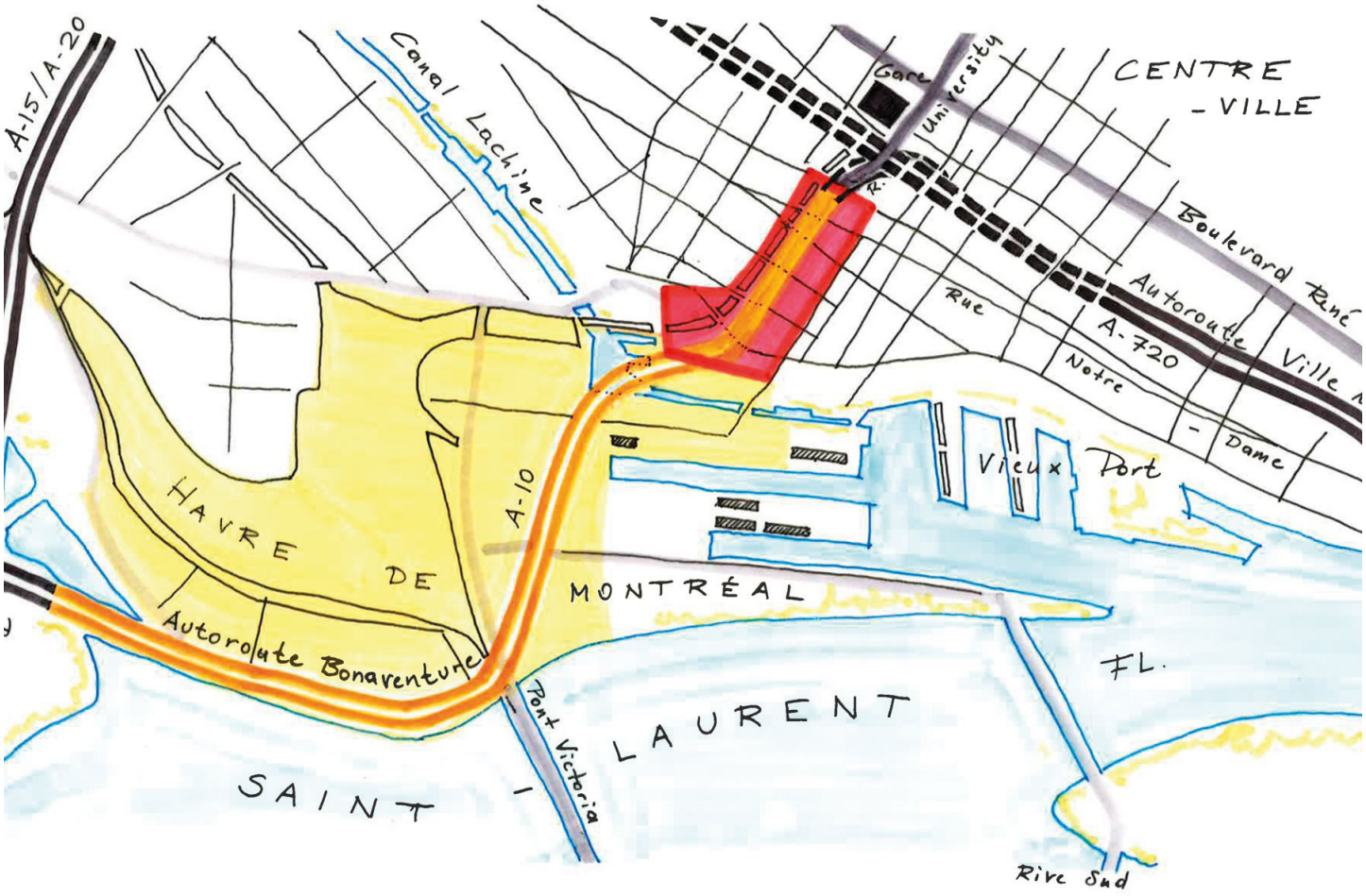
MONTRÉAL. BONAVENTURE PROJECT

FROM EXPRESSWAY TO CITY BOULEVARD: CASE STUDY



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Montréal: Bonaventure Project

• From Expressway to City Boulevard: Case Study •

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Contents

Introduction

Long a symbol of modernity, the urban highway is today associated with all the ills of large cities: the barrier effect, noise, air pollution, CO2 emissions, fossil fuel consumption, health problems, etc. While the high-speed road network plays an important role in the mobility of goods and people, we now realize that it compartmentalizes areas, depreciates neighborhoods and renders valuable land sterile. It also tends to encourage lifestyles and wealth production that maintain urban sprawl and congestion.

The transformation of these monumental highway infrastructures inherited from the Trente Glorieuses (The Glorious Thirty) is now the major subject of contemporary urban planning. This is particularly challenging in the Greater Paris metropolitan region which has dense network of expressways connected to the Périphérique (inner ring road) and the A 86 (middle ring road). Is their transformation into boulevards or urban avenues a solution? The question is being debated in the Paris region around a series of projects led by the city of Paris and other local authorities.

In North America and Asia, cities that have been brutally crossed or penetrated by expressways have opted to remove them.
Why did they do it? How do they do it?
What kind of impacts are observed?
What can we learn from these experiences?

A case study-based research

In response, the Institut d'aménagement et d'urbanisme d'Île de France (IAU, now Institut Paris Region) has set up the Metropolitan Avenues study program in 2010-11 and initiated the study of a dozen international experiences in the transformation of highway corridors.

Using on-site analyses and interviews with clients, designers, and experts, these experiences were examined from many angles: strategy and planning; urban planning; mobility; landscape and public space; environment and climate; housing and social equity; economy; consultation and decision-making processes; project management and financing.
The evaluation of the impact of these projects was considered on several scales, from the neighborhood to the metropolitan region.

Beyond the transformation of an infrastructure, each experience tells the story of a metropolitan region in transition.

This report deals with the transformation of the Bonaventure Expressway in Montréal, a section of which is being demolished after 2014 to make way for Henri Bourassa Boulevard.

It is part of a series of IAU publications on this theme (available at www.en.institutparisregion.fr) :

- in 2012, a first report as a Digest Note of the IAU entitled: "*From Expressway to Urban Avenue: The Possibility of an 'Other' City?*";
- in 2013, the experiences of Seoul, Vancouver, New York (*West Side Highway*) and San Francisco (*Embarcadero Freeway*);
- in 2014, those of Portland and New York (*Sheridan Expressway*);
- in 2016, the case of Milwaukee, San Francisco (*Octavia Boulevard*), and the present study Montréal Bonaventure Project.

A new field of thought and action

The results of this work have given rise to numerous talks, conferences, seminars, articles, and interviews, in France and abroad, as well as a contribution to the book *Les Métamorphoses de l'autoroute urbaine* (Points FNAU). In Île-de-France, they provided input for the Regional Master Plan 2030 and fueled discussions with representatives of the Region, the State, Paris Metropole Forum, the City of Paris, the Greater Paris International Workshop (AIGP), local authorities, and many think tanks on the future of cities and of mobility.

Over the past four years, there has been a shift in thinking on these issues. Elected officials and public authorities are becoming aware that, as it stands, the city's road network can be a disadvantage to mobility, quality of life, and the development of the region and its constituent areas. As paradoxical as it may seem at first glance, the evolution of specialized infrastructures into more peaceful metropolitan avenues connected to the city, or even their redevelopment for other uses, provides new and relevant solutions to many city challenges. It's now a corner stone in the rethinking on the post-carbon city.

The Bonaventure Project in Montréal

Built in 1966 for the Expo '67 World's Fair, the Bonaventure Expressway (A-10) is the main access to downtown Montréal from the south shore of the Saint Lawrence River.

Ongoing since 2002, its transformation is part of a strategy of urban reconquest of Montréal's Harbourfront, a vast industrial and port sector. In 2017, a central park bordered by a boulevard replaced the terminal highway viaduct: this will be the first step in a long-term project.

In terms of strategy, several strengths can be highlighted:

- the attempt to pursue a shared vision at different levels (City, Province, Federal State, private partners) and its integration in an overall strategy (Greater Montréal Metropolitan Plan);
- the possibility of turning a highway into an urban artery in the heart of a major city, a catalyst for a metropolitan development project;
- the feasibility of shifting traffic from the highway to public transportation, provided that it is enhanced;
- the City's commitment to an initial project phase that is fairly modest, but which has the capacity to profoundly transform a larger area;
- the expected benefits of the project in economic, urban, and social terms, and especially in terms of public health.

In terms of method, the project encountered difficulties related to the public-private management of the company initially in charge of the project and the lack of coordination between some project owners. The role of the Citizen Participation Bureau, the Office de consultation publique de Montréal (OCPM) in the mediation between citizens and public authorities, deserves to be highlighted.

The context

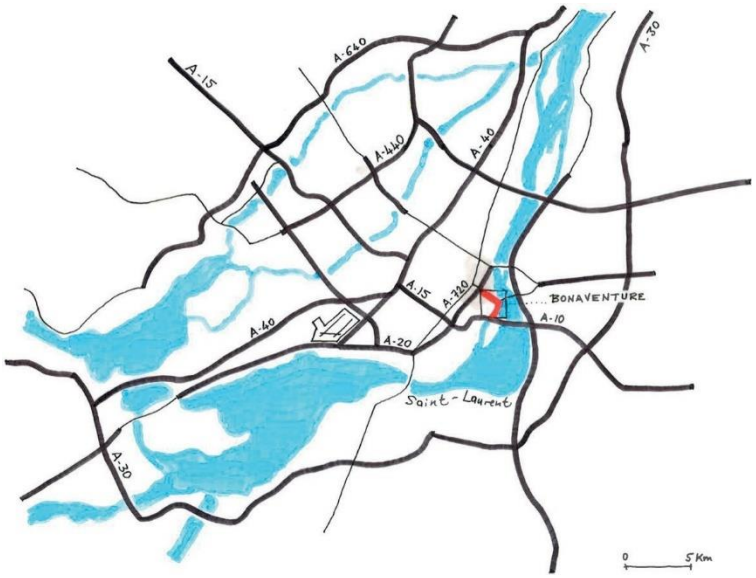
Country: Canada
City: Montréal City
Population:
1.7 million (2015)
Metropolitan Region Population:
3.9 million (2015)
Highway Stretch:
4.7km
Traffic Volume (before):
50 000 vehicles/day

Built in 1966 for the Montréal World's Fair Expo '67, the Bonaventure Expressway (A-10) is the main axis road to downtown Montréal from the urban South Shore of the Saint Lawrence River.

Crossing the Montréal Harbourfront, a space linked to the industrial, port, and railway history of the North American continent, the Bonaventure Expressway was designed as a masterful city entrance, staged by a sort of panoramic scenic drive reserved for automobiles.

The A-10 also connects two urban highways, the Décarie Expressway (A-15) to the south at the Champlain Bridge and the Ville-Marie Expressway (A-720) to the north.

Location map: Bonaventure Expressway in Montréal
IAU îdF



The Bonaventure Expressway in the Montréal road network
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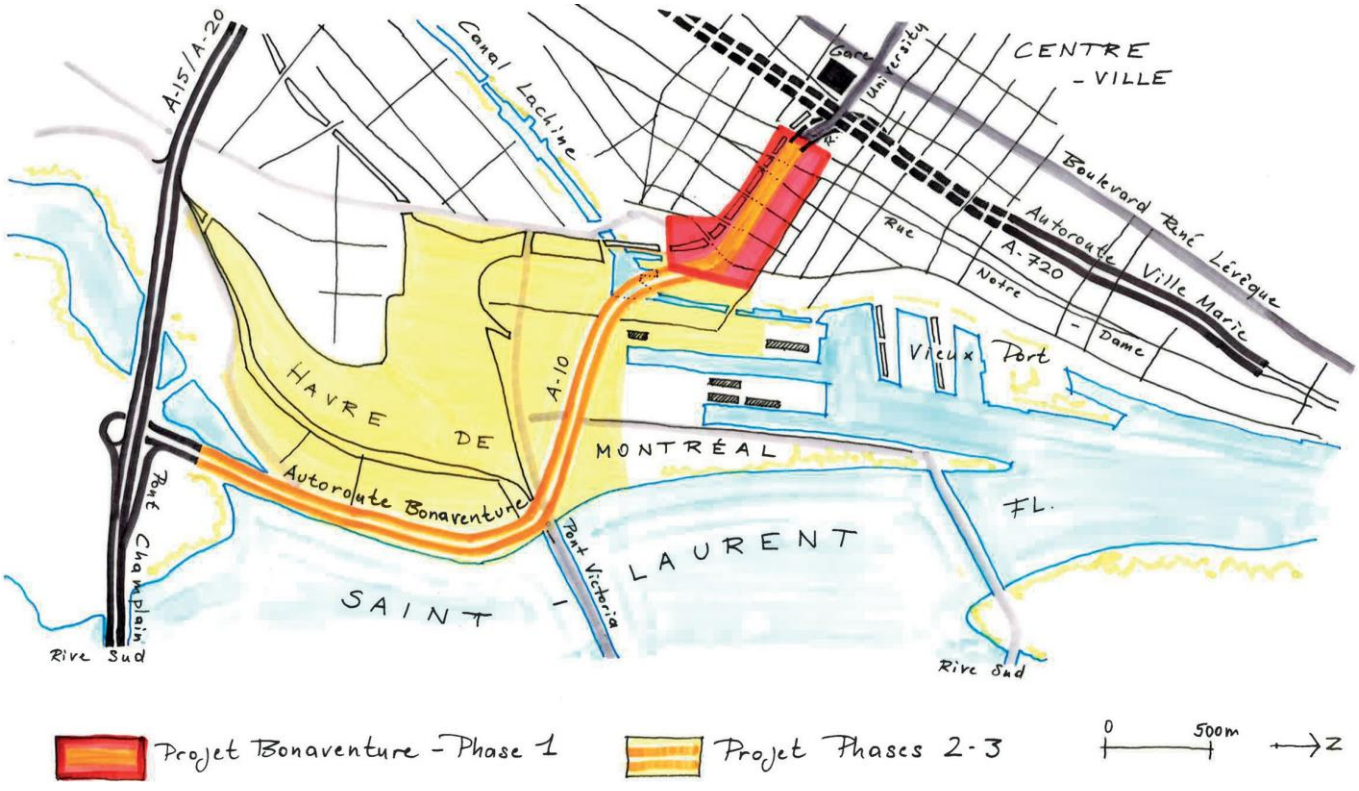

