

Réseau électrique métropolitain (REM)

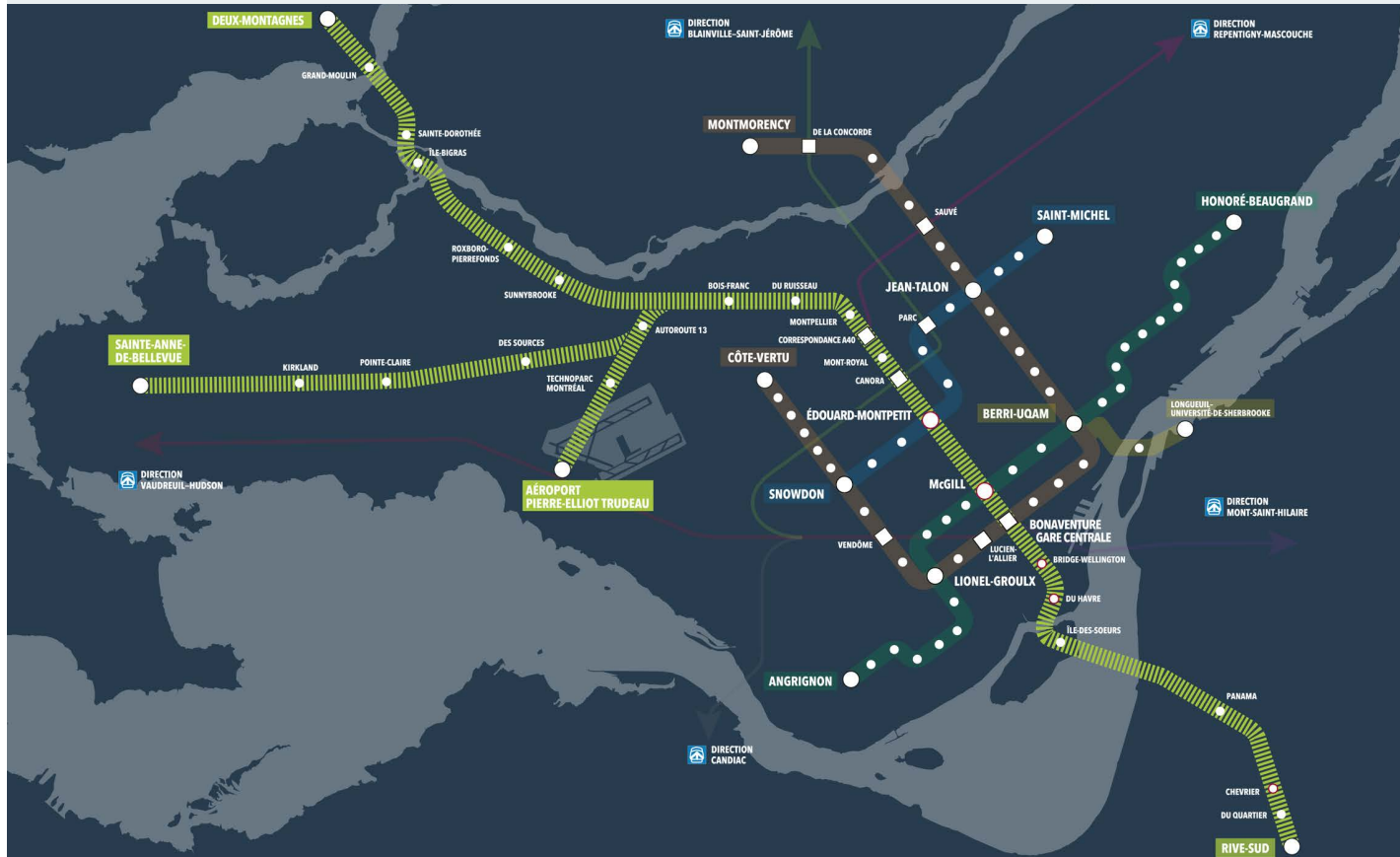
Technical briefing

Update on the route
and environmental impacts

August 24, 2016

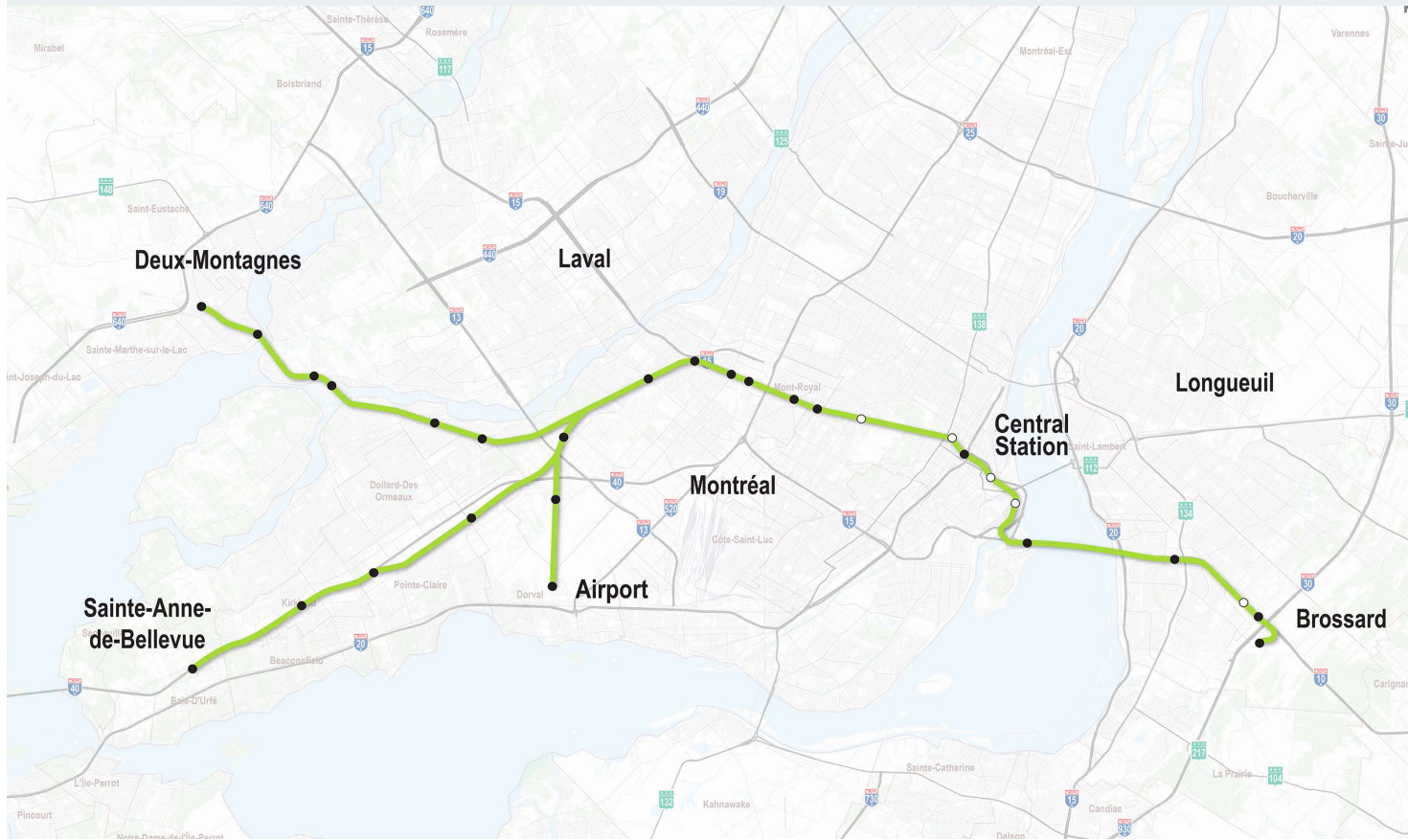


A PROJECT WITH IMPACT



- › Largest public transit project in the past 50 years
- › 3rd largest automated network in the world
- › Improves public transit fluidity and frequency

PROJECT OVERVIEW



67 km
24 stations
9 terminals
13 parking facilities
Central portion
3 min peak hours
6 min off-peak hours
20 h/day, 7 days/week
In theory, **double the capacity** in the A-10 axis
and **quadruple** that of
the Mont-Royal tunnel

