site there is typically a combination of barriers that can prevent a site reaching its potential. These include:

- **Organizational fragmentation** – different levels of government have different roles and priorities in funding, planning, approving, and delivering local infrastructure, delivering services, and enabling development.
- **Established processes** – processes have been in place for many years with different and often conflicting timelines, and can often restrict new ways of thinking such as enabling mixed use development and more walkable communities.
- **Dedicated resources** – securing necessary permissions and permits is hindered by a lack of dedicated personnel and limited resources, particularly at the municipal level which can draw out approvals and cause delays.
- **Different mindsets** – infrastructure is delivered against a long, fixed timeline with a high level of risk aversion to any changes that could cause delays, development is often more iterative and once approved can move very quickly.
- **Fair value** – with governments investing billions of dollars in infrastructure that will raise property prices around stations, governments are looking at ways to capture value to help offset the costs of the investment they are making.
- **Technical challenges** – transit lines can present large physical barriers that can divide communities, new stations also need to incorporate other transit modes, and buildings on and around stations need to be considered.
- **Integration of stations** – stations have not been integrated into communities with people passing through stations quickly to reach another destination usually switching transport modes between rail and car. This gap usually occurs at the points where the station meets land owned by other organizations.
- **Provision of services** – new development in an area can put pressure on existing utilities, schools, and social services, especially where a site is transiting between an existing land-use to welcome residents for the first time.
- **Land ownership** – land around stations is owned by many different parties from both the public and private sector, as well as established residents. It can also be restricted in size, multiple owners, or by transit operations.
- **Role of cars** – suburban communities and rail stations are designed with cars in mind, requirements on parking and street design and considerations around the future of electric and autonomous vehicles factors into future planning.
- **Competing priorities** – within communities different levels of government, transit agencies, businesses, and residents have different perspectives and priorities that can create friction, cause delays, and prevent sites from meeting their potential.

# KEY LEARNINGS

For transit stations to reach their potential there needs to be a focus on getting the fundamentals right across all sites and the wider Transit Oriented Community program in Ontario, and across North America. Looking across the four sites, the group drew out the following key learnings:

**1 Shared vision to deliver effectively** – With municipal and provincial governments, regulators, transit agencies, developers, and the local community, each organization has its own priorities and timelines. One way to accommodate this challenge is how Montréal's REM engaged with the local community and set up a multidisciplinary panel of experts to provide an overall vision around the design, built form and urban integration of the light rail line through the City. The shared vision should centre around the individual experience of the person using the transit, living or working in the area, and aim to maximize the investment made in the transit stations being delivered. It also provides an opportunity to build a unique identity as Brampton focused its vision around being a gateway to immigration and Markham looked create a station that presented a sense of arrival and integration with its natural environment with the Rouge River passing through the area. This also provides a platform for decision-makers to come together to determine how physical challenges can be addressed.

**2 Clear governance and dedicated resources** – Many organizations want to input and clear governance helps provide a window and an ongoing coordination point, while providing clarity on the decision-making process and responsibilities. We have seen the REM project in Montréal having a clear structure with the province and the organization delivering the infrastructure being accountable for decision-making, but with regular coordination with the City of Montréal and the local transit agency. The City of Toronto has committed to developing a robust secondary plan for the Eglinton corridor which provided guidance on building density and street design to help accelerate approvals for construction and permits. With multiple permits being needed and a delay posing risks on knock on effects on construction cities should build in dedicated resources to support with necessary approvals.

**3 Integration of station into the community** – Brampton also pioneered a living plan where all developers could see how the area around the station was developing to build a more coordinated experience. Infrastructure Ontario developed design guidelines to help integrate the station into the surrounding community and encourage people to visit and stay at stations rather than just pass through. As part of its station design, Markham is looking at incorporating a civic square as part of an international design competition. Ultimately, integrated sites will benefit all by enabling more people to get on transit more easily, and building complete communities where people want to live, work, and spend their time.

**4 Transitioning to pedestrians** – For suburban locations, cities have been planned around the car with stations surrounded by surface parking. Brampton is developing its streets around human-centred design which prioritizes the safety and convenience of pedestrians. Requirements across the Toronto region also need to be updated around minimum parking requirements in new buildings to encourage people to take transit and walk, and to change engineering specifications for regional roads. Stations also need to integrate with the local community to make it safe for people to walk or cycle. To spur more ridership and revitalize the city, Melbourne introduced a 10-minute bus loop around the city as a micro transit solution that helped to alleviate first/last mile challenges.

**5 Building in adaptability** – Developers are often unwilling to take on risk on relying for infrastructure to be delivered on time. There are workarounds by building adjacent to transit stations, on Eglinton the development at the Ontario Science Centre was built to be easily connected to the station with knock-out panels that can be easily removed once the station becomes operational. A prescriptive approach to construction on-site risks project elements being built and then ripped up for surrounding developments. Boston enabled minor descoping of work so that developers could take on finishing roads or sidewalks for example where it made sense for their timelines and did not impact the delivery of the transit.

**6 Capturing value** – A new transit line provides an uplift in land value but at a significant cost to taxpayers. Montréal introduced a \$10 levy per square metre in developments located within a kilometre of a station as a mechanism to recapture some of that value. Developers have generally found to be supportive of paying this cost as it provides better services around approvals and delivery enhanced local public services and secures the project, however governments need to be realistic about how many costs can be offset by capturing land value. Station construction on a subway line can cost up to \$500 million per location, so it is unrealistic for a developer to cover that total cost. New York has an agreed list of local amenities it is looking to add to provide fairness and greater certainty to developers looking to add density. In areas welcoming residents for the first time there are costs involved in building new roads, pavements, water and sewage, as well as childcare, schools and parks.