The Bonaventure Project
in its urban context
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Aerial view of the Bonaventure Expressway in 1967.
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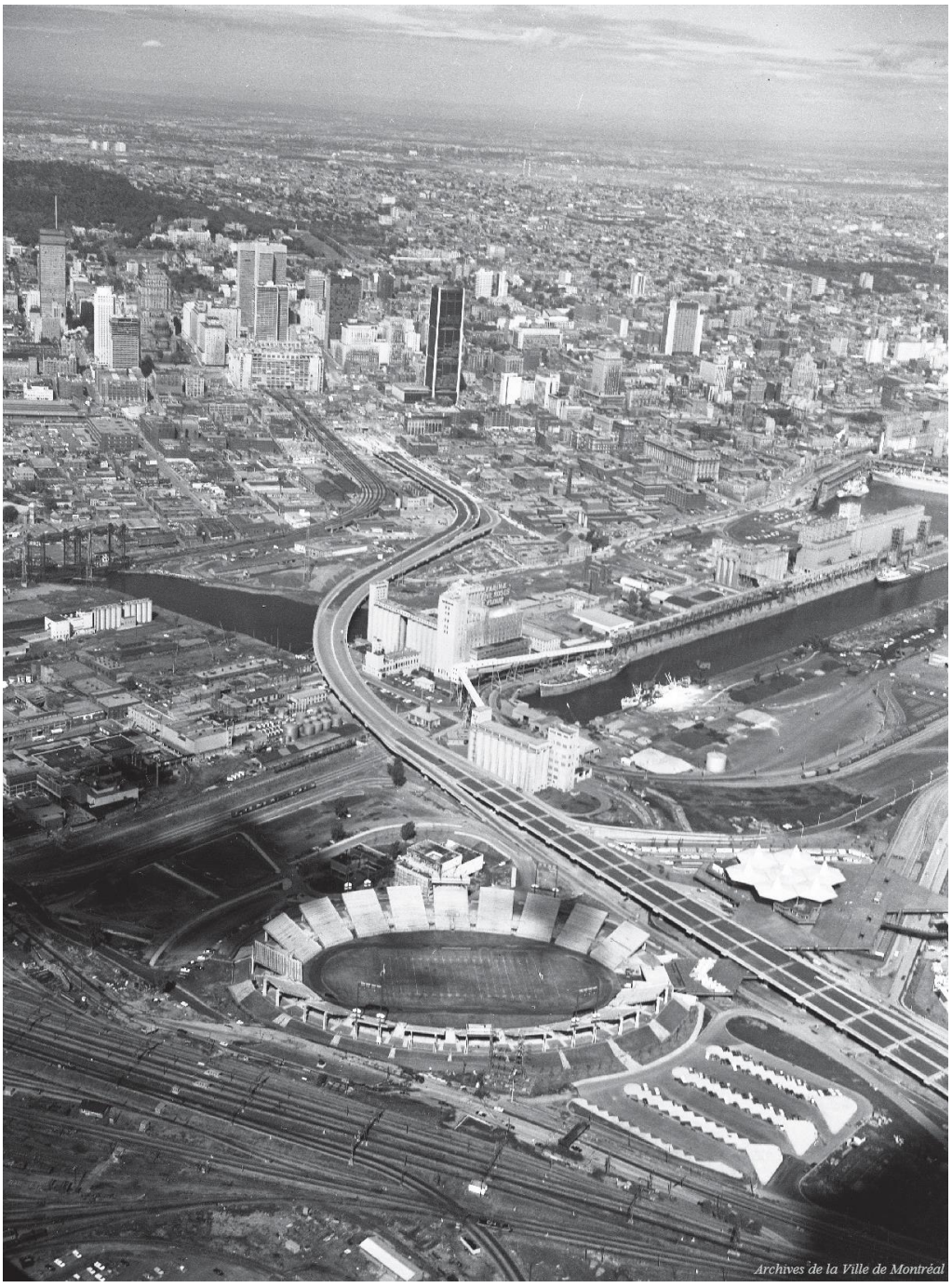

From masterful highway to the urban divide: a change of perspective

But the highway is perceived by elected officials, the business world, and citizens as a brutal rupture in the urban fabric and an obstacle to the city's access to its river.

It is seen as an impediment to the social and economic development of a 200-hectare area with strong potential for change located between the business center to the north, Old Montréal to the east, the Saint Lawrence River to the south, and the Champlain Bridge to the west.

In 2002, a key event, the Montréal Summit (*Sommet de Montréal*), laid the foundations for a long-term vision of sustainable development for the new City of Montréal, an entity resulting from the consolidation of the 27 municipalities on the Island of Montréal[1].

The highway and its viaduct create a strong urban divide south of the Montréal city center.
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The Bonaventure Expressway as it crosses the Peel Basin.
© P. Lecroart IAU îdF

The access ramps between the Bonaventure and Ville-Marie highways form an impassable barrier.
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Cross section of the Bonaventure Expressway upon arrival in downtown Montréal.
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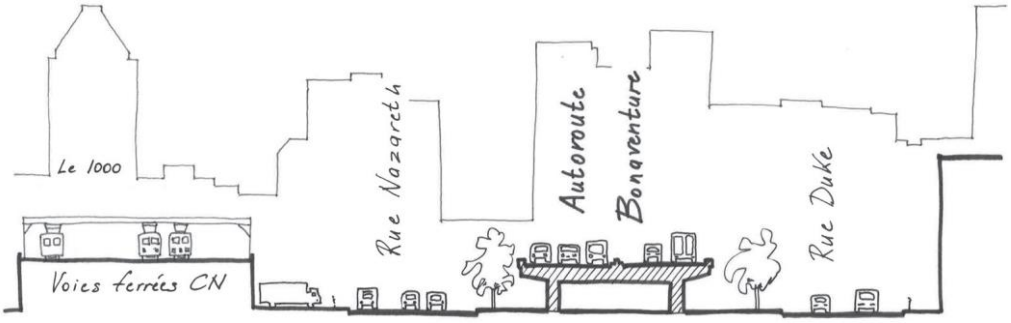

The Montréal Harbourfront crossed by the Bonaventure Expressway: in the foreground the Peel Basin, on the left the city center of Montréal, on the right the Saint Lawrence.
© Société du Havre de Montréal

It identified the Montréal Harbourfront as one of the city's strategic redevelopment sites, with the redevelopment of the Bonaventure Expressway being the driving force behind the project.

At the initiative of the City of Montréal, in association with the Province of Québec and the Government of Canada, a committee responsible for defining a shared development strategy is created: The Société du Havre de Montréal (SHM).

This public organization, run as a public-private partnership, was dismantled in 2013 by the Mayor of Montréal.

The goal of the Bonaventure Project is to revitalize the neighborhoods bordering the highway (2012).
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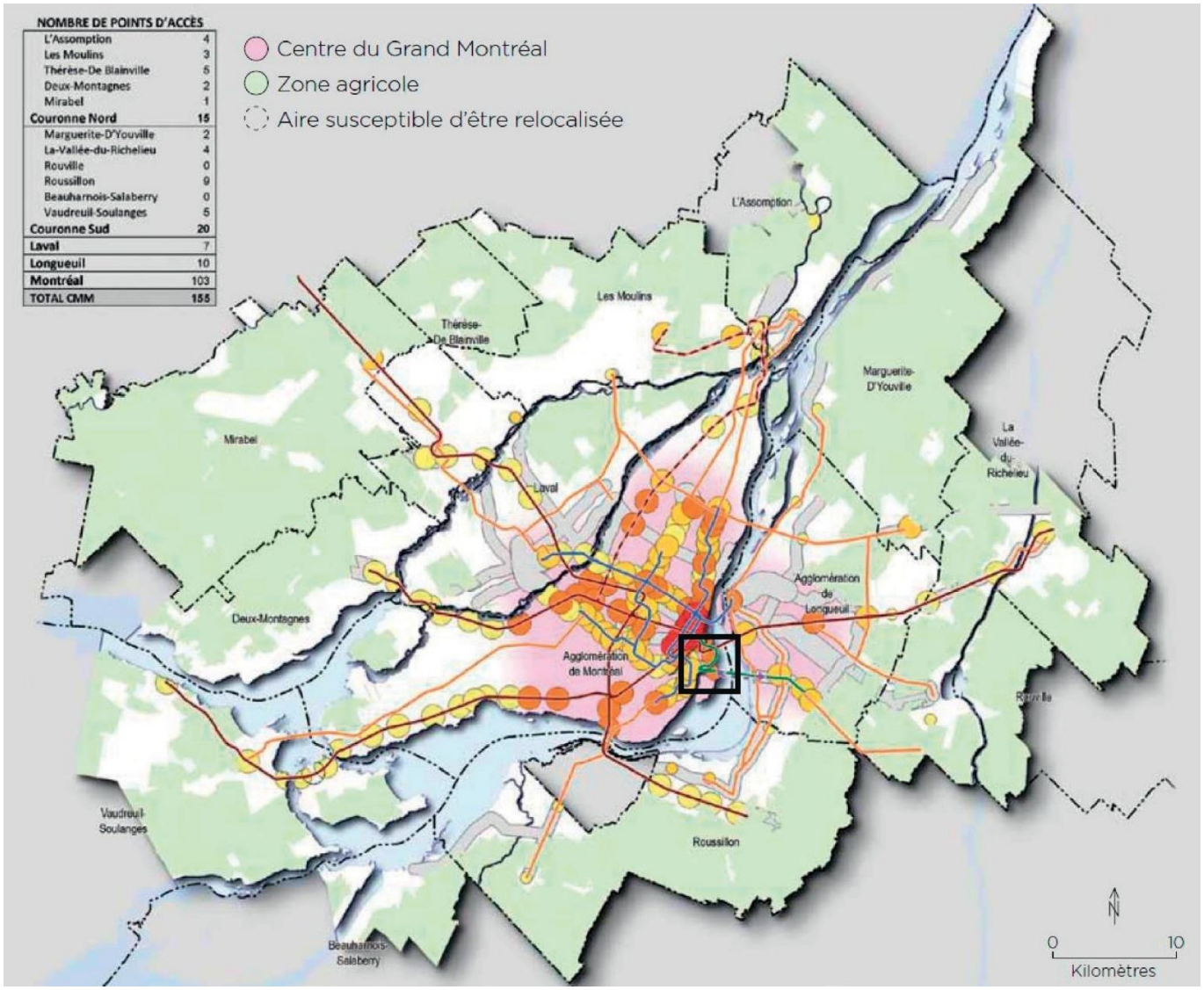
University Street at the highway exit.
© P. Lecroart IAU îdF

The Metropolitan Plan (MPAD) focuses on urban intensification along Transit Oriented Development (TOD) corridors.
© Communauté métropolitaine de Montréal



Highway redevelopment and urban strategies

The objective of the Bonaventure Project is the urban and economic revitalization of suburbs and industrial spaces, long neglected, deteriorated, and fragmented by road, rail, port, and energy infrastructures.

It is in line with the strategy of the City of Montréal's 2004 Master Plan (revised 2012), which emphasizes the urban intensification of areas accessible by public transportation and the strengthening of the metropolitan core. The aim is to thwart the trend of businesses and households with children towards the outskirts: the City of Montréal now has 1.73 million residents[2] (less than in 1965 at the same perimeter).