UPDATE – TRAVEL TIME

	Travel time			Frequency	
	BY CAR CURRENTLY	PUBLIC TRANSIT CURRENTLY	REM	PUBLIC TRANSIT CURRENTLY	REM
From the South Shore to downtown	40 to 50 min on average	20 to 25 min on average from Chevrier	15 to 20 min* 15 to 17 min	every 15 min	every 3 to 6 min**
From the airport to downtown	30 to 45 min on average	45 to 60 min on average	25 to 30 min* 24 to 26 min Express 18 to 20 min	every 8 min	every 6 to 12 min**
From the West Island to downtown	50 min on average	45 to 50 min from Sainte-Anne-de-Bellevue on average	35 to 40 min* 34 to 36 min	every 20 min on average	every 6 to 12 min**
From Deux-Montagnes to downtown	over an hour	40 to 45 min on average	35 to 40 min* 33 to 35 min	every 30 min on average	every 6 to 12 min**

* Previous travel time
New travel time

** Based on ridership evolution

Sources: Agence métropolitaine de transport, Société de transport de Montréal, Aéroports de Montréal and ministère des Transports du Québec

PROCESS

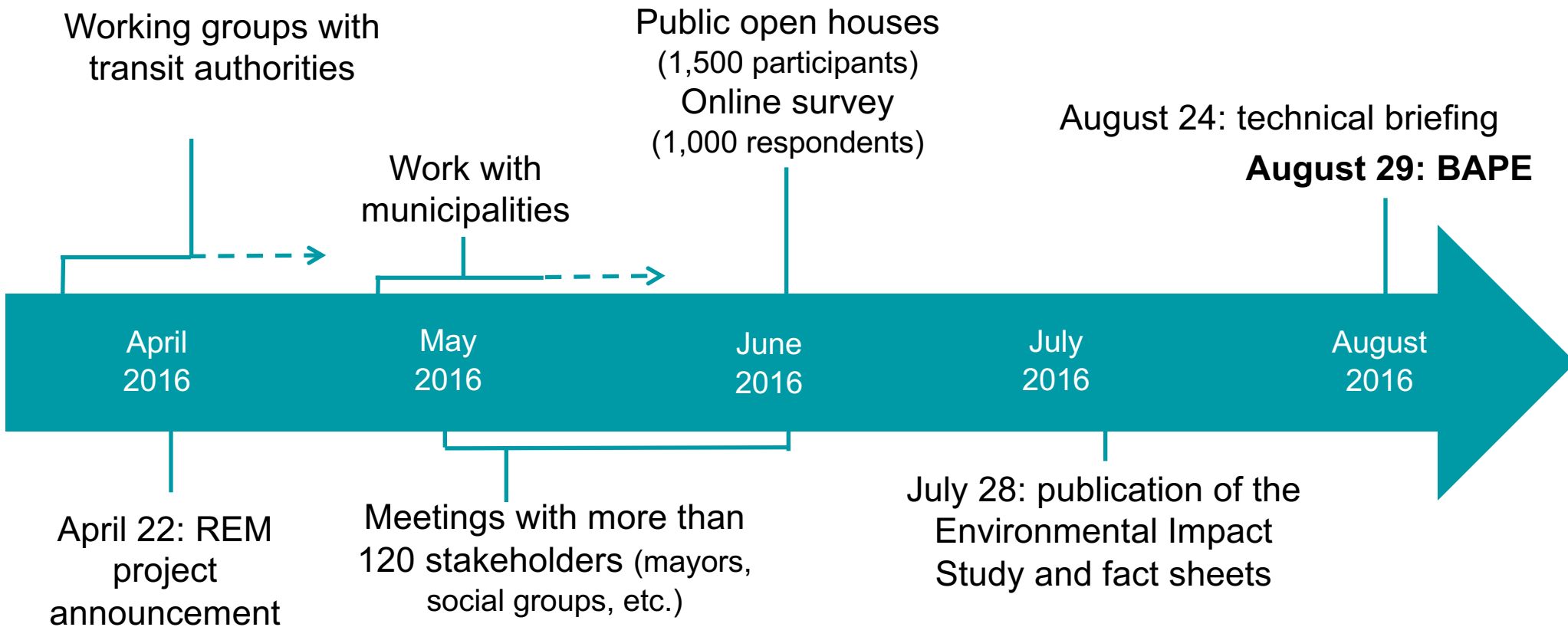
Since the April 22, 2016 announcement

Work focused on four main areas:

1. Consultation and information process
 - › Including working groups with transit authorities to integrate the REM into existing networks
2. Agreement with CN
3. Technical plans and estimates / Qualification process
4. Environmental studies, analyses and surveys