**7 Building community** – A mix of uses that encourages people to live, work and play underpins most successful transit-oriented communities. Brampton ensured that the streetscape around the transit station is vibrant year-round and at all times of days by using lighting, street layout, parks, local programming, and enabling dynamic street level experiences with retail, small local businesses, and entertainment. The city also made a community hub that provides social services, education, and recreation, the heart of development to provide a focal point for the community which is moving away from single use, car centric design into a more dense, mixed use community.



## TORONTO SCIENCE CENTRE STATION

Eglinton Crosstown is one of the first major new transit projects coming into operation in the Toronto region, providing a 19km light rail connection through the midtown as part of a transformational program of investment. The Celestica site provided an opportunity to transform an old commercial site with a large parking lot into a community with 5,000 homes, offices and community facilities.

The Celestica site in Toronto is located at the junction of Eglinton Avenue and Don Mills Road in midtown Toronto. The 60-acre site was opened in 1967 as home to IBM's Canadian Headquarters, before being taken on by Celestica. The new development will preserve the former IBM building at the base of three towers, as part of a wider mixed-use community that will link to the Science Centre station on the Eglinton LRT line and connected via an underground tunnel funded by the developer.

The overall development will comprise of eight condominium buildings and 30 townhomes that will provide 5000 homes. It will also include 300,000 square feet of combined office space (including a new office for Celestica), restaurants, cafes; childcare and long-term care beds; over five acres of park space and playgrounds; and a community centre with hockey rinks, a basketball court and a gym.

The community will be connected through pedestrianized areas, bike paths, parks, and plenty of open spaces. The station will connect residents to public transit through the Eglinton light rail, a future subway line, and bus lines.

### Key Organizations Involved:

- Government of Canada - funder
- Province of Ontario - funder
- Metrolinx - project owner and regional transit authority
- Infrastructure Ontario - procurement and delivery
- City of Toronto - planning, approvals, and funding of infrastructure
- TTC - municipal transit operator
- Crosslinx - design and construction joint venture for light rail
- Developers - real estate development around station



Eglinton Crosstown is a 19 km light rail line that cuts east-west across midtown Toronto on a dedicated right of way. The LRT will open as Line 5 Eglinton and run along Eglinton Avenue from Mount Dennis to Kennedy Station, with 25 stations connecting with existing transit lines including the TTC subway at Yonge and Cedarvale, three heavy rail GO stations, and 54 bus routes. The \$8.4 billion project is due to be completed in 2022 and will cut journey times along the corridor by up to 60 percent.

- Size: 19km, with 10km underground.
- Cost: \$8.4 billion
- Number of stations: 25
- Contract Type: Design Build Finance Maintain
- Estimated Completion: 2022

### Eglinton Connects Plan

The City of Toronto engaged intensively with the local community along Eglinton hosting around 60 public meetings and getting input from over 5,000 people over two years. The result was the Eglinton Connects Plan that was released in 2014 to develop visions of place along the route and around stations. The plan's 21 recommendations put emphasis on using the investment in the light rail to develop complete streets. It encouraged a mix of transport uses, provided guidance for public realm and the streetscape, and addressed zoning by-laws to support mid-rise development to increase previous height limits to encourage intensification near transit.

The plan specifically sought to integrate Crosstown stations with new development and intensification around six focus areas and two mobility hubs. It included amendments to the official plan and zoning bylaws to support mid-rise buildings in the area, and the development of secondary plans for the Don Mills area where the Celestica site is located. For focus areas like Don Mills, guiding principles and planning objectives were developed, along with illustrations of possible planning approaches to support growth, and to address interface and urban design through the site plan review for the Celestica site.

## CHALLENGES & LEARNINGS

As one of the first major transit projects constructed in Canada's biggest city for many years, the experiences around planning and delivering transit-oriented development provides many lessons to help guide a future approach.

### 1. Infrastructure and Developer Timelines:

The infrastructure and real estate development sectors work on different timelines, with different processes, and different business models. The Eglinton Crosstown contract was awarded in November 2015 and expected to enter operation in 2022. Design of the infrastructure was already mostly complete and construction was underway by the time many developers looked to build around stations, including at the Science Centre Station which serves the Celestica site. While it provides greater certainty for developers that the construction of the transit line is moving ahead, as well as clarity on the final shape of the infrastructure. The timing gap also creates issues. It meant that the infrastructure and the surrounding development were built separately. Much of the infrastructure design was also locked in, which made it difficult to introduce any design changes that could benefit the development and the surrounding community, but that could potentially impact delivery schedules of the infrastructure.

**Learnings:** A shared vision is required early on, and it should focus on outcomes built around pedestrian, passenger, and community experience. The City spent a lot of time and effort consulting with the community along the route to provide guidance to developers and help expedite planning approvals in future. A robust secondary plan for the area, provided a framework for development when the market was ready. On a practical level the developer built in flexibility by constructing the foundation with a hole and knock-out panels to connect into a tunnel once the station infrastructure was completed to reduce risk around timelines slipping. Plans should also consider the future, looking at overbuilding infrastructure like station boxes to allow for expansion, or using temporary facilities that can be easily replaced as a site develops to better serve future needs.