These objectives are reinforced by the Greater Montréal Metropolitan Planning and Development Plan (3.9 million inhabitants, 4,000 km², 82 municipalities), approved in 2012, which plans to direct 40% of urban growth along public transit corridors (the TOD, *Transit- oriented development*), including the Bonaventure axis.
These objectives are confirmed by the new

The Bonaventure Expressway and the Montréal Harbourfront seen from the business center: an urban divide between the Faubourg des Récollets (left) and the Griffintown district (right)
© Société du Havre de Montréal

In Montréal, cars occupy a significant place in the metropolitan area and their use is growing steadily.
© P. Lecroart IAU îdF

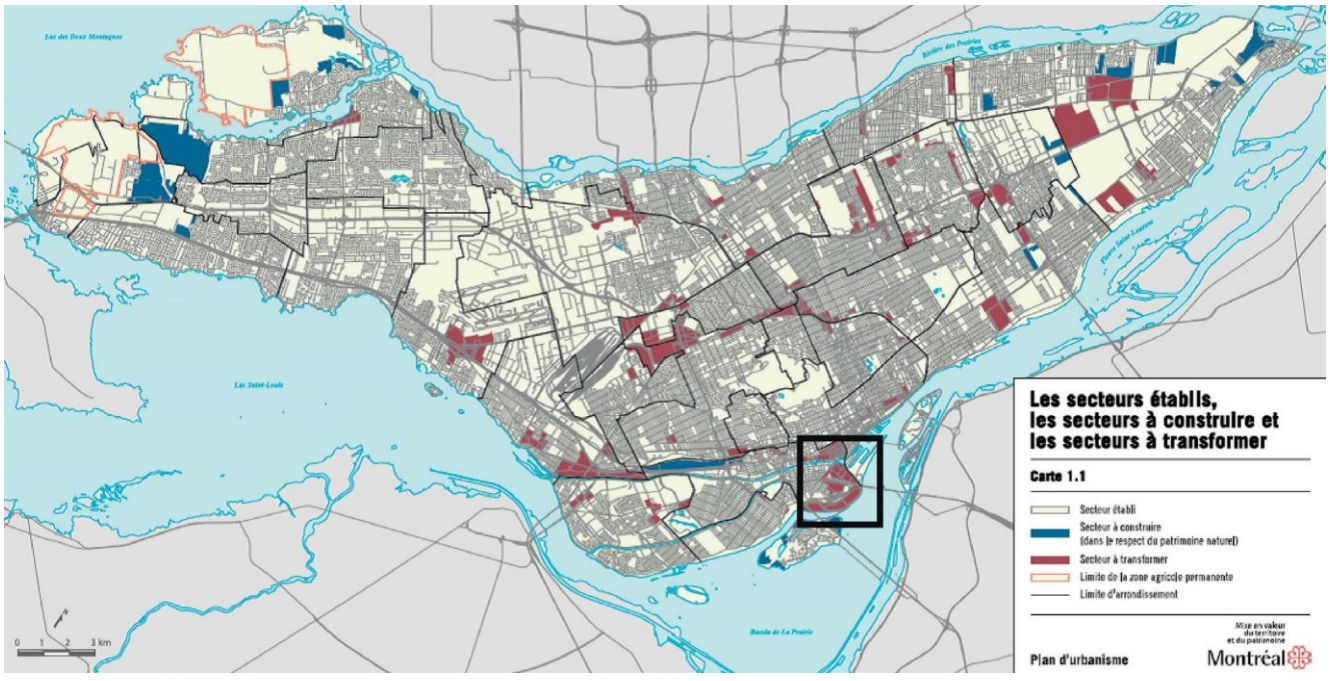
Development Plan for the agglomeration of Montréal (1.9 million inhabitants), which was approved in April 2015.

In a context of significant growth in the use of cars for travel throughout the metropolitan area, the City of Montréal's Transportation Plan (2008) aims to reduce rush-hour automobile traffic by 15% by 2021 by encouraging public transit and cycling.

The Bonaventure Expressway is a major transportation axis with approximately 50,000 vehicles and 42,000 bus passengers per day.

Its transformation into an urban avenue is based on the possibility of a modal

The Bonaventure Expressway sector is one of the major sectors to be transformed, according to the City of Montréal's 2012 Urban Plan.
© City of Montréal



shift from the car to public transportation for trips between the south shore of the Saint Lawrence River and the Island of Montréal.

An intense debate on the future of the highway network

One of the motivations for the redevelopment of the Bonaventure Expressway is related to the structural wear and tear on the viaducts, which would require investment in their rehabilitation.

The future of the highway network is a recurring question in the debate on the development of Montréal and its metropolitan region.
Several highway infrastructures, structurally fatigued after forty

The Turcot Interchange, which connects the A-15, A-20 and A-720 highways, is currently under reconstruction.
The CAN$3.7 billion project is expected to be completed by 2020.
© P. Lecroart IAU îdF

In Montréal, many highway infrastructures are technically at the end of their lifecycle. Turcot Interchange in 2012.
© P. Lecroart IAU îdF

years of service in a harsh climate, are currently the subject of reflection (Champlain Bridge) or operations underway (Turcot interchange) aimed at their reconstruction. The Ville-Marie Expressway, which crosses the city center in a more or less covered trench, is undergoing a roofing operation and an extension project towards the east.

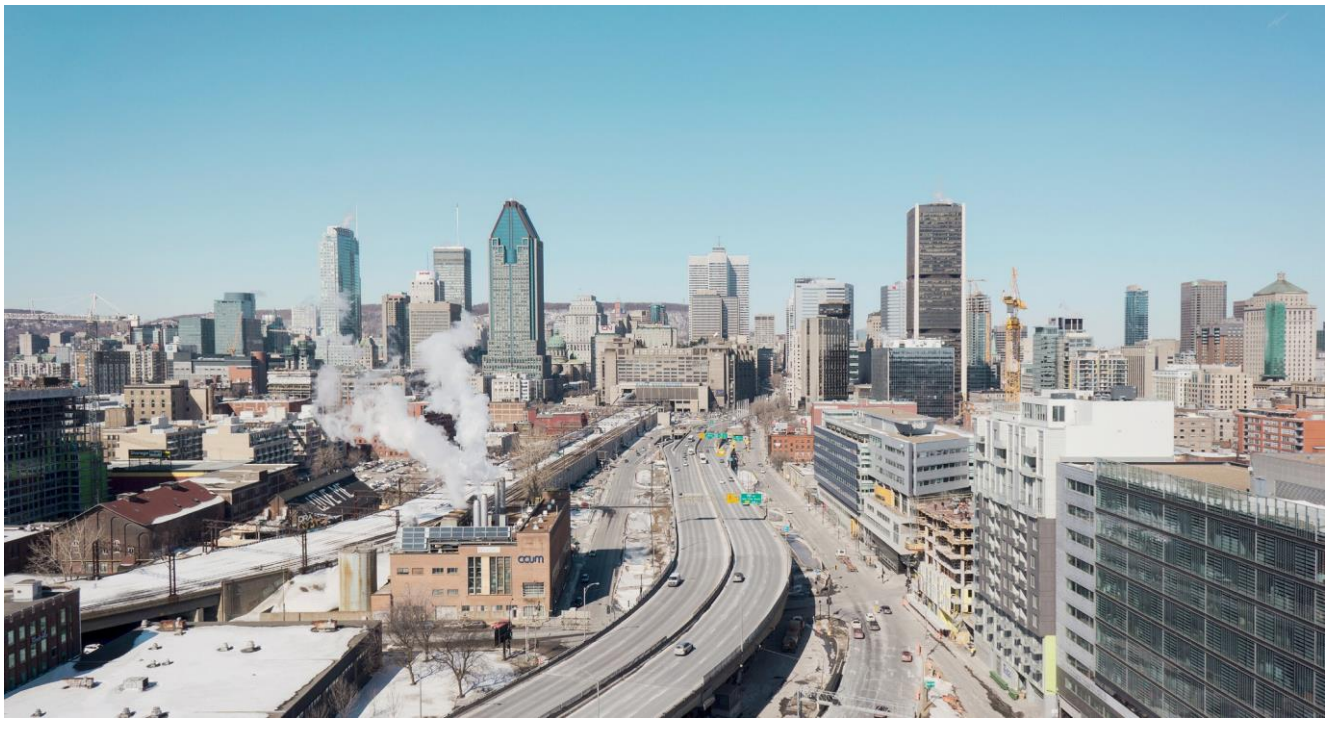
The discussions about these projects, which mobilize considerable sums of money, focus both on the opportunity of such road investments with regard to environmental policies and on the link with sustainable mobility policies (reserved lanes on highways for public transportation and carpooling) and on their local urban inclusion.

Major urban project or transit infrastructure project?

Since the publication of Vision 2025 by Société du Havre de Montréal in 2004, the Bonaventure Expressway redevelopment project evolved as studies, coordination, and the political context progressed, justifying a return to direct control of the project by the City of Montréal (2013).

Before

The Bonaventure highway in 2011
© City of Montréal



Beginning in 2011, the first phase of the Bonaventure project involved preparatory work for the demolition of a stretch of the last kilometer of the viaduct belonging to the City of Montréal, designated to be replaced by a boulevard - in fact, an urban avenue.

In 2014, the City abandoned the idea of building between the two lanes of the avenue in favor of a large public space.
The new boulevard was opened with its central park in the fall of 2017.

Project version 2014

The project approved by the City replaces the highway viaduct with a boulevard with a large central public space.
© City of Montréal

The challenges

A high-potential urban space, undermined by the highway

The Bonaventure Expressway crosses the Montréal Harbourfront (*le Havre de Montréal*) from southwest to northeast over a length of 4.7 kilometers.

The Harbourfront is a mixed urban space, fragmented and surrounded by the highway and major railway and industrial sites.

To the northeast, in close proximity to Old Montréal and downtown, the highway was built in the 1960s at the cost of the demolition of several built-up blocks and forms a barrier within the industrial districts of Les Récollets and Griffintown.

Despite its proximity to the center, the axis of the Bonaventure Expressway, flanked by the Canadian National railway viaduct, is a no-man's-land for pedestrians; the spaces under the viaduct are used for parking, as neglected wastelands.

The underside of the highway serves as a parking lot, creating an unattractive environment for pedestrians.
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The railway viaduct runs along the highway before arriving at the central station.
View from Notre Dame Street.
© P. Lecroart IAU îdF

The highway, is an urban barrier, with wasteland under its viaduct.
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Access to the tunnel to the Ville-Marie Expressway from the Bonaventure district.
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The highway arrives in the city center of Montréal without interruption (University Street).
An intersection with traffic lights ensures traffic management.
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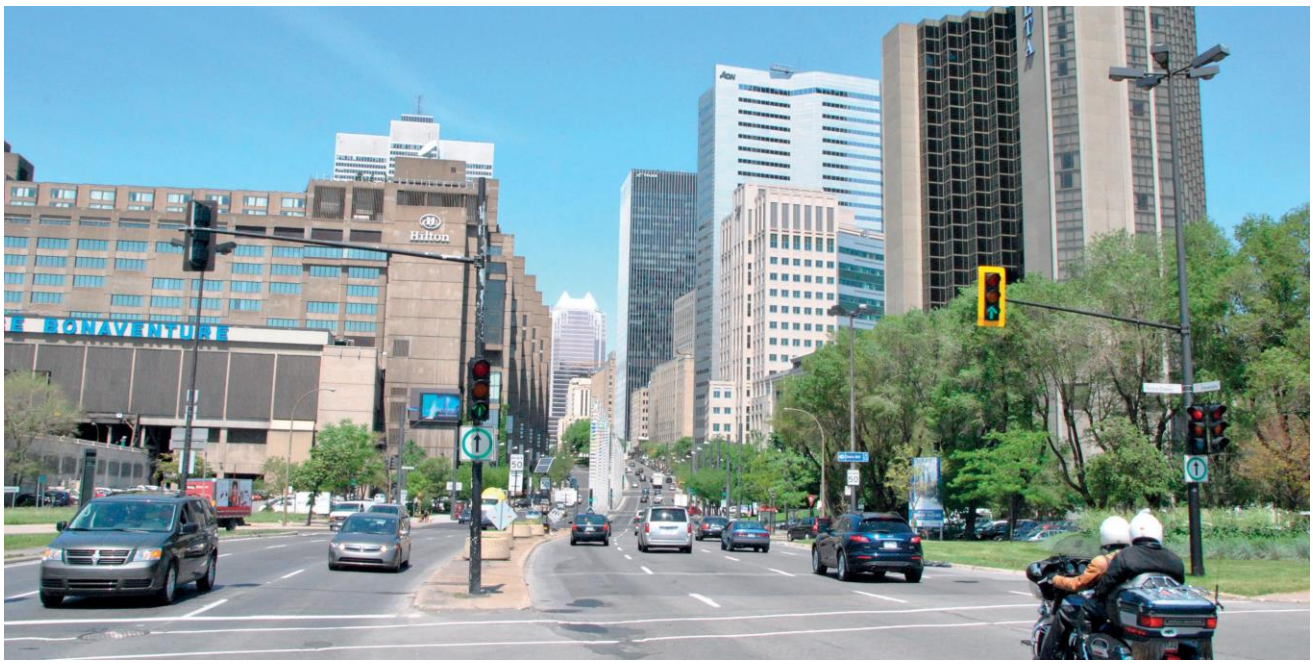

In its central part, the port area located south of the Lachine Canal (1830), the highway viaduct winds between silos, warehouse areas, a casino, and power lines.
To the southwest, from the Victoria Bridge to the Champlain Bridge, the highway was built along the Saint Lawrence River on an artificial embankment, closing off access to the river banks and creating discontinuity of the riverfront parkway on a city-wide scale.
Cut off from residential neighborhoods by vast railway tracks, surrounded by the two branches of the highway, this sector is occupied by wastelands and an unfinished *Technopark*.