Objective: continuous optimization of the route and the project

1- CONSULTATION AND INFORMATION PROCESS



2- AGREEMENT WITH CN

An important agreement between CDPQ Infra and CN

- Acquisition of the Viaduc du Sud (aerial structure leading to Central Station)
- Long-term agreement for use of Central Station by the REM
- REM running under the CN tracks (Pointe-Saint-Charles sector)

Main benefits:

1. REM integrated into a unified network (four branches connected)
2. Central Station used as an intermodal hub
3. Impacts eliminated in Griffintown (Rodier Building and different streets)

3- TECHNICAL PLANS AND ESTIMATES / QUALIFICATION PROCESS

More than 400 experts involved in the REM

- Progress made in technical plans and estimates
- Information session to potential bidders in June
 - › More than 200 individuals present
 - › More than 75 companies represented (international leaders)
- Request for qualification underway – two contracts:
 - › Engineering, Procurement and Construction (EPC Contract)
 - › Rolling Stock, Systems and Operating and Regular and Long-Term Maintenance Services (RSSOM Contract)
- Process allowing for innovative and economical submissions, inspired by global best practices

4- ENVIRONMENTAL STUDIES, ANALYSES AND SURVEYS

Main analyses and impact studies carried out

- › Air quality and its effects on climate
- › Hydraulics and ice regime
- › Hydrography, hydrology and surface water flow
- › Surface water quality
- › Hydrogeology and groundwater flow
- › Soil quality
- › Wetlands
- › Protected sites or sites of ecological interest
- › Ichthyological fauna and habitat
- › Herpetofauna and habitat
- › Special-status wildlife and plant species
- › Road safety
- › Road traffic
- › Cultural heritage
- › Archeological heritage
- › Agricultural zone
- › Recreational and tourism activities
- › Socioeconomic
- › Infrastructure and public services
- › Soundscape
- › Public transit services

KEY POSITIVE BENEFITS

Public transportation

- › Operation of a quick and reliable complementary public transit service
- › Improved integration of the existing public transit networks

Traffic and road safety

- › Reduced road congestion by going from the automobile to the REM
- › Reduced road congestion approaching Central Station
- › Level crossings eliminated on the Deux-Montagnes line

Economic benefits

- › Investments and jobs created
- › Reduced costs related to road congestion
- › Time savings and increased productivity

KEY POSITIVE BENEFITS

Air and climate quality

- › Reduced GHG emissions and atmospheric pollutants by moving from automobile/bus to the REM
 - › Estimated direct reductions: 16,800 tonnes/year (minimum)

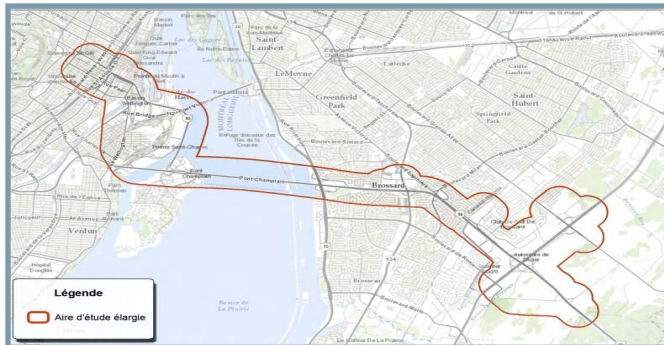
Soundscape

- › Reduced noise of the automobile and bus traffic close to Central Station and trains replaced by a less noisy light rail transit system on the Deux-Montagnes line

Recreational and tourism activities

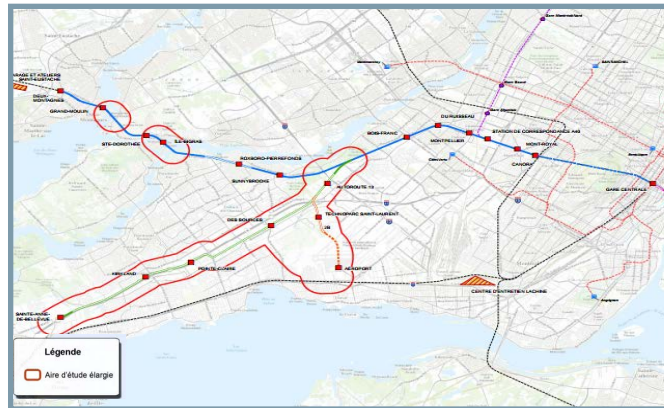
- › Access facilitated to the airport and to various hubs and recreational activities in the Greater Montréal area