### 2. Infrastructure-Community Interface:

Many of the main pressure points around construction came at the interface between the infrastructure and the surrounding development. The Eglinton Connects plan laid out standards for public realm and streetscape, but the challenge was figuring out who paid for what and how to resolve day-to-day interface issues. This was exacerbated if requests came from sources with no budgetary responsibility, but with a vested interest to see a well-integrated outcome. Requests that lead to change orders to infrastructure could add costs and risk delays, were often rejected. Discrepancies in timelines are important. As infrastructure approaches completion, the developer would still need to undertake work that could involve digging up sidewalks and roads. These issues were dealt with on an ad-hoc basis which was time consuming and caused delays. For the Celestica site the developer built adjacent to the station with an underground tunnel to the station, which they paid for, that could be connected when work was complete. For truly integrated stations there will be many more interface points that need a more robust approach.

**Learnings:** Contracts need to be structured to enable variations and minor de-scoping of work that is ultimately better quality and delivers greater public benefit. This enables the developer to complete minor work at a later date that matches development timelines and does not impact infrastructure construction delivery schedules. Boston Transit Agency took this approach and de-scoped minor work to allow developers to complete it and negotiated costs for services. As touched on below there also needs to be an efficient and formal process to deal with small changes of scope. Infrastructure Ontario has also looked to tackle the gap between infrastructure and development for future projects through the introduction of specific design guidelines.

### 3. Coordination Process:

Along Crosstown and at the Celestica site coordination, involving multiple stakeholders and different levels of government and impacting multiple parties, was ad-hoc. Getting sign off on decisions was extremely difficult and time consuming, with the process around variations taking six months to two years in some cases. An illustrative example was the steps required to reach a resolution around work on the property line between the infrastructure and the development that could potentially impact groundwater. This started with a meeting attended by a large number of people and multiple lawyers. Part of the problem related to the different priorities and knowledge of each stakeholders' contractual, commercial, and legal responsibilities. The contractual process around delivering a \$9 billion transit line relies on hitting project milestones, developers rely on greater flexibility and ability to adapt. As no party had overarching visibility or knowledge to resolve these issues quickly and efficiently it created delays and shared frustration.

### 4. Shared Vision:

The siloed approach saw each group focusing on their specific role and missing broader opportunities that could benefit all. A shared vision can be the basis for outcome-based specifications for infrastructure delivery and planning, and can provide greater flexibility to innovate and adapt to challenges arising. For Eglinton much of the infrastructure was built separately from the surrounding development. As a result stations along Eglinton, such as the Science Centre Station, were not as well integrated into the community as they could have been, with the only direct connection being the tunnel paid for by the developer. A bus station located to the north of the site was not integrated within the site. The redevelopment of Celestica brings residents into an area for the first time and that came with further considerations on the public infrastructure and amenities needed to support the local community like schools and childcare. With many stakeholders involved there is a risk competing demands erode the overall value. More dialogue between the province, city, private sector could have helped build a better understanding of the issues and develop a clear shared idea of the overall vision, and shape design to avoid the need for major variations during construction.

**Learnings:** Navigating day-to-day issues saw a lot of time wasted which if addressed through more formal coordination, clearer governance structure, and single government counterparty could benefit everyone. Boston for example had a dedicated team which included a city representative. A dedicated, and resourced group staffed by people with knowledge across the infrastructure commercial terms, city approval processes, utility coordination, and development side would have helped to address challenges constantly and avoid disruption of deferring work. A small variations panel involving a representation of all key project stakeholders meeting monthly to discuss variations and share design drawings early would also help reduce any process friction and maintain better communications. Stronger governance across city departments would also reduce overall effort, coordinate and accelerate work and improve overall outcomes. Having a project champion from within the city, with the authority to take decisions quickly has also proved beneficial on other projects.

**Learnings:** A joint panel established early on would develop a shared vision and support better communication and balance of interests on a site to achieve maximum public benefit. A design review panel could potentially be made up of the transit agency, the procurement agency, developers, architects, planners, engineers, and city representatives to support cross communication and coordination with a single plan approach. It would also allow all parties to have a better understanding of change request impacts on the developers.



## MARKHAM MARKHAM CENTRE UNIONVILLE STATION

**GO Expansion will see the Toronto region's commuter rail network transformed by a major infrastructure investment. Unionville Station is one of many stations set to benefit from an upgrade in service that will see trains run all day, two-way service, every 15 minutes. This will become the centerpiece for the re-imagined Markham Centre that offers a unique opportunity to transform an underdeveloped suburban area to a new urban downtown core for Markham.**

The Unionville site in Markham is located north of Toronto in the Regional Municipality of York. Markham is the fourth largest municipality in the Greater Toronto Area (GTA) with a population of 328,940 residents and growing. The station is set to become the heart of Markham with a vibrant, walkable, mixed-use urban core. Markham Centre has a population of 25,000 and hosts 17,000 jobs. It will provide homes to 110,000 people and support 82,000 jobs with around 800 people and jobs per hectare around the station area.

The area around the Unionville GO Station is largely undeveloped which creates an opportunity to shape the future of the city centre with 700 acres of development land, 300 acres of greenways and parks, and local transit in operation or planned. Land around the station is owned by Metrolinx, the City of Markham, three main developers, and a YMCA. The city plans for a series of 15-minute walkable

communities linked by parks and open spaces. The station itself will be the focal point and a gateway to the city and form part of Markham's identity and play a central role in the transition of Markham from a suburban to urban centre.