Grain Elevator No. 5 which will be converted, south of the Lachine Canal.
© P. Lecroart IAU îdF

The railway viaduct reinforces the barrier effect created by the freeway at the entrance to the city.
© Société du Havre de Montréal

The revitalization of the Montréal Harbourfront

Some sectors of the Harbourfront area have entered a process of revitalization: development of the Cité Multimédia (Faubourg des Récollets), reopening of the Lachine Canal park (2002), real estate programs developed in the Griffintown neighborhood, etc. But, on the whole, the population of the Harbourfront (25,000 inhabitants) is relatively socially disadvantaged.

Because of its location between Montréal's International District (*Quartier international de Montréal*), Old Montréal, the Old Port and the river, the Montréal Harbourfront has the potential for considerable economic and urban development. It features a diverse natural, historical, and architectural heritage. More importantly, it holds great potential for change: there are currently 116 hectares of vacant land and several dozen hectares of mutable land that could be transformed to make it more attractive in the scope of a redevelopment of the A-10 freeway.

A metropolitan transportation corridor

The 2 x 3-lane Bonaventure axis is a metropolitan transportation corridor between downtown Montréal and the South Shore of the Saint Lawrence River (950,000 inhabitants), both for car traffic (45,000 vehicles/day) and for public transportation (42,000 passengers/day).

Overall, the Bonaventure Expressway remains little used during off-peak hours.
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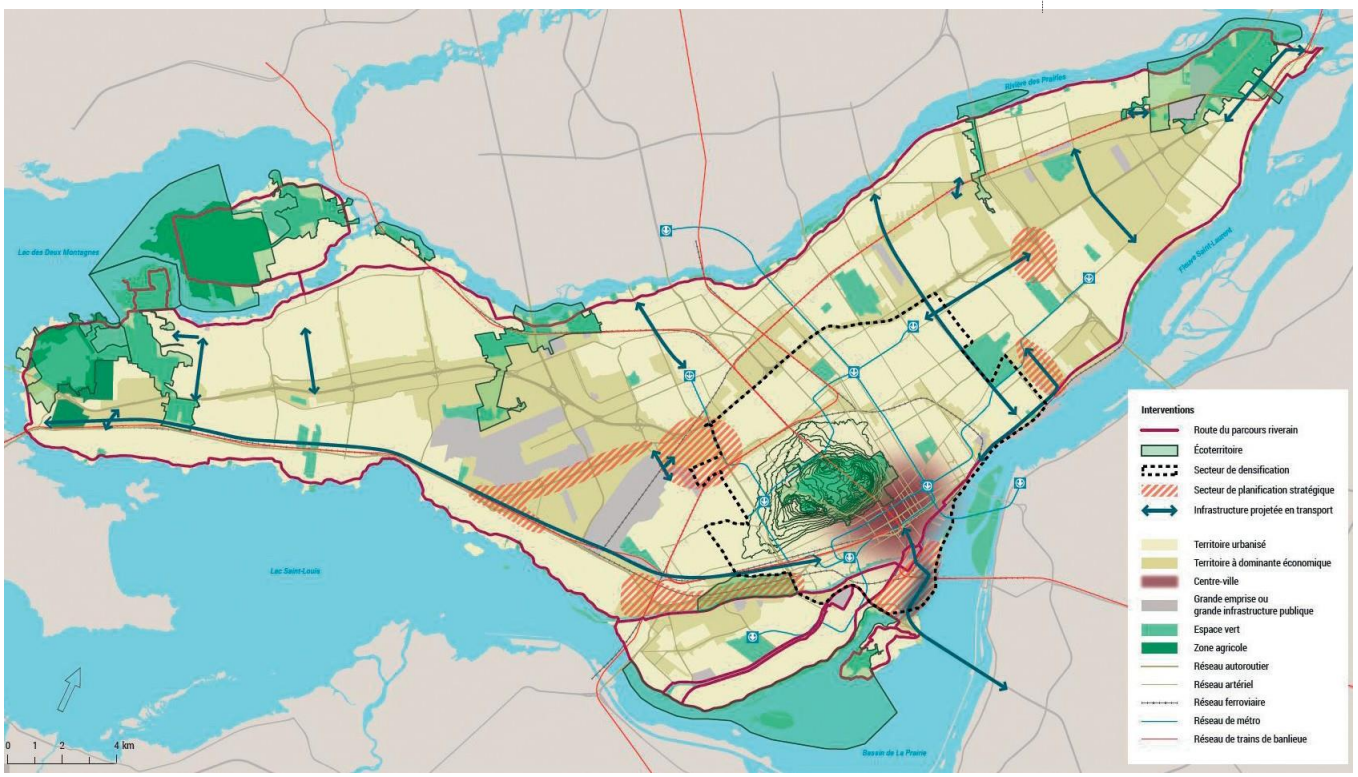
At rush hour (3 hours a day), buses carry more people on a single lane of the highway than the three lanes of private vehicles: 20,500 bus passengers compared to 12,100 vehicles.

At around 150 buses per hour, the influx of buses at rush hour to the city center bus terminal (TCV; connected to the metro network) creates queues and clogs the access roads.

The Bonaventure Expressway is congested on business days during rush hour, but little-used the rest of the day.

The Montréal Harbourfront is designated as a strategic planning sector in the Montréal Master Plan of April 2015.
© City of Montréal



The initial reflections

From Vision 2025 to Quartier Bonaventure

The actors

A non-profit organization, the Société du Havre de Montréal (SHM) was created in 2002 by the mayor of Montréal, Gérald Tremblay[3], the Ministry of Municipal Affairs of Québec (Ministère des Affaires municipales du Québec), and the Ministry of Industry and Economic Development Canada (Ministère de l'industrie et du développement économique du Canada). Initially, it was chaired by two prominent figures: Lucien Bouchard, former Premier of Québec, and Robert Shapiro, a leading English-speaking academic. Subsequently, the SHM's Board of Directors was chaired by a prominent member of the business community, giving the private sector an essential role in the decision-making process.

The first mission of the SHM (2002) was to "propose for the Montréal Harbourfront and the urban spaces surrounding it, the broad outlines of a concerted action plan, along with an implementation and financing strategy"[4].

The aim was to build a shared vision of the future of a 1,000-hectare sector, capable of uniting the public and private players affected by its development.

The area of the Harbourfront is marked by the presence of large private (Canadian National, railway company) and public (City of Montréal, Port of Montréal, Ministry of Transport of Québec) landowners.

Bonaventure Expressway: Roadway owners
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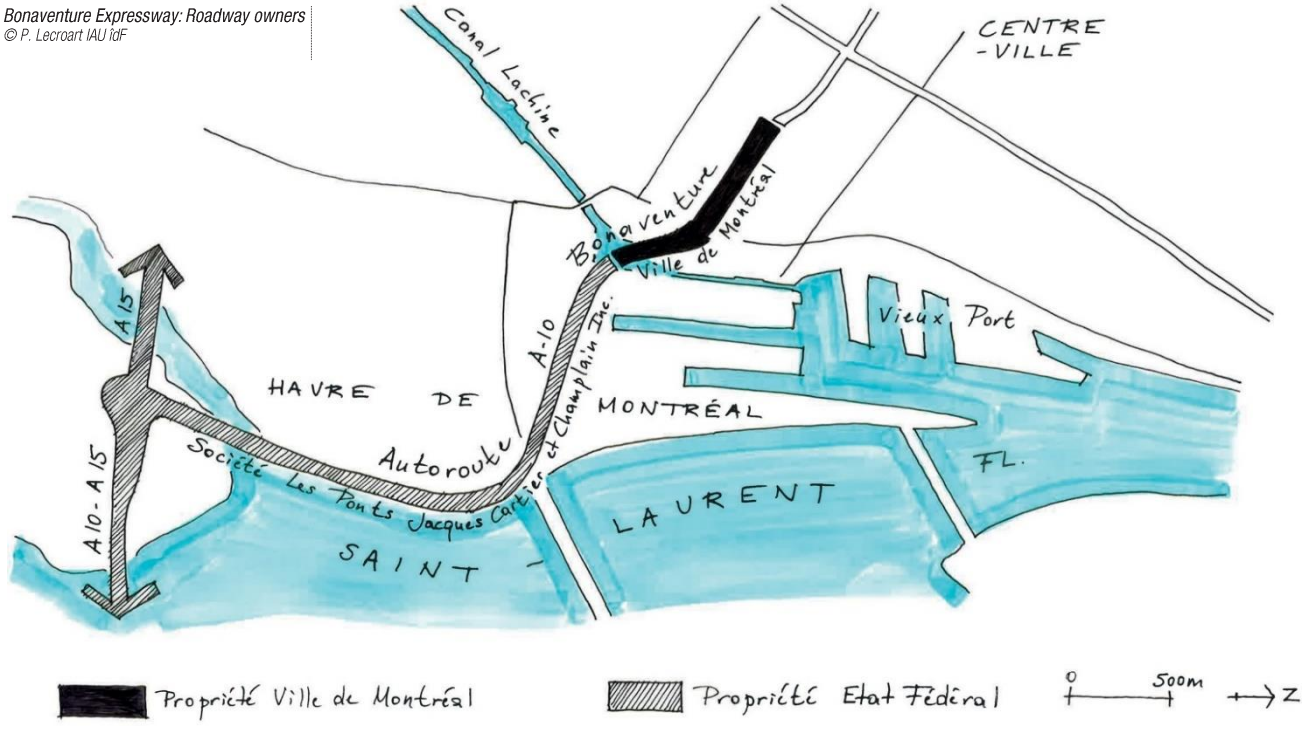


The Bonaventure Expressway right-of-ways itself belongs to two owners: south of the Peel Basin, the expressway is owned by the Jacques Cartier and Champlain Bridges Incorporated (JCCBI), a subsidiary of the Canadian federal government; north of the basin, the last kilometer is owned by the City of Montréal.

The redevelopment project requires the mobilization and coordination of a large number of players: the Ministry of Transport of Québec (Ministère des Transports du Québec), the Montréal Transit Corporation (*Société Municipale de Transports de Montréal*), the *Agence Métropolitaine de Transports*, *Transport Canada*, the economic community, the two district mayors involved (Sud-ouest and Ville- Marie), etc. Environmental and citizen associations are particularly active in the project's construction process.
They are critical of the place of private partners in the governance of the SHM who could potentially have economic interests in the Bonaventure Project.

The vision: a boulevard to open the city to the river

In 2003, a historical, spatial, socio-economic, and cultural inventory of the area was drawn up, including an identification of the constraints, potentialities, and mechanisms for the transformation of the Harbourfront area. At the same time, a Bonaventure Technical Committee with of representatives of the City of Montréal, the Province of Québec and the Government of Canada was set up to "evaluate the feasibility and technical aspects of transforming the highway into a boulevard from the Champlain Bridge to Notre-Dame Street (4.2 km)."

The aim of the project is to open up the city to the river, following on from the development work already carried out on the shoreline to the north-east of the highway.
© Société du Havre de Montréal

Published in 2004, the report *Vision 2025* Montréal Harbourfront*. The city and its river, a proposal for the future* defines three major areas of action for the Harbourfront area:

- the reappropriation of the shoreline for urban uses, in particular recreational uses;
- The reweaving of the urban fabric and the creation of a "prestigious city gateway" for Montréal;
- "sustainable" development.

The redevelopment of the Bonaventure Expressway (A-10) is the "cornerstone" of the vision based on a twofold concept:

- its transformation into a 2 km urban boulevard north of the Victoria Bridge;
- its relocation between the Champlain and Victoria bridges over 2 km to allow for the clearing of the riverbanks and the installation of a 24-hectare park.