MAIN IMPACTS AND OPTIMIZATIONS



Biological environment

- › Des Sources nature park
- › Special status species
- › Sainte-Anne-de-Bellevue
- › South Shore terminal



Human environment

- › Built heritage
- › Land required
- › Mascouche line
- › Streets affected: Griffintown, Laval, Deux-Montagnes
- › Pointe-Saint-Charles maintenance centre
- › Nuisances during construction

MAIN IMPACTS AND OPTIMIZATIONS

Main optimizations made to the route to address certain identified impacts:

1. Realignment of the underground section of the route in the Technoparc to be at rock level in the wetlands area
2. Moving east certain facilities planned for the Sainte-Anne-de-Bellevue terminal
3. Integration of the REM route into CN's aerial tracks (new agreement)



Identified impact

- › Temporary impacts on the integrity of the wetlands and of the Des Sources nature park during construction

Optimization

- › Impacts avoided by plunging underground earlier to be at rock level in the Des Sources
- › Ongoing work with the MDDELCC*, Technoparc Montréal and the borough of Saint-Laurent

* Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques

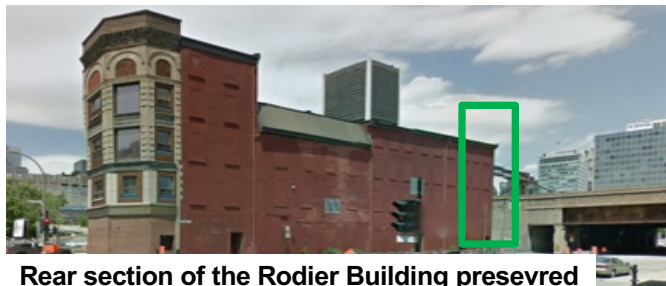
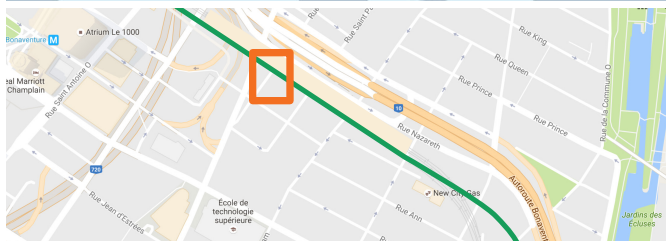


Identified impact

- › Temporary or permanent impacts on habitats for the brown garter snake and the least bittern

Optimization

- › Modification of the route in the section of the Technoparc (underground) to avoid impacts on the least bittern habitat
- › Measures expected to be taken to mitigate and offset effects on brown garter snake habitats



Rear section of the Rodier Building preserved

Identified impact

- › Permanent impact on a heritage building in the Griffintown area (partial demolition of the Rodier Building)

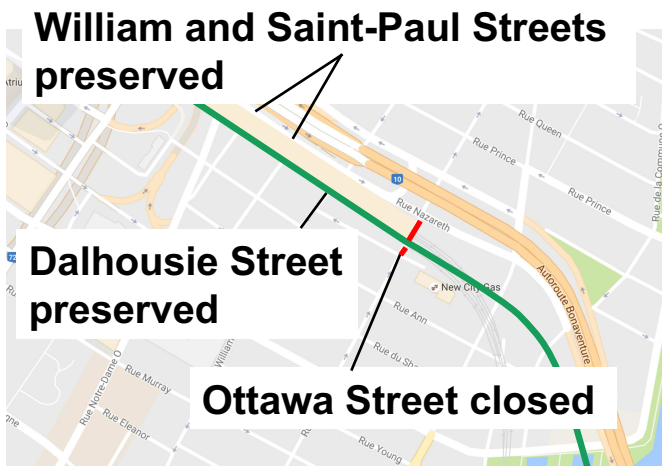
Optimization

- › Complete preservation of the Rodier Building as a result of the new agreement with CN, which allows for the route to be optimized and for the aerial tracks to be integrated (Viaduc du Sud)
- › Other heritage buildings also preserved downtown (New City Gas and Drummond-McCall)