### Key Organizations Involved:

- Government of Canada - funder
- Province of Ontario - funder
- Metrolinx - project owner, regional transit authority
- Infrastructure Ontario - procurement and delivery
- City of Markham - planning, approvals, and funder
- Region of York - planning authority
- York Region Transit/Viva - municipal transit operator
- TBC - privajoint venture for GO Expansion
- Developers - real estate development around the station (Remington, Metropia and OnePiece)





GO Expansion is led by Metrolinx, the provincial transit agency for the Greater Toronto region. The GO rail network is made up of seven rail lines and 460 kilometres of track and connects into 17 municipal transit systems. Currently, the GO system provides over 1,500 weekly trips with the goal of providing 6,000 by 2041. The Stouffville Line has already seen an increase in service from 50 weekly trips to 170, with the line providing over 800 by 2025. This will see a rise in annual passenger trips from 4.1 million today to around 12 million. The station will link the GO train with a VIVA bus rapid transit line that connects York Region, and an expansion to the 407 transitway that will provide a rapid bus connection across the northern Toronto region.

- Size: 49 km
- Cost: \$2.5 billion
- Number of stations: 16
- Contract type: Design Build Operate Maintain
- Estimated Completion: 2025

### Secondary Plan for Markham Centre

The City of Markham is renewing their Secondary Plan in light of new opportunities, development trends and evolving community needs since the original plan was developed in the 1990s. The secondary plan will shape development over 20-30 years and was initiated in 2019 in anticipation of growing development pressures, and the expanded transit. The Vision and Guiding principles are the foundation for the work with the secondary plan due to be published by 2022.

The Vision for the area is to produce a quality downtown Markham to be the heart of the city, be vibrant, intensive and mixed-use urban core. It also aims to create a unique sense of identity where people come to live, work, and enjoy recreation. The city also established guiding principles to help shape the plan development process:

- Create a place that is the heart of Markham
- Support a diverse and prosperous economy
- Support arts, culture and recreation
- Create an efficient and safe transportation system
- Create a good public realm
- Foster diverse built form
- Build neighbourhoods with access to all the things needed for daily life
- Realize the full potential of the Rouge River Valley as an environmental placemaking feature
- Champion sustainability and environmental performance
- Plan for inclusive and diverse neighbourhoods
- Transition from suburban to urban

## CHALLENGES & LEARNINGS

With service levels ramping up on a heavy rail corridor, Unionville provides a site with an opportunity to become a destination in itself. This transition from a suburban rail station used by commuters to a community hub where people live, work and enjoy themselves requires a different way of thinking and approaching challenges.

### 1. Suburban to Urban Shift:

Unionville Station is currently surrounded by almost 800 parking spaces with plans from 2016 originally pointing to an expansion to 1,600 parking spaces to serve commuters. The notion that this station will be a park and drive has changed. The car still dominates thinking with legacy requirements around road width and minimum parking requirements for residential developments that favour the car, despite the City of Markham's official plan from 2014 envisaging a transition from a car-dependent community to one where more people walk, cycle, and use transit. Unionville will become the core of the city and unlock a series of 15-minute walkable communities across a largely suburban place. The vision for Markham would be for a cluster of smaller local areas serving as local neighbourhoods connected by the greenway and transit.

*Learnings: Updating parking standards through building residential towers with fewer parking spaces than units, and updating engineering standards for road and transforming parking lots into community hubs could help to ensure developments and communities are designed with pedestrians and walkability in mind. To help increase density and revitalize its downtown, Melbourne, Australia introduced a ten-minute bus loop to encourage people onto transit.*

### 2. Physical Barriers to Development:

The Stouffville Line serving Unionville station runs through the centre of the proposed development area presenting a large physical barrier at Enterprise Boulevard and other junctions across the city. The current approved 407 Transitway alignment which would provide a rapid bus connection across the north of the Greater Toronto Area would also run almost directly beside the station and the Viva bus rapid transit line is located to the North. There are clear benefits in integrating these transit lines, but this needs to be assessed against how much it would limit developers' abilities to build around the station and significantly impact the pedestrianization of the surrounding area. The Rouge River also runs alongside the station.

*Learnings: Markham is studying options to overcome the physical barrier to examine under/over passes, rail decks or bridges looking at examples from Tokyo, Munich, Chicago, and Toronto. City building and engineering need to be considered in tandem to ensure that decisions made now have a long lasting, positive impact on the community. The route of the 407 Transitway will also have a long-lasting impact that could divide the community. There are precedents of building the city to connect these transit lines without having to locate them all the same site and can act as the connective tissue of the city. This will require a focused group, bringing together decision-makers to determine the best technical solution and how it could be delivered. Rather than act as a barrier the Rouge River forms a connection through Markham. The Greenway provides an immense amenity for recreation and connects neighbourhoods and parks.*

### 3. Creating a Unique Identity:

The Unionville GO Station needs to become a focal point and gateway to Markham Centre. Markham has looked at stations around the world, particularly in Europe for inspiration on how stations have been successful in acting as a gateway and the interaction between the station and the public spaces surrounding it to create a unique urban space and move away from surface parking. The station needs to be design-oriented and provide a sense of identify and arrival for visitors and residents. The hope would be that Unionville becomes the cultural heart of Markham and connects to the new civic square that creates a sense of arrival and attracts people into the community.