In 2005, at the request of the three government partners, the SHM commissioned a preliminary technical and financial feasibility study for the redevelopment of Highway A-10, and an economic and financial impact study. Both studies are the subject of the report entitled *The Bonaventure Expressway. Vision 2025*, which concluded that the project is technically feasible and economically opportune provided that it is spread over 20 years.

In 2006, all of the SHM's studies and considerations were finalized in the report: Montréal Harbourfront. *Final report and recommendations*, which provides 31 recommendations for the implementation of the *Vision 2025 for the Harbourfront*, grouped into two components: "action plan" and "implementation".

The intervention plan covers various actions: the Harbourfront tramway, recreational, tourist, and cultural activities; blue and green spaces; urban development of industrial wastelands; management of polluted soils; new residential districts; enhancement of industrial heritage, etc. In total, the implementation of this Plan would involve a public investment of CAN$1.45 billion

Vision 2025: Concept of the 5 km Bonaventure Corridor in 2005
© Société du Havre de Montréal

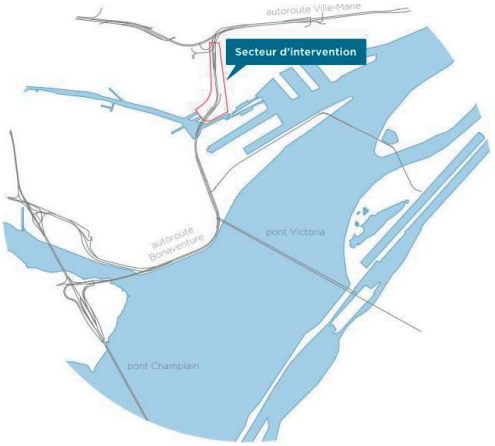
generating CAN$6.4 billion of private investment over 20 years and CAN$655 million would return to the community in the form of tax revenues for all three levels of government.

The Plan confirms the strategic interest of the redevelopment of Highway A-10 for Montréal: the Bonaventure Project is likely to directly generate CAN$1.5 billion of private investment.

The proposed phasing for the Bonaventure Project in 2006 was as follows:

- Phase 1 (2006-2010): extension of the city center southward on the right-of-way of the highway transformed into an urban boulevard;
- Phase 2 (2011-2015): relocating the lane between the Champlain and Victoria Bridges;
- Phase 3 (2016-2025): redevelopment of the highway between Victoria Bridge and Peel Basin.

This schedule was not met and only Phase 1 was initiated for the period 2011-2017. The first two phases required only 20% of public investment for 65% of private investment. The impact of Phase 1 alone was then estimated at CAN$800 million, with the construction of 2,100 housing units and 165,000 m^2 of office or commercial space. Highway demolition and development costs were estimated at less than CAN$80 million, while its rehabilitation would cost approximately CAN$60 million. For Phase 2, the relationship between private investment and public was estimated at 2.6 (CAN$200 million of benefits, with CAN$77 million of public investment).



Site plan for Phase 1 of the Bonaventure Project in 2014 (excluding the blocks in the Récollets district).
© City of Montréal

The area of focus for Phase 1 in 2012.
© Société du Havre de Montréal

South of the Peel Basin, the highway is again a viaduct. The initial project was to transform this section during phase 3.
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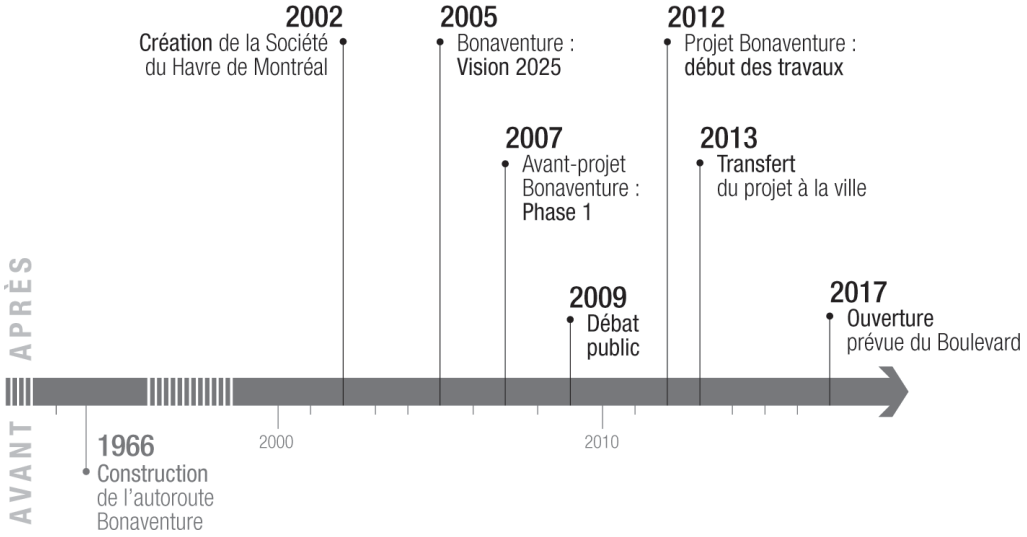
The Bonaventure Expressway and the technopark along the Saint Lawrence.
In the background, Champlain Bridge and île-des-Sœurs. In the 2005 project, the highway had to be moved in phase 2 to free up the shoreline of the river and create a linear park.
© Société du Havre de Montréal

Regarding the project implementation, the choice was made not to create a single delegated project management structure bringing together the main public contracting authorities, such as the *Toronto Waterfront Revitalization Corpororation* (today *Waterfront Toronto*): each of the public and private players concerned was called upon to implement the strategy in its own field, with the SHM playing the role of coordinator and facilitator.

The definition of the highway redevelopment project (Phase 1)

In September 2007, Société du Havre de Montréal was entrusted by the City of Montréal with the study of the detailed design for Phase 1 of the redevelopment of the Bonaventure Expressway. The process culminated in an initial outline of an urban project that called for the demolition of the highway viaduct and its replacement by a double avenue, the construction of a-wide median and the development of a bus corridor on a parallel street (the Dalhousie corridor). It was presented to the public in early 2009 under the name "Quartier Bonaventure".

In 2010, following the public consultation, Société du Havre de Montréal reviewed the Bonaventure project, studying several variants of the bus corridor and by reducing the height of the buildings planned in the central blocks. In addition, the project involved reducing the slope of the highway's southbound connection to the highway, thereby removing one of the connections between the dual avenue and the local roadway (Brennan Street). Constraints on maintaining the underground connection between the Bonaventure



Bonaventure Project Timeline

Highway is built in 1966 for the Universal Exhibition of 1967

From 2004 to 2013 an Initial Removal Project is prepared and steered by a Public-Private Partnership, the Société du Havre de Montréal

From 2013 to 2017 a Revised Removal Project is designed and delivered by the City of Montréal

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BOX. Public participation and dialogue with the community

The involvement of actors from the public and private sectors was seen the Société du Havre de Montréal (SHM) was set up in 2002, as a method of collective elaboration of the project, likely to help build the SHM's own legitimacy to intervene in this area. In 2003, coordination groups brought together economic groups (Chamber of Commerce of Metropolitan Montréal, businesses, shopkeepers), universities, cultural and environmental groups, neighborhood, and local residents' associations, etc.The development of the "Vision 2025", and then of the Bonaventure Project, benefited from the work of technical partnership commissions, thematic commissions open to associations, and workshops.

In 2009-2010, the preliminary draft of Phase 1 was submitted to a public consultation led by the Citizens Public Participation Bureau, the *Office de consultation publique de Montréal* (OCPM), an independent structure responsible for organizing public discussion on development and construction projects. Preceded by the mailing of 4,000 pamphlets, the 5 public forums brought together more than 700 people and generated close to 60 written contributions.

Generally favorable to the project, the commission echoed the numerous criticisms concerning sensitive points, such as the negative impacts of the Dalhousie bus corridor (disturbances, depreciation of the heritage), and on more general issues (elitist positioning of the project, financial risks linked to the weakness of the real estate market, slashing of the project in the absence of consultation on phases 2 & 3).). Reservations about: the lack of a comprehensive planning framework for the project approach; the impact of research at all costs for densities for short-term financial and fiscal profitability; and the lack of transportation and traffic coordination[5].

The process of discussions with the public significantly helped the Bonaventure Project evolve in the direction of better urban and social integration. However, the City and the SHM did not follow up on some of the commission's observations: the extension of the project's perimeter to allow for a broader financial base and the study of the closure of the Ville-Marie Expressway on-ramp, which is a strong constraint on the quality of the boulevard project. The conflict of interest within the SHM Board with real-estate parties pushing for more density led to a distrust of communities in the project. The City took back control in 2013, but did not submit the 2014 Project to a new round of public consultation.

(A-10) and Ville-Marie (A-720) Expressways led to reconsideration of construction on the north block, the closest to the downtown core (replaced by a green space that is not easily accessible).
In order to regain feasibility and help finance the project, a building replaced the central public square considered in the initial project.

In February 2011, the City of Montréal decided to take on the role of project leader for Phase 1 of the Bonaventure Expressway transformation project. The City signed a new five-year agreement with the Société du Havre de Montréal focusing on two missions:

The Faubourg des Récollets was designated as the "innovation district" (William Street).
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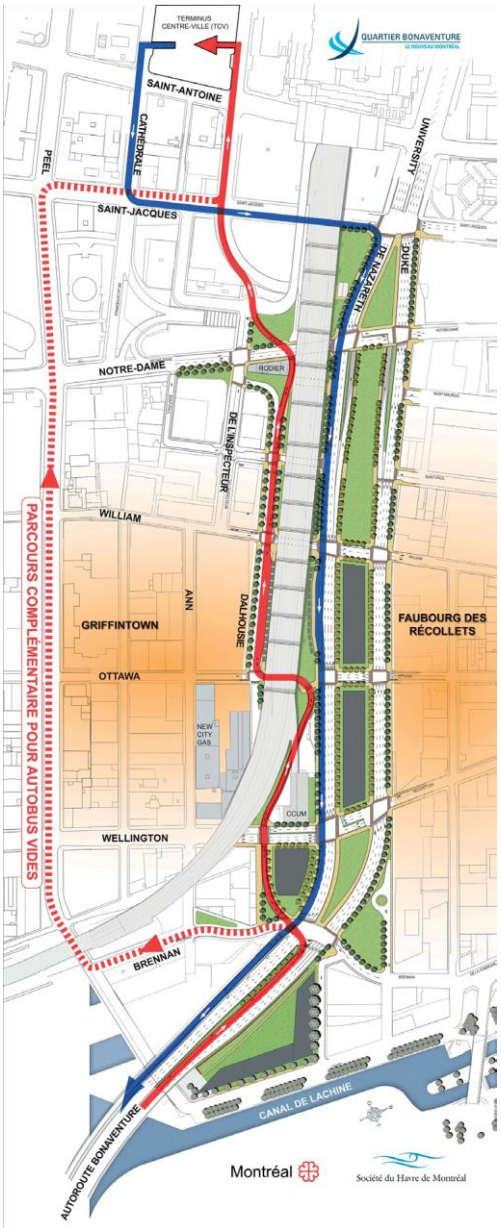