Identified impact

- › Possible closure of Dalhousie, Ottawa, Saint-Paul and William Streets (between de l’Inspecteur and Nazareth Streets)



Optimization

- › Closure of Saint-Paul, William and Dalhousie Streets avoided due to the new agreement with CN
- › Travel management plan expected to be developed for the other streets, in collaboration with the City of Montréal



Identified impact

- › Construction of the South Shore terminal in an agricultural zone



Optimization

- › Compensation plan:
 - › Conversion of non-agricultural land into agricultural land
 - › Development of greenhouses on the roofs of certain facilities
 - › Public markets set up in parking facilities on weekends



Champlain Bridge central deck



Middle section of Highway 10



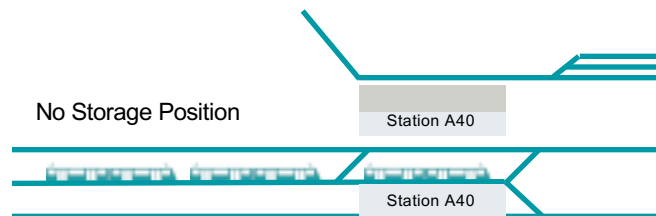
Alongside Highway 40

Identified impact

- › Number of lots required on a permanent or temporary basis: ~ 150
- › Possible relocation: ~ 60 properties (including 30 residential properties)

Optimization

- › 80% of the route on existing road or rail corridors
- › Ongoing work to reduce the number of plots required (to date: 10% reduction)
- › Proactive discussions with owners located close to corridors

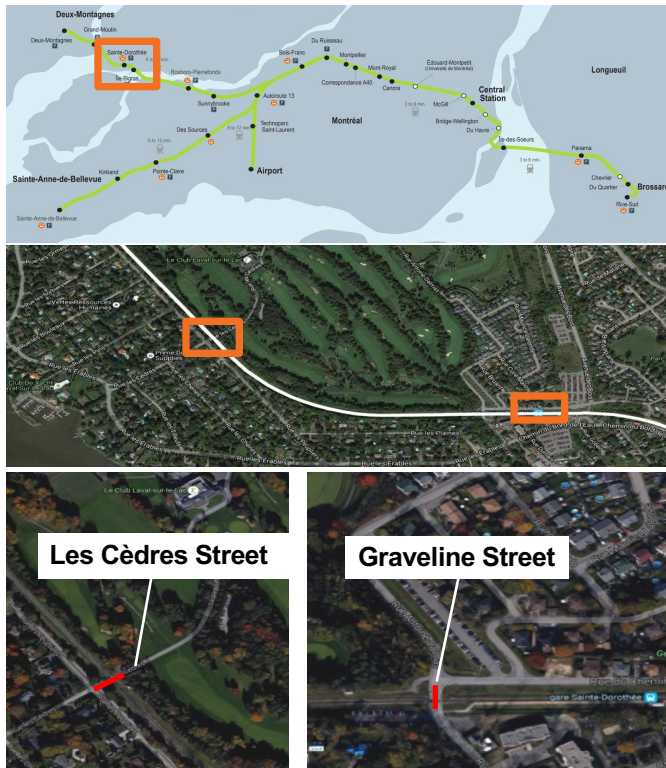


Identified impact

- › Passengers transferred from the Mascouche line to the Highway 40 transfer station to go downtown

Optimization

- › New "Correspondance A-40" intermodal station optimizing the passage from one network to another
- › Shared platform for simple access
- › Empty REM cars parked on third track to allow for quick boarding
- › High service frequency of the REM (every 3 min max at peak times)



Identified impact

- › Closure of portions of Les Cèdres and Graveline Streets in Laval (due to the elimination of level crossings)

Optimization

- › Travel management plan in collaboration with the City of Laval
- › Closure of Graveline Street compensated by the opening of an access via Des Bois Avenue
- › Proactive communication during construction to inform different clienteles of planned route changes



Identified impact

- › Closure of a portion of Henri-Dunant Street (due to the elimination of level crossings)

Optimizations

- › Travel management plan in collaboration with the City of Deux-Montagnes
- › Solutions are being considered to maintain an access in the sector
- › Proactive communication during construction to inform different clienteles of planned route changes