**Learnings:** The city is exploring the possibility of hosting an international design competition, potentially incorporating the civic square to Markham is looking to build out the area around the station with a new performing arts centre, a central library and new civic centre. The Rouge River and use of the greenways and parks connecting the city can provide a unique amenity to attract development, connect into the transit system, and stand out from other cities. The role of arts, culture and recreation, as well as emphasis on public realm is carved out within Markham's guiding principles as a way of developing a unique identity. The city is also engaging with the local community to ask what type of programming they would like to see in the new Markham Centre and what services should be available around the station.

### 4. Focus on Mixed Use:

With the delivery of two-way, all day rail service the challenge for Markham is to break away from the mindset that the city should remain a residential hub where residents travel into Toronto for work. Developers have expressed a greater interest towards residential use reflecting this mindset of Markham as a commuter town. There is great potential to increase the amount of density and intensity in Markham Centre. The original Markham Centre Plan projected 25,000 people and 17,000 jobs, then 2020 Growth Strategy projected 41,000 people and 39,000 jobs, whereas the current development concept estimated this could support 110,000 people and 82,000 jobs. The city has put emphasis on attracting offices and retail to balance people and jobs which represents a change from the past which focused on one or the other.

**Learnings:** Community building needs to be a focus, with a vibrant station and downtown that attracts people to visit, live and work in the community. The city has laid out a vision for 15-minute neighbourhoods, but there also needs to be a change in mindset that focuses on people travelling to and from the station, to ensure that Markham is prioritized as a destination. Fruitvale, California relied on input from the community with a steering group established to help determine how space was developed to be inviting, it also boosted the economic prospects of visual minorities. The vision and guiding principles established by Markham also emphasizes diversity of economic activities, built form, and neighbourhoods.



## BRAMPTON UPTOWN HURONTARIO-STEELES

The City of Brampton is undergoing a period of rapid growth that is three times the rate of the provincial average, adding roughly 20,000 new residents a year. With the arrival of the 18km Hurontario light rail in 2024, it will provide a focal point for development around the Uptown Hurontario-Steeles station to become the Uptown Core where over 100,000 people can live, work, and play.

Brampton has a population of 692,000 and is growing by around 20,000 people per year. The city is one of the most diverse in Canada with 73% of the population coming from visible minorities. 52% of the population are immigrants to Canada, with 39% of those immigrants aged 25-44. The Brampton Uptown Hurontario Steeles site aims to create a 20-minute walkable neighbourhood that appeals to the young, diverse population of the city.

As with many suburban centres developed between the sixties and eighties the urban design is car-oriented. The vision sees the convergence of 13 million square feet of public private investments delivering 12,000 new housing units, and 100,000 people living and working in the neighbourhood. The site will transform the former Shoppers World mall and parking lot into a mixed-use neighbourhood. There are seven further developments planned, a post-secondary campus, and a community hub including a school, health and social services, a day care, a library, recreation and technology facilities.

The community will be built around human-centered roads, eliminating car-dependency, integrating green spaces, and connecting surrounding neighborhoods to the core with safe walking and cycling infrastructure. Brampton is looking to support smart growth and innovative partnerships to create a vibrant, well-connected and modern city.

### Key Organizations Involved:

- Government of Canada – funder
- Province of Ontario - funder
- Infrastructure Ontario – procurement and delivery
- Metrolinx – project owner, regional transit authority
- City of Brampton– planning, approvals, and funder
- Region of Peel – stakeholder, planning
- Brampton Transit- municipal transit provider
- Mobilinx – design, construction, financing, operating and maintaining joint venture for LRT
- Developers – real estate development around station



The Hurontario LRT announced in October 2019 will link the Region of Peel as it experiences rapid population growth and urbanization. The 18km line with 19 stops starts in Mississauga at Port Credit GO Station, ending in Brampton at the Brampton Gateway Terminal. The LRT Hurontario line will connect commuters with GO Transit on the Milton and Lakeshore West Lines, the Mississauga Transitway, and local transit providers through connections with Brampton Transit, ZUM and MiWay. The line will also have its own dedicated right-of-way lane to ease traffic and congestion on the major roadway it will operate on. The \$4.6 billion project is set to be in service by fall 2024.

- Size: 18km of LRT
- Cost: \$4.6 billion
- Number of stops: 19
- Contract Type: Design Build Finance Operate Maintain
- Estimated Completion: 2024

**Brampton 2040 Vision**

The goal for the 2040 Vision is to re-imagine a future Brampton that grows not only in population size, but diversity across people, jobs and opportunities by 2040. The vision rests upon seven aspirational values to help drive its future planning. The new Brampton Core is the focal point of the vision surrounding Uptown to become the corporate “hotspot and tourist destination”. Brampton expects by 2040 to add over 136,000 dwelling units, 385,000 residents and over 185,000 jobs.

- Host sustainable urban places with an interconnected green park network.
- A vibrant centre with quality jobs, rich activities and integrated living.
- Have characterful and complete neighbourhoods.
- Have safe, integrated transportation choices and new modes that contribute to civic sustainability that emphasize and encourage walking, cycling and transit.
- Be a place that drives social responsibility, respectfulness and justice.
- Have healthy citizens that can easily enjoy physical and mental wellness, fitness and sports.
- Provide a place for artistic expression and production.

The Hurontario-Main Corridor Secondary Plan outlines objectives and criteria including promoting complete streets and attractive places, mixed use neighbourhoods, and transit-oriented growth. Land use is also geared towards higher urban density and a move away from car-oriented and single use development.