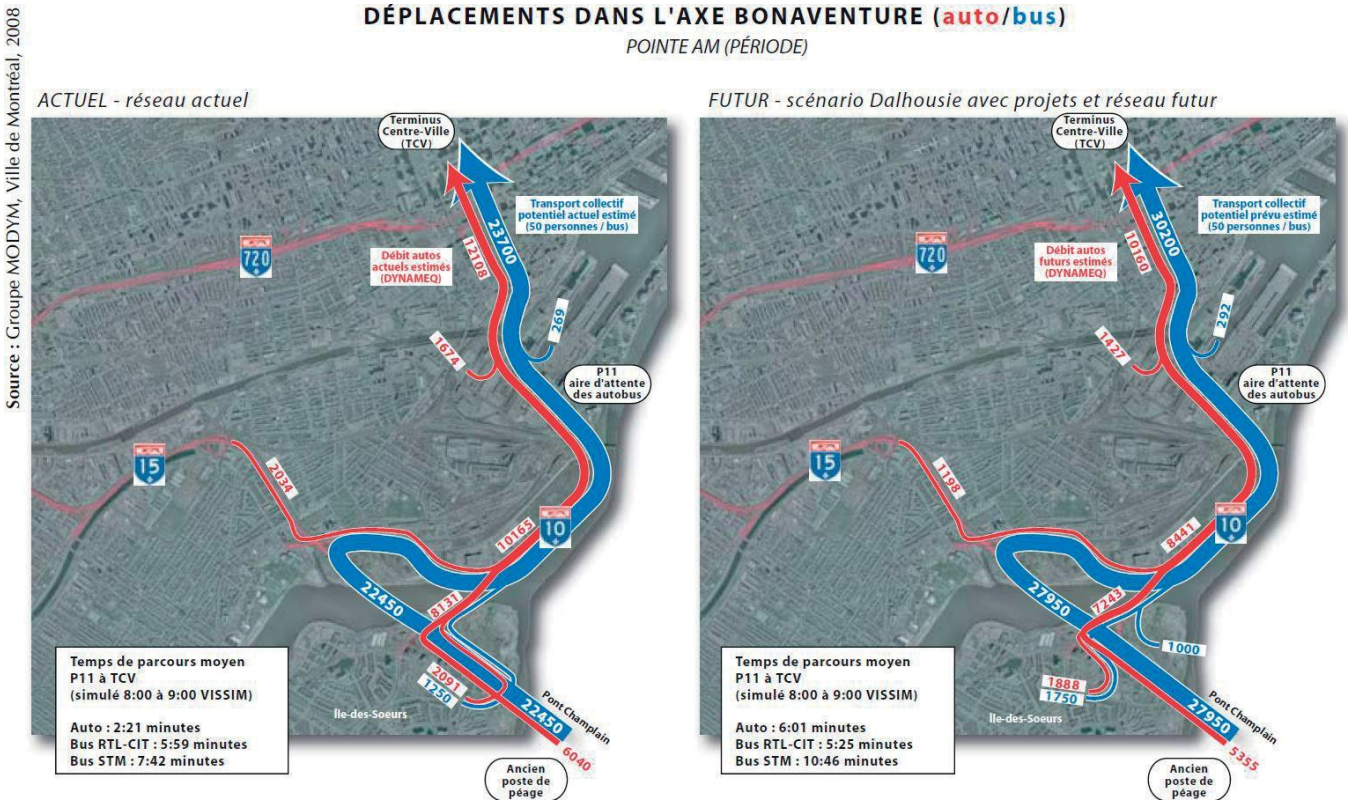
The Dalhousie Corridor:
scheduled for 2009, this controversial project on a local lane of a heavy bus route has been discarded in the 2014 version of the project
© Société du Havre de Montréal

- provide services to the City for the highway transformation operation (engineering, project management, preparation of plans and specifications, etc.);
- update the "Vision 2025" of the development of the Harbourfront, continue the coordination and ensure the promotion of the area.

A joint City of Montréal /Société du Havre de Montréal Project Bureau was set up to jointly ensure the demolition of the highway and the development of public spaces. The preparatory work for the dismantling of the highway is then scheduled to begin in October 2011.

After study and consultation, the Project Bureau proposed in 2012 the concept of a dedicated bus lane on the retained section of the Bonaventure Expressway and along the new boulevard. This would mean the addition of a fifth southbound lane to ease bus access to the highway during the evening rush hour[6].

This option maintains, in principle, the possibility of upgrading the bus dedicated right-of-way in the future to accommodate a light rail system (*système léger sur rails* SLR)



Morning Peak Time Traffic Before and After. The initial project (Dalhousie Corridor) calls for a transfer from cars to buses while increasing the capacity of the axis by approximately 13%.
© Groupe Modym, City of Montréal

The highway's surroundings are becoming denser in anticipation of the project. New condominiums under construction in 2014.
© P. Lecroart IAU îdF

and saves approximately CAN$20 million compared to the "Dalhousie Corridor" option.

In November 2012, accused of corruption, Mayor Gérard Tremblay resigned. He was replaced by Michael Applebaum at the head of a political coalition. In January 2013, the new mayor decides then to withdraw all the City's mandates with the Société du Havre de Montréal, whose lack of transparency and the possibility of conflicts of interest for some of its members have been criticized since 2009 by the municipal opposition. The Société du Havre de Montréal is dismantled.

Construction begins: the Bonaventure Project in November 2012
© P. Lecroart IAU îdF

The realization of the Bonaventure Project is then entrusted to the Montréal Transport Agency *Direction des Infrastructures, de la voirie et des transports*, which took over the SHM's plans and specifications; the design of the public space project and the planning of the sector is entrusted to the Department of Territorial and Heritage Development (*Service de mise en valeur du territoire et du patrimoine*) (SMVTP).

The 2009 Bonaventure Initial Project provided for high urban densification.

The idea of high-rise building to pay for the removal was abandoned with the 2014 Revised Project
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The project

The Bonaventure Project

The Bonaventure Expressway redevelopment project is the driving force behind a long-term strategy for the urban regeneration of the large area of the Montréal Harbourfront carried out by multiple public and private stakeholders.

In the initial project, until 2025, the transformation of the highway involves a 4.7 km stretch of road, comprising three phases of construction:

- Phase 1: the conversion of the City-owned section of the highway to a boulevard and neighborhood development;
- Phase 2: relocation of the upstream section of the highway and development of the riverbanks of the Saint Lawrence River;
- Phase 3: the redevelopment of the intermediate section of the highway whose design is yet to be defined.

Phases 2 & 3, which correspond to the development of the sections of the highway owned by the Canadian federal government, are on hold due to lack of agreement between the parties. The highway is currently being rehabilitated by the concessionaire, Jacques Cartier and Champlain Bridges Incorporated (JCCBI).
A new project for the Montréal Harbourfront is by then being studied by the City.

Phase 1 is the subject of the Bonaventure Project, which was completed in 2009 and revised in 2012 and 2014.

The entrance to Downtown Montréal and the Bonaventure Expressway viaduct.
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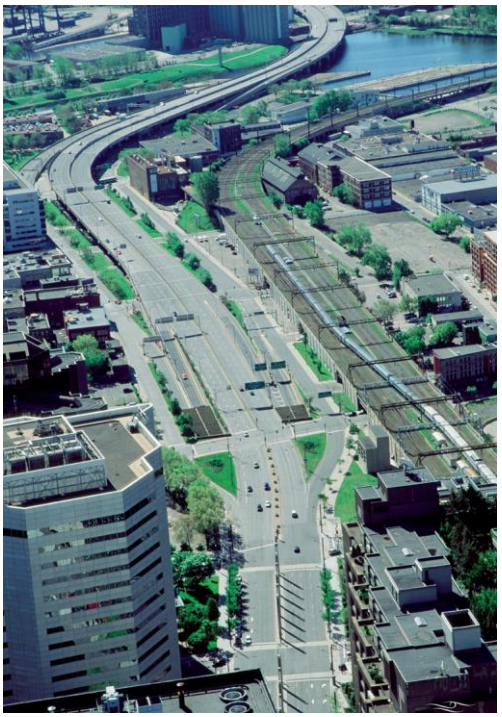
This project is part of a 29-hectare project area that includes mutable private plots of land in the Faubourg des Récollets. The operational perimeter is essentially limited to the right-of-way belonging to the City of Montréal, i.e., the last kilometer of the Bonaventure Expressway, parallel Duke and Nazareth Streets and the De la Commune block to the south.

The construction of Phase 1 of the Bonaventure project consists of four stages:

- stage 1 (2011-2014): levelling of underground networks;
- stage 2 (2015): demolition of the highway viaduct;
- stage 3 (2016): construction of the boulevard;
- stage 4 (2017): surface facilities and final delivery.



The perimeter of intervention of phase 1, seen from downtown Montréal.
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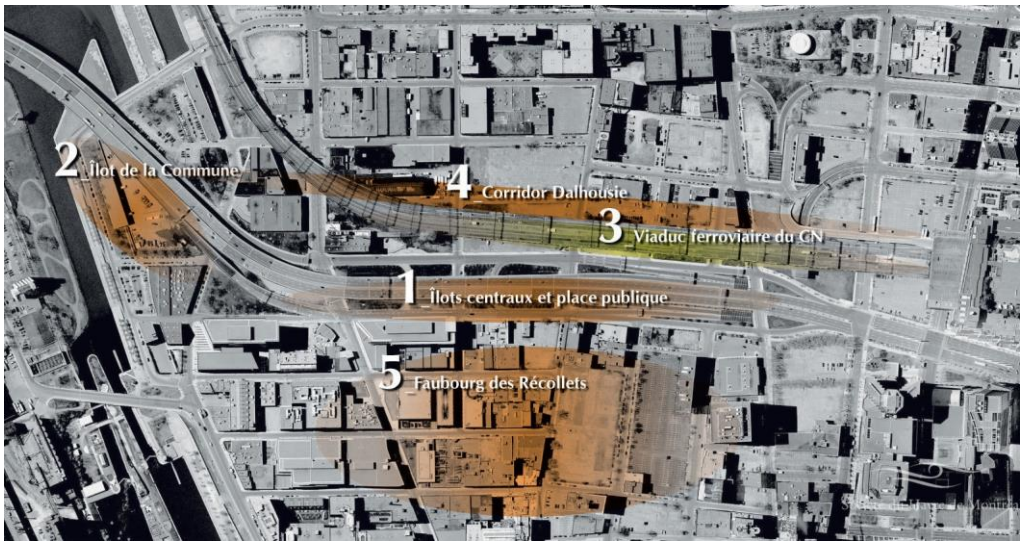

Location plan of the different sectors in phase 1 (2009).
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The objectives

The objectives of the Bonaventure project approved in 2014 are threefold:

- Designing a gateway to the city that is "prestigious, functional and user-friendly";
- Encouraging the reweaving of the urban fabric;
- Supporting urban redevelopment through strategic public interventions.

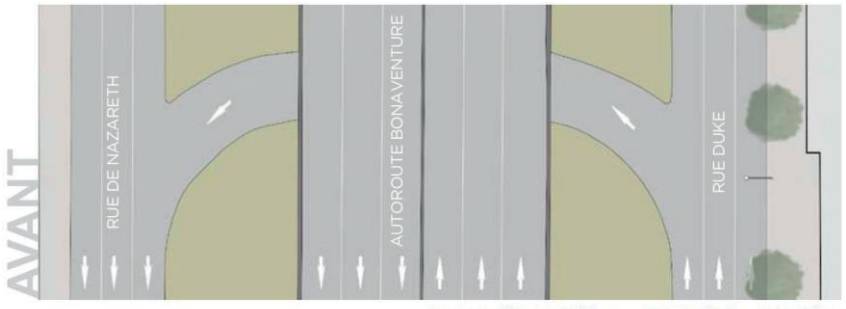
The 2009 project was meant to be an overall project, aiming to focus on several elements that were not always under its control:

- The replacement of the highway viaduct and its ramps with a dual thoroughfare relying on Duke and Nazareth Streets;
- The valorization of the De la Commune block;
- The reuse of the substructure of the Canadian National (CN) railway viaduct;
- The establishment of a dedicated bus corridor on Dalhousie Street;
- Consolidation through programs built on the Faubourg des Récollets;
- The architectural and urban enhancement of the central blocks located between the two new roads.

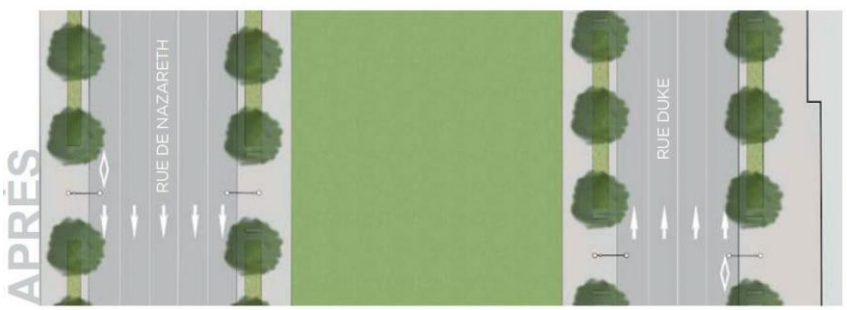
This project, designed by the City of Montréal, is intended to be more pragmatic: it focuses on the conception, design and construction of the new boulevard, in particular the central public space freed from the planned constructions, which is the main feature of the 2014 project.

In April 2015, it was agreed that the new road would be named Boulevard Robert Bourassa, a former Premier of Québec, as an extension of University Street.

Before and After. The boulevard project foresees five lanes on Rue de Nazareth and four lanes on Duke Street, with one bus lane in each direction.
© City of Montréal



AXE BONAVENTURE : SITUATION ACTUELLE



AXE BONAVENTURE : SITUATION PROJETÉE

The road project

The option chosen by the City in consultation with stakeholders[7] is the replacement of the highway with two one-way roadways with 4 traffic lanes to the north (including one bus lane) and 5 lanes to the south (with one bus lane).

This choice was driven by the intention to maintain the function of the axis as an access to the urban center and to maintain the link between the Ville-Marie Expressway and the southern section of the Bonaventure Expressway, required by the Ministry of Transport of Québec (Ministère des Transports du Québec; MTQ).

It is tied to the results provided by the traffic models used by the City of Montréal and the MTQ[8].Demolition of the highway viaduct is then planned north of the Peel Basin Bridge, the bridge itself is consolidated to extend its service (an initial alternative of new tunnel or new bridge was an option for a time).