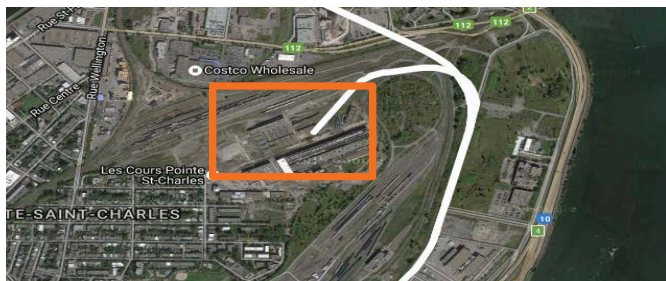


Identified impact

- › Nuisances (noise and dust) during construction along the route and primarily during construction of the new stations

Optimization

- › Noise control program
- › Dust control:
 - › Use of dust-control measures, cleaning of truck as they leave sites, minimum storage of cuttings and embankments on sites, etc.
- › Rigorous environmental monitoring and control program



Maintenance of 200 REM system cars



Two REM cars joined by a boa-type system

Identified impact

- › Possible underuse of the Pointe-Saint-Charles Maintenance Centre currently under construction

Optimization

- › Joint use of the maintenance facility with the AMT to optimize usage:
 - › Maintenance of **240 cars** (Mont-Saint-Hilaire line and REM) compared to 130 initially

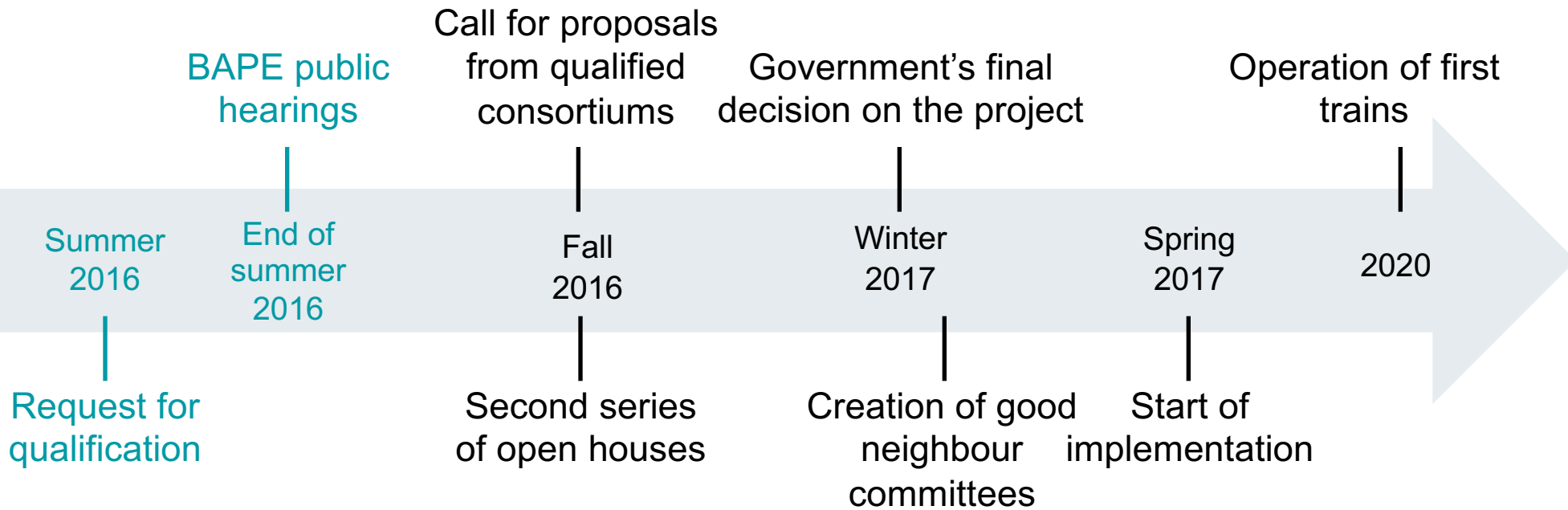
UPDATE – CONNECTION TO THE METRO



Édouard-Montpetit, McGill and Bridge-Wellington stations

- › Advancement of analyses
- › Possible technical solutions and financing options under review
- › Prices and solutions requested from qualified consortiums

NEXT STEPS





FOR MORE INFORMATION ABOUT THE
PROJECT
CDPQINFRA.COM

Subsidiary of Caisse de dépôt et placement du Québec

cdpqinfra.com