## CHALLENGES & LEARNINGS

As one of the fastest growing and most diverse cities in Canada, Brampton is going through a major transition from a car-dependent suburban community into a vibrant urban centre focused around the development of the Hurontario light rail line.

### 1. Coordination Between Multiple Developments:

With eight potential developments, a post-secondary institution, community hub, as well as a consortium delivering the Hurontario light rail against a tight deadline there are silos to overcome. There is 13 million square feet of private high-density private development underway.

**Learnings:** Creating a framework agreement of principles is key with so many decision makers involved. It is useful to clearly define values which are reflected on when having to make difficult or unpopular decisions. These values include defining what is important to the community and using it as the framework to frame and decide on trade-offs. This allows decision-makers to be bold, flexible and courageous. Brampton is pioneering a living ground plan, working with eight different developers to look at changes to right of way on the main street, transit infrastructure and the bus terminal with the understanding that the plan will keep evolving. It has given the group the ability to see outside their siloes and improve their individual plans. The tool provides an understanding of what each group needs in order to be successful at the precinct and street corner scale with development happening simultaneously.

### 2. Moving from Car Dependency:

With a goal of delivering a 20-minute walkable neighbourhood is seen as a way to promote better health, social cohesion, and reduce pollution. The area remains highly car dependent as a legacy of development from the 1960s to 1980s. The Region of Peel adopted Vision Zero to reduce collisions by 10%, but the junction of Hurontario-Steeles which is the focus of the development has seen collisions increase by 40% over 2 years from 2016 to 2018. Safety is a major concern as people choose to take public transit, walk or cycle. The definition of a Regional Road presents a barrier to building a more pedestrian-friendly environment. 40% of the population in Uptown are seniors, children or youth, many of whom cannot drive, along with the growing student population.

**Learnings:** Brampton is focused on improving safety with a human-centred roads design approach. This moves beyond a pure emphasis on meeting safety compliance criteria that can erode over time. Human centred-design prioritizes safety and comfort of pedestrians. Measures include reducing crossing distances, creating a connecting to transportation hubs, prioritizing pedestrian movement and promoting accessibility, and building in pedestrian friendly crossing features such as lead pedestrian intervals at crossings. The walkability of communities also promotes health and benefits a wide range of residents with mobility issues, including older Canadians no longer able to drive. In the long term 41% of jobs will be in local, walkable neighbourhoods and cities with employment, jobs, education, public services and leisure will be well positioned for the future.

### 3. Building Vibrant Communities:

Brampton is typical of the municipalities around the Toronto region that have developed through urban sprawl with single family homes in car dependent communities. People travel by car and traffic congestion which costs the region \$6 billion per year and has a negative impact on quality of life. Sprawl adds costs to public services like waste collection, road maintenance, and utilities. With 50% of Peel Region residents living within 300 metres of a high-volume traffic road there are health considerations from pollution. As with most transitions there needs to be a compelling reason for people to take public transit over driving, this starts with design and making communities walkable and vibrant. The city is focused on promoting local employment, neighbourhood services, programs, and quality public spaces.

**Learnings:** The Precinct Plan provides design direction to bind together the different developments, with the community hub as the “beating heart”. The precinct is designed to be safe for pedestrians and cyclists through day and night, and through Canada’s extremes of weather across the seasons. This includes use of lights, street furniture, parks, all season patios, designs for safe winter movement, and promoting year-round activities. Brampton is promoting integration with transit terminals, street level retail, and community infrastructure, as well as leveraging its urban greenways and public spaces. Enhancing pedestrian and cycling connections between transit hubs, community spaces, leisure, and open spaces is achieved through fine grained, compact street networks and unobstructed pedestrian access to key facilities. Buildings are designed to have public facing uses at street level, providing spaces for small locally owned businesses, offer a mix of uses, and create an attractive sense of place around the transit station to encourage people to ride.

### 4. Promoting Social Equity:

Affordability is a major issue across the Toronto region, with rapid growth this issue will only grow. With transit coming in, this generates a lot of value so affordable housing must be included as well as access to healthcare, and other social resources. With 52% of Brampton’s population being immigrants there is a pressing need to make facilities available for first generation residents of Canada and to provide a common ground for education, social, cultural and health needs. Brampton is an immigration gateway, where people can come and comfortably settle in Canada. This is made easier through accessible public transit, public services, shops, housing, education, and jobs.

**Learnings:** Affordability must be managed proactively to enable people with broad incomes to live and stay as well as retain existing residents. Kalasatama, Finland has stipulated that a percentage (25%), of housing developments be geared towards social and affordable housing to create diverse, mixed-income communities. Based on international best practices the early delivery of community services is critical to transforming a community. The Community Hub provides a focal point providing a social connection, health and educational services, and technology. This community-oriented focus increases value for future development and can play a role in distinguishing Brampton and enhancing the city’s brand.



## MONTREAL RÉSEAU EXPRESS MÉTROPOLITAIN

The Réseau Express Métropolitain (REM) is the largest public transit project in Québec in the last 50 years. Montréal is the sixth fastest growing Métropolitan area in North America and is projecting to welcome more than one million new residents by 2041. The REM provides a unique example given the role of the provincial pension plan in planning, financing, delivering, and operating the system and ensuring there is a high level of integration.