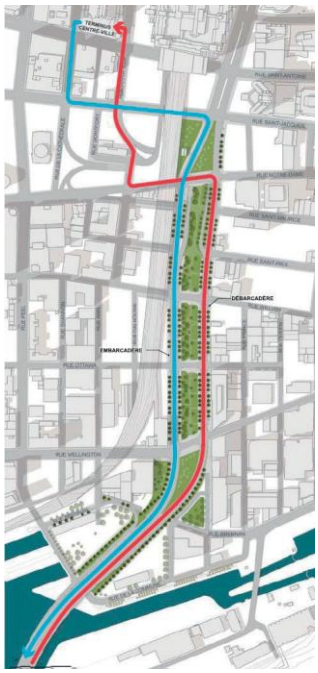
The geometry of both roadways is designed for a base speed of 60 km/h while the authorized speed is 50 km/h, with physical features ensuring the highway-city transition. The 3.40 m-wide traffic lanes give roadways a width of 14.60 m with two off-peak parking lanes, but no bike lanes. In general, cycling mobility is not well addressed in the project, although the City plans to develop bike routes and BIXI (bike share) stations.

The City considers that the project will reduce the total number of lanes of traffic from the current 12 lanes (2 x 3 roadway lanes and 2 x 3 urban side lanes) to 9 lanes, a reduction of one quarter of the capacity. However, some experts consider that, in reality, since the lateral lanes are little-used, the change from 2 x 3 expressways to 2 x 4 or 5 urban lanes, combined with the connection between the two highways, could attract excessive automobile traffic in the downtown area.

The total width of the planted sidewalks, reduced compared to the 2009 project, is 6 m: these pedestrian spaces are wider than in the current configuration, but the pavement/walks ratio remains rather advantageous to car traffic. The proposed boulevard connects five perpendicular streets (out of a possible seven) by means of traffic light intersections.

Safe pedestrian crossings, active first floors, design of public spaces, furniture and materials should promote a more comfortable environment for pedestrians. The six crossings under the railway viaduct need to be redesigned.

Pedestrian crossings under the highway in 2011.
The project promises a radical change for pedestrians.
© P. Lecroart IAU îdF



The bus lane project.
In red, the route to the downtown terminus and in blue, to the South Shore.
© City of Montréal

The public transportation project

Although studied within the framework of the Bonaventure Project, the bus corridor project is a distinct operation for which the project management is entrusted to the Agence métropolitaine des transports (AMT).

Simulations of future traffic show that it is possible to remove the highway without jeopardizing the accessibility of the center, as long as greater priority is given to public transportation as recommended by the 2008 Transportation Plan. The project is based on the principle of a modal shift of around 20% during peak periods: increasing the public transportation offer would enable 3,800 potential car users to switch to public transportation.

While waiting for the implementation of a light rail system (*système léger sur rails* SLR) of the South Shore (a long planned but unfunded project), the principle adopted in 2014 is to reserve a bus lane on the new boulevard.

As a result of these uncertainties, the "mobility" objectives, elements present in the 2009 project (limiting regional transit between Ville-Marie A-720 highway and Champlain Bridge A-15, reducing car use and encouraging a modal shift) are more discreet in the 2014 project.

The urban and landscape project

The removal of the highway frees up four median “islands” between the two roadways of the new boulevard.

Initial Situation (2013)

In the 2009 project, three of these blocks were intended to accommodate office, hotel, commercial, and residential buildings (1,300 units). The volumes planned at the time consisted of active first floors, podiums at R+4/R+6, and narrow bars and towers from 26 to 32 levels above. The building capacity expected in 2009 was 165,000 m^2 of floor space. The SHM justified this very dense program by citing the need to make the project profitable over a period of 10 years within a narrow perimeter.

This real estate and financial approach was the subject of much criticism; some experts felt that the high-rise buildings under consideration risked obscuring Mont-Royal.

Revised Project 2014; Delivered 2017

The project defined in November 2014 proposed the creation of a vast multi-use public space between the two roadways of the boulevard, which are themselves landscaped, forming a vast green promenade 32 m wide. This layout makes it possible to further enhance the entrance to the city of Montréal and to provide a space for gatherings and cultural events for the transforming neighborhoods.
To the south, the De la Commune block becomes available to accommodate a large urban infrastructure.

Outside the scope of public measures, redevelopment of the site would make it possible to reconvert several hectares of vacant private land used as parking lots in the Faubourg des Récollets and Griffintown.

The 2014 project is about a wide urban boulevard with a vast green public space in its center.
© City of Montréal

Landscaping central blocks of the new boulevard.
© City of Montréal

The perimeter of the project straddles the boundary of two districts that pass through the center of the current highway: the rules in place in the urban plans differ on both sides. For example, the land use coefficient varies from 3 to 10 in the Sud-Ouest district, while it is uniformly set at 9 in the Ville-Marie district to the east.

One of the challenges of the Bonaventure Project would be to have a single urban development plan reflecting a common vision, strategy, and policies for the development of a larger area than that covered by the current project.

The financial scenario of the project

The cost of the project in 2009 was estimated at CAN$141 million[9] for the Phase 1 of the Bonaventure Expressway redevelopment (funded by the City).
To this amount, CAN$86 million was to be added for the Dalhousie bus corridor (SHM estimate), for a total of CAN$227 million.

These expenditures should be viewed in the context of avoided costs (estimated at CAN$45 million for the rehabilitation of the highway viaduct) and revenues to the City over the period 2012-2031: sale of the central blocks for construction (estimated at CAN$51.5 million), issuance of permits, and transfer taxes (CAN$48 million).

The new boulevard during the last construction phase (Summer 2017).
© P. Lecroart IAU îdF

The financial analysis carried out by the City of Montréal estimated the payback period for the public investment to be nine years.

These costs should also be considered in relation to the real estate investments that would be generated by the elimination of highway pollution, which were estimated by SHM at 1.5 billion. These estimates are considered by many experts to be very optimistic, all the more so as the real estate market was in a slump in 2008-2012.

After the cancellation of the bus corridor project, the new 2014 project remains within the CAN$141 million envelope for one km of conversion. The City foregoes revenue from the sale of the center blocks envisaged in the 2009 project.

Top
The developers have already anticipated the future Bourassa Boulevard. In 2011

Botttom
After the demolition of the viaduct, the construction of the central park in 2017.
© P. Lecroart IAU îdF

Lessons from the project

The Bonaventure Expressway is a strong urban barrier south of Montréal.
© Société du Havre de Montréal

The counter-proposal of the Montréal Project, a municipal opposition party, for phase 3 of the Bonaventure Project in 2013: transformation of the highway and urban project.
© Projet Montréal

Since its launch in 2002, the Bonaventure Expressway redevelopment project has gone through multiple incarnations that illustrate the difficulty of sharing a vision and creating the conditions for its implementation over time.

The project currently under development falls short of its initial ambitions: that of using the transformation of an infrastructure, inherited from the major projects of the 1960s, as a catalyst for a global project for the urban transformation of a large industrial area at the gateway to the city.

Certain weaknesses in the process were highlighted: the pitfalls of public-private management of the project and the lack of transparency within the Société du Havre de Montréal; the difficulty of linking the urban project and the public transportation project on the axis; the difficult dialogue with the authority in charge of the urban road network, the Ministry of Transport of Québec (Ministère des Transports du Québec) (MTQ).

Nevertheless, the project provides interesting insights at several levels:

- it confirms the possibility of developing the terminal section of a highway penetrating into the heart of a large city as an urban artery, supporting an overall development project;
- it confirms the feasibility of shifting traffic from the highway to public transportation, provided that the latter is facilitated;
- it demonstrates the value of this type of project as part of a long-term vision of the step-by-step transformation of a large urban area carried out by a body bringing together several levels of government.

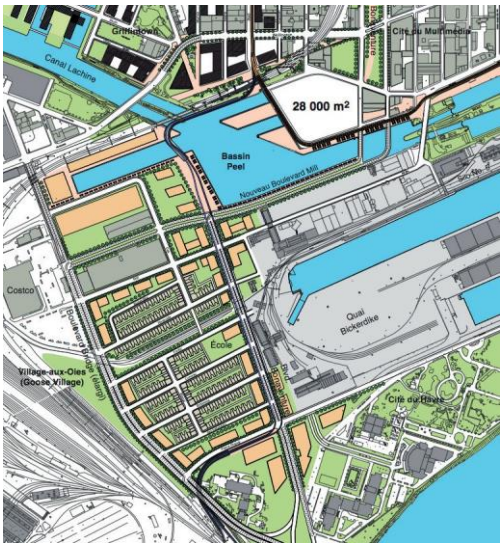
These elements can provide food for thought, such as, for example, the future of the A4 highway corridor in the Paris region, the A7 in the Lyon region, as well as many similar situation in other European cities and regions.

The redevelopment of the highway, a catalyst for urban development

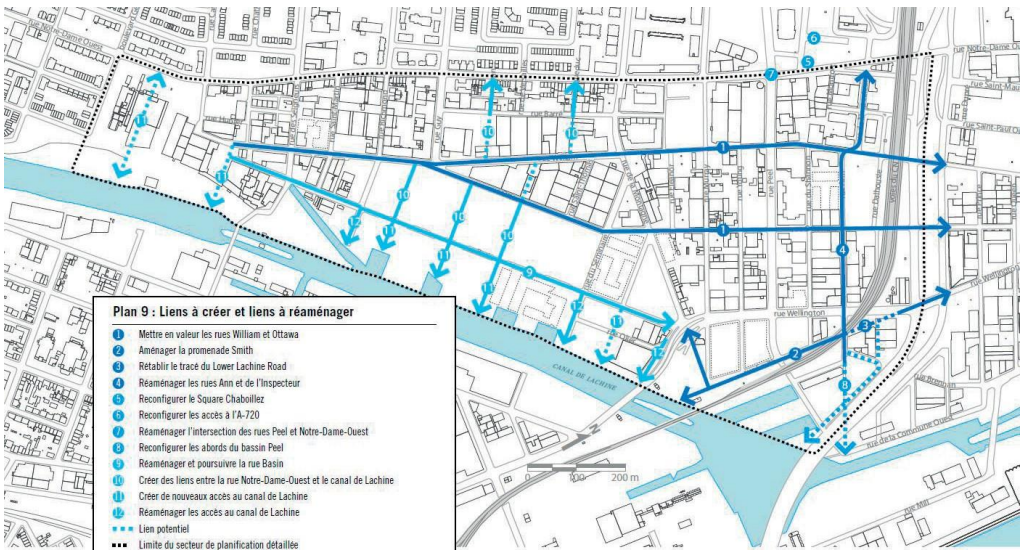
The first lesson of the Bonaventure Project is the recognition of the urban barrier created, or reinforced, by a magisterial approach that symbolized, with Expo '67, the modernity of a city and an entire country.

There is a fairly general consensus in economic, political, technical, and associative milieux on the following points:

- the highway is an obstacle to the opening of the city on its river;
- the preservation of the highway status of the road is no longer essential to the functioning of a area;



Counter-project for Phase 3 of the Montréal Project: the transformation of the intermediate section of the highway and its connection to the local road network of the Montréal Harbourfront.
© Projet Montréal



The Griffintown Area Specific Planning Program for 2013 calls for the reconnection of neighborhoods, taking advantage of the transformation of the Bonaventure Expressway.
© City of Montréal

- the highway in its initial state is a barrier to the urban redevelopment of the Montréal Harbourfront, a depreciated but strategic sector for the city;
- its redevelopment could be the driving force behind a long-term project to develop a vast area and create an attractive entrance to the city.

Long-term vision for the station district (PPU quartier des Gares 2015). On the right, the future Robert Bourassa Boulevard.
© City of Montréal

Project development, project management and coordination

In view of the stakes involved in the transformation of a complex but strategic area for Montréal, the joining of three levels of government in a common structure, the Société du Havre de Montréal (SHM), initially made it possible to build a seemingly shared vision.

But to proceed to the next steps, the project lacked political portage at the provincial, federal, and city levels. The involvement of the Province of Québec remained limited; the City of Montréal long remained in the position of executing an otherwise defined project; coordination between both sides of the Saint Lawrence River was weak.