The Caisse de dépôt et placement du Québec was established in 1965 with a twin role of providing pensions to the people of the province of Quebec and supporting economic development. The CDPQ has over \$340 billion in assets under management including in infrastructure and real estate. Many Canadian pension plans are major investors in revenue generating infrastructure around the world and in an effort to encourage more investments in Canadian infrastructure the CDPQ developed a unique model that would better enable pension plans to invest in new infrastructure projects.

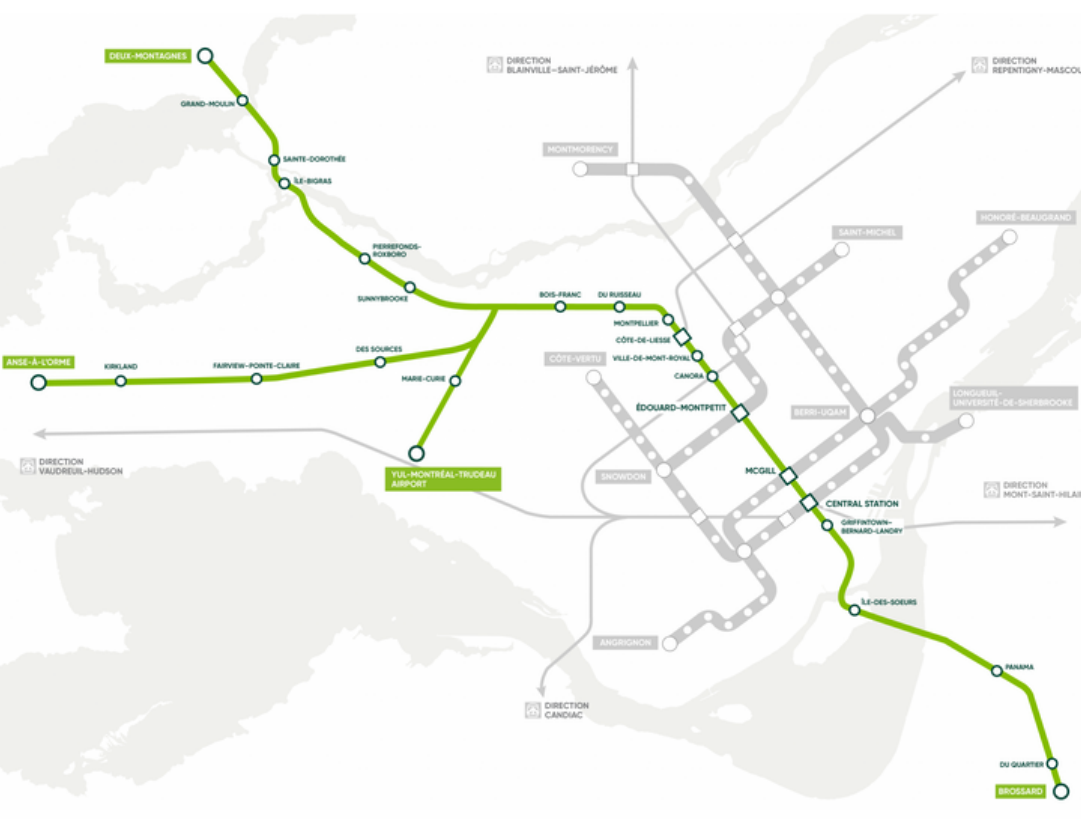
A new entity was set up called CDPQ Infra in 2015 with a focus on finding ways to finance and deliver major transit projects in Quebec that could potentially be replicated with partners elsewhere. The approach aims to help give the pension plan better visibility and control of project risks to help deliver infrastructure on time and on budget and ensure it is integrated into the surrounding community.

The model is similar to a public-private partnership model, with an added element of control over upfront planning. As CDPQ Infra has a mandate from the Quebec government to implement major projects it has worked to address some common barriers and risks, and try out new processes and approaches that can be instructive for other projects.

### Key Organizations Involved:

- Government of Canada - funder
- Government of Québec - funder
- CDPQ Infra - financing, planning, delivery
- REM project office - engagement, project delivery
- Hydro Québec - financing and utility operator
- ARTM - transport agency
- City of Montréal - municipal partner
- Groupe NouvLR - engineering, procurement and construction
- Groupe PMM - rolling stock, systems, operations and maintenance
- Developers - real estate around stations





### Réseau Express Métropolitain

- Size: 67km total, 18km elevated track, 3.5km of new tunnel and 5 km of tunnel to modernize
- Cost: \$6.9 billion
- Number of stops: 26
- Contract Type: CDPQ Infra Model (Plan Finance Deliver Operate)
- Estimated Completion: 2024

### Réseau Express Métropolitain

The REM is set to link the Greater Montréal area from Brossard to Deux-Montagnes, passing through the downtown core, then following Highway 40 to Ste-Anne-de-Bellevue to Pierre Elliott Trudeau International Airport. The REM will be run independently of Montréal's transit agency, the Société de transport de Montréal (STM), however it will connect to many existing Montréal Métro lines at various stations along the route. When complete, it will be a fully automated, 100% electric, 67km long line with 26 stations, while running 20 hours a day, seven days a week. Upon completion, the REM will be one of the largest automated networks in the world, only behind trains in Singapore, Kuala Lumpur, Dubai, and Vancouver. Construction began in 2018 and future extensions are already under study.

The REM was announced to the public in 2016 with consultations and engagement taking two years to complete. Construction began in 2018 and continues to present day. It will be a fully integrated light rail transit line across Greater Montréal that will be opened in progressive stages from 2022 when the first segments of the line are operational through to the end of 2024. From downtown, it will take 20-25 minutes to get to the airport.