The development of an adaptable plan-guide giving a more complete picture of the Harbourfront project (after examining several scenarios

Visualization of future public spaces in the Griffintown and the Récollets district on either side of the future boulevard.
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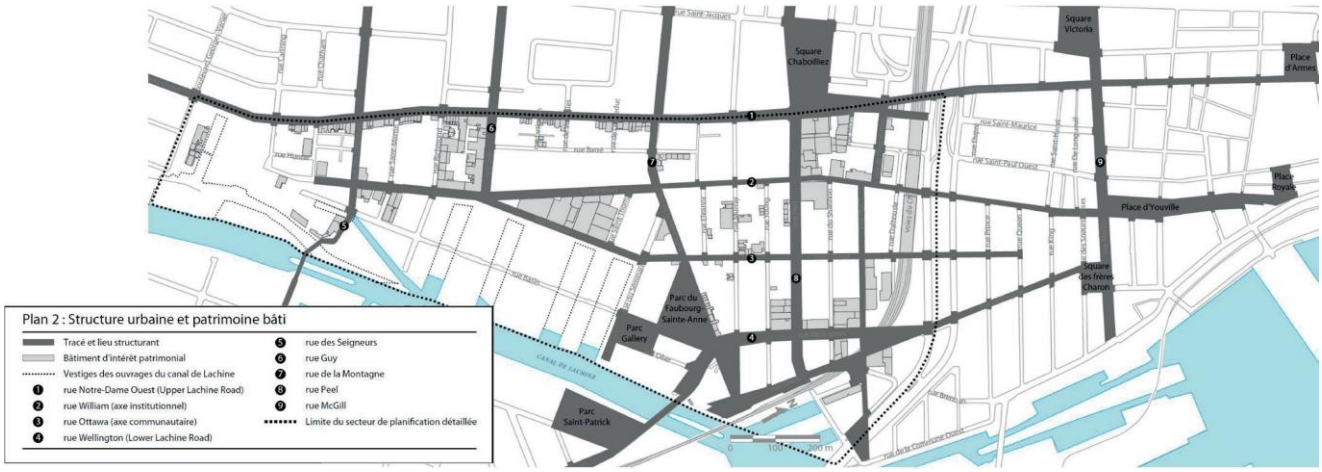


for the redevelopment and management of the Bonaventure Corridor) would have been useful in mobilizing the major public and private players.

The SHM played the role of a partnership agency for promoting the area and developing a vision, but many criticized its close proximity to the business world. A delegated public contracting authority for the realization of an overall project would undoubtedly have been more appropriate.

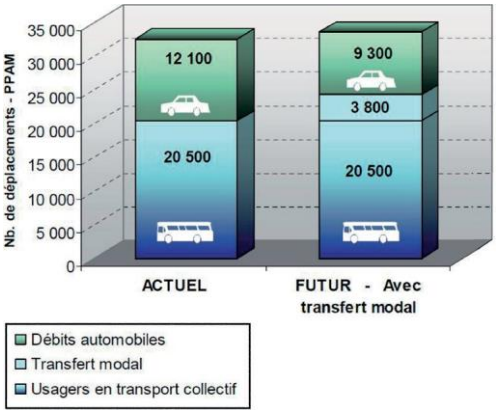
This undoubtedly also explains the lack of coordination and integration of transport and development projects: the integration of a bus corridor or light rail was seen primarily as a constraint rather than as an asset for the urban project. Sectoral logics remain quite strong in the project process.

The Office de consultation publique de Montréal (OCPM) played a very positive role in the construction of a more integrated project, but is not mandated to accompany the process over the long term. The public debate focused only on Phase 1 of the project, not on the overall project (Phases 2 & 3).

The impact on mobility: fewer highways, more people transported

The feasibility studies for the Bonaventure project show that it is possible to transform a section of expressway into an urban avenue

The Griffintown Special Planning Program calls for the development of a new mixed-use neighborhood (including 8,200 housing units, 1,200 of which are social and affordable). Project vision.
© City of Montréal



Before and After Peak Time traffic Volumes. The transformation of the highway is expected to result in a change in travel patterns and reduce the volume of traffic by a quarter.
© Groupe Modym, City of Montréal

The City of Montréal's objective is to reduce automobile traffic while increasing the percentage of public transit use.
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without renouncing the highway's function as a metropolitan transportation axis: the Bonaventure axis continues to be one of the main accesses to downtown and to serve as a link between two highways. The increase in drivers' travel times would remain negligible in absolute terms (2-4 minutes), even if it could mean a tripling of the congestion in the busiest quarter of an hour, mornings from 8:30 to 8:45 am.

The decision to create a dedicated bus lane would allow the axis to transport more people during peak periods (24,300 versus 20,500 before), while reducing automobile traffic (9,300 vehicles at peak times versus 12,100 before, or -23%), which is one of the City of Montréal's objectives.

Some experts believe that integration from the outset of the light rail system (*système léger sur rails* SLR) project could have made it possible to absorb a very large share of the highway's traffic, with a hypothetical capacity of 30,000 to 125,000 people per day. To compare with a current traffic of about 50,000 vehicles/day. In this scenario, the entire highway may no longer be useful by the time the SLR is completed (scheduled for 2021).

The transformation of the highway into a boulevard would have a very positive impact on the urban quality, comfort, and safety of pedestrians and cyclists. The central park and the reconfiguration of the crossings would greatly reduce the barrier effect between the Griffintown and Récollets neighborhoods.

Nonetheless, the project takes place in the context of a tense debate on the place of

the automobile in the urban development of downtown Montréal. The Office de consultation publique recommended that the Ville-Marie Expressway (A-720) ramps be removed, as required by the Ministry of Transport of Québec (Ministère des Transports du Québec).
The retention of this link is penalizing in terms of urbanity, induced traffic, and road safety for pedestrians and bicycles.

Can urban development finance the demolition of a highway?
Even before it is put into service, the transformation of the Bonaventure Expressway into an avenue has anticipatory effects on the construction of several hundred housing units and activities in riverside neighborhoods (beyond the project perimeter).
In the long term, the project's benefits can be estimated at several thousand housing units.

One of the questions raised by the Bonaventure Project is that of the self-financing capacity of the demolition of a highway through the proceeds from the sale of building rights on the plots of land released within the project's perimeter (about 5 hectares).

The SHM's initial economic and financial appraisals tended to show that, over a period of 20 to 25 years, revenues from the highway's redevelopment would exceed the public investments made by each of the three levels of public project management.
This result is partly related to the fact that the Canadian Government and the City of Montréal are landowners. Private investment would generate potentially very significant tax revenues for the public authorities.

Before (2011)

The access ramp to the Bonaventure Expressway today.
© P. Lecroart IAU îdF

Project Delivered 2017

The project eliminates the urban barrier while giving more space to pedestrians thanks to the widening of sidewalks.
© P. Lecroart IAU îdF

Project development
1. *Bonaventure:initial state*
2. *2009 project;*
3. *2014 project.*

The City abandonned the idea to finance the deconstruction with the building of a high-rise offices on the central median
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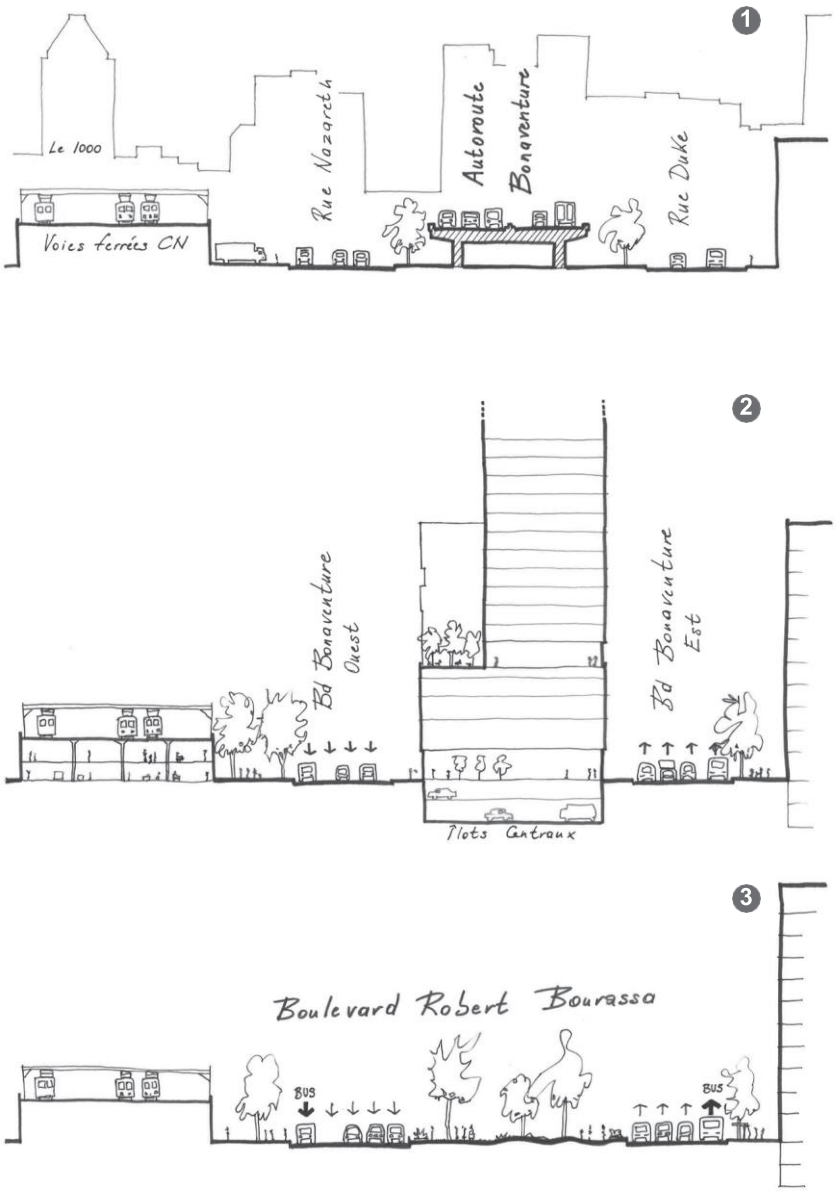

However, these estimates were marred by uncertainties: additional hidden public costs (decontamination, land acquisition, additional costs related to changes in environmental standards, technical contingencies, or political demands, etc.) were often minimized, while revenues were based on the very optimistic assumptions of a buoyant real estate market.

In the Quartier Bonaventure project (Phase 1), the profitability forecast for 2009 was too short and the scope of the project was too limited.
This forced the SHM to renounce the urban balance objectives of the project, foreseeing an excessive densification of the constructions and minimizing the share of social housing built.
It is partly for these reasons that the City of Montréal decided not to build the central median in the final project in 2014.

Urban development can make a significant contribution to financing the costs of demolition/renovation of urban expressways, but it is a mistake to imagine that such projects can be self-financing without public support. After all, the construction of highways has not been self-financed by the development of their surrounding areas.

The double urban avenue: which alternative scenario?

Phase 1 of the Bonaventure Project, at the entrance to downtown, proposed to replace the highway with a one-way dual avenue concept.
This concept was initially determined by the objective of making the land cleared from the highway

profitable through high-density construction and not building along the railway (the rights-of-way along Nazareth Street do not belong to the City).

The choice to keep a total of nine traffic lanes (two of which are reserved for buses) is determined by traffic predictions from a model and not by consideration of the desirable level of traffic and accessibility.

This option creates constraints for the operation and amenity of the future neighborhood (see above).

A more integrated approach would be possible, as shown, for example, by the case of the transformation of the A801 highway corridor in Nantes: the highway has given way to a wide landscaped public space that includes a bus lane (the Busway), a multimodal urban avenue with two lanes of traffic, a bicycle path and wide sidewalks, and new construction on its shoreline.

The urban avenue to replace the A801 highway in Nantes (Busway dedicated lane in the center).
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The Boulevard Henri-Bourrassa today replacing the Bonventure Expressway Viaduct removed in 2015.
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Endnotes

(1) *In 2002, 27 municipalities on the Island of Montréal amalgamated to form the City of Montréal; in 2006, 15 municipalities de-amalgamated, while continuing to take part in the Agglomeration Council and in the definition of the Montréal Agglomeration Plan (April 2015).*

(2) *Estimation 2015, Institut de la Statistique du Québec, at 1er July 2014*

(3) *G. Tremblay resigned as mayor on 5.11.2012.*

(4) *Le Havre de Montréal. État des lieux : la ville et son fleuve. Analyse du territoire et enjeux d'aménagement. Société du Havre de Montréal, 2004.*

(5) *Interview in June 2011 with Louise Roy, President of l'Office de consultation publique de Montréal, Montréal.*

(6) *Interview with Réjean Durocher, Co-Director of the Bureau de Projet Quartier Bonaventure, SHM, Montréal on 31.10.2012.*

(7) *Agence métropolitaine de transports (AMT), Ministère des transports du Québec (MTQ), Société de transports de Montréal (STM), Réseau de transport de Longueil (RTM) on the South Shore, Société Ponts Jacques Cartier et Champlain incorporée (SPJCCI).*

(8) *Association de l'outil Emme/2 (MTQ), du logiciel Dynameq et du microsimulateur Vissim. Cf. Etude du Consortium Dessau/Groupe SM, Montréal pour la STM, April 2009.*

(9) *The estimation of CAN$90 million in 2005 (see above).*

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