The REM will provide high frequency service, every 2.5 minutes during peak hours, and every 5 minutes outside of peak hours. In the future depending on ridership, train frequency can be increased to every 90 seconds. As part of construction, the REM project is also building two maintenance centres, 14 park and ride lots, and will provide three connections to the Métro. The first segment is due to open in 2022 and the last of the first stage will open in 2024.

## CHALLENGES & LEARNINGS

As Québec's largest infrastructure project in half a century, the REM has provided a platform to test an innovative model for project delivery. As a new model, there have been multiple lessons-learned over the course of the project life cycle that can be applied to future projects and jurisdictions looking to deliver mega-projects and integrate them with the community to get the greatest positive impact from the investment and secure value.

### 1. Effective Consultation:

Clear public consultation and engagement helps community buy-in. Transit infrastructure and property developments tend to attract local opposition in many locations from existing residents. By providing an outline of what to expect from the process, as well as demonstrating for, and informing citizens what the project will do for them as an individual. Keeping the public buy-in throughout the life cycle of the project is also important to avoid frustrations by continually providing updates and consulting on future designs. Engaging the community that will be utilizing the transit system and living around stations or along the route is critical. People need to be able to fully appreciate and understand the goals and objectives of the final project and feel that their input and concerns are being heard and addressed. One source of delays for projects is often the environmental approvals which has become a regularly used avenue by communities looking to find ways to frustrate processes in the hope of seeing projects they are opposed to cancelled. The Government of Quebec sought to find a solution that provided a high level of environmental protection and reassured local people.

### 2. Decisive Governance:

Infrastructure and development work on different timelines, are financed in different ways, and have different risk tolerances. On transit orientated development delays in infrastructure can impact the value of a development, while organizations delivering infrastructure projects are less willing to be flexible in case it could potentially have a knock-on effect that causes a project delay. Both infrastructure providers and developers rely on efficient flows of information, timely decision-making, and collaboration with other project stakeholders.

**Learnings:** The CDPQ Infra team understood that the line needed to be accepted by the public as early in the planning phase as possible. CDPQ Infra continued to keep the public engaged throughout the project by consulting on design of cars and stations along the way. They have been open and transparent about their approaches to construction and share findings or issues as they arise at community meetings or on social media. Lastly, they have structured the opening of the line in segments so that the community can use segments of the REM that are ready for operations rather than delaying operationalizing the line until every segment and station is complete. This has also allowed citizens to see and benefit from the project immediately versus delaying gratification. The Government of Quebec also provided greater flexibility around environmental approvals to ensure that the risk of delays was reduced, but this required greater transparency to the approach chosen, and working more closely with the BAPE which is an independent body responsible for consultation to inform the Minister of Environment around project permits and approvals.

**Learnings:** Central to the success of CDPQ Infra delivering the REM is the decision-making ability and clear expectations and roles for each party. governance role they play. REM has a structure that enables key stakeholders to provide input through bi-monthly meetings of an operational committee that includes the regional transit agency, a steering committee that enables the City of Montréal to provide input based on the city's revitalization plans. There are also a series of working groups including technical committees on network integration, tariff integration and real estate; regulations committees on government regulations and legislative frameworks, compliance with urban plans, environmental assessments, archeology and heritage, and railway operating standards; and finance committees.

### 3. Guidance for Vision:

REM is a city transforming project that touches on many different facets of life in Montréal. The biggest impact on the success of a project is at the planning stage- when details are not fully determined. CDPQ Infra established a group of experts to provide insights across many different fields of expertise. A clear vision established up front provides a platform to keep different project stakeholders focused and ensure the project and investment delivers the most value to all parties. Often different levels of government can work across purposes, and this can lead to problems with project delivery that can lead to delays and cost implications. The province and city of Montréal select the experts together with CDPQ Infra and participate on the committee.

**Learnings:** *The Multidisciplinary Expert Committee on Architecture and Urban Integration brings together 15 independent experts with knowledge and experience across different relevant fields. This group feeds advice into the Executive Committee made up of CDPQ Infra and the Government of Quebec. The group established design principles to shape the networks architecture and urban integration along the route. The committee stays involved through the project design process, with input used to shape the project procurement. The design is developed in four stages: guidelines for architecture, urban planning and urban integration; design charter providing a description of the guidelines and how they should be applied such as environmental and landscaping features; design providing details of the components including types of materials used and vegetation types; and prescriptive design with the implementation of guidelines at each site. The recommendations produced by this group of experts are made public through a report.*

### 4. Capturing Value:

With a \$6.9 billion investment and a mandate to develop a return for Quebec's retirees, CDPQ Infra worked with the Quebec Government to find ways of extracting fair value from developers who would see a significant financial benefit from the new transit line. This required political will to put new fees in place to help to fund these projects that will deliver major benefits across the city. Many cities have looked into options to tap into land value capture to help contribute to the costs of major infrastructure projects.

**Learnings:** *A relatively small development charge of \$10 per square foot was charged for all development within one kilometre of one of REM's 26 transit stations. This helped capture some of the value created by transit and contribute to integration costs and local services. It helps to spread costs and not act as a disincentive to developing near transit. Initially developers were opposed, but as permits were delivered with fees included it became accepted and provided certainty. When fees come with an improved service and they can see the benefits, people or organizations paying those fees tend to be more accepting. This also includes providing local public services near to transit such as schools and daycare.*



Toronto