

# MÉTROBUS

### Organization

Réseau de transport de la Capitale (RTC)

### Status

Started 1992, in progress

### Overview

In 1992, the Réseau de transport de la Capitale (RTC) launched a high-frequency bus service to increase public transit ridership. Métrobus buses travel on reserved bus lanes along major arteries to minimize travel times. Fast, frequent and dependable, the Métrobus service is very much appreciated by users and has proven effective in increasing ridership. The RTC's strategic plans now include three new Métrobus lines.

The victim of its own success, the Métrobus system often finds itself overloaded. Consequently, the RTC intends to invest in larger capacity buses. In the long term, a Tramway could replace the service.

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### Resources

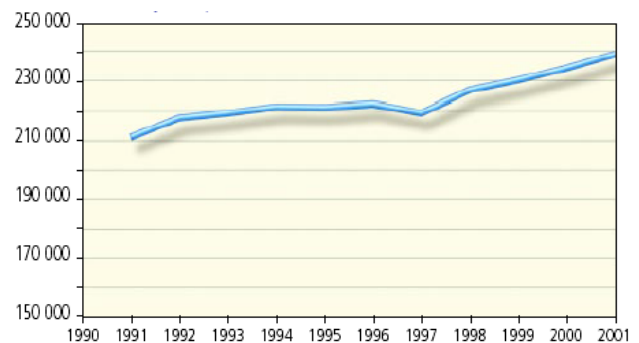
- Réseau de transport de la capitale ([www.stuq.qc.ca](http://www.stuq.qc.ca))
- Ville de Québec ([www.ville.quebec.qc.ca](http://www.ville.quebec.qc.ca))

### Context

As a result of the recent wave of municipal mergers, the City of Quebec comprises eight arrondissements [municipal districts], stretching over 542 km<sup>2</sup> with 507 981 inhabitants (2001). Like all North American cities, Quebec has seen a growing number of individual motorists. In 10

years, the number of cars in circulation has grown by 27 000, or 13%.

Number of registered vehicles, Quebec City (1991-2001)



Source : Société de l'assurance automobile du Québec.

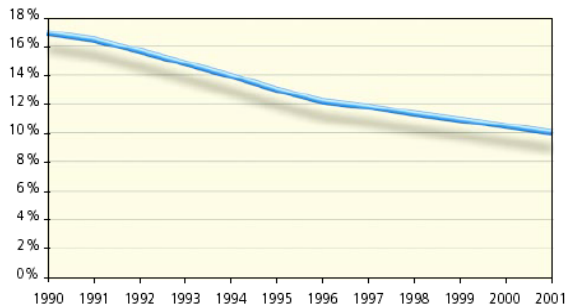
Benefiting from a well-developed expressway network, the city has 22 km of expressway per 100 000 residents, compared to 8 km in Montreal and 7 km in Toronto. Over the last few years, population growth has been mostly located in the more peripheral sectors of the city. Residential development in these areas is still low-density. By the same token, commercial activity has also developed along the expressways. One can find large and free parking lots, which encourage automobile use, but few pedestrian infrastructure elements to encourage the use of public transit.

While individual vehicle use is gaining ground, public transit is losing its hold. Its ridership is stable, but its relative significance continues to diminish. In 1991, 16% of weekday motorized transit trips were on public transit – by 2001, this percentage had dropped to 10%. (See graph on next page.)



Promoter's logo

### The proportion of public transit in motorized transit keeps dropping



Source: *Origin-destination survey (2001)*, Ministère des Transports du Québec and Réseau de transport de la Capitale.

The Réseau de transport de la Capitale (RTC) manages public transit. Created in 1969 by the provincial government, this public organization provides citizens with quality public transit services at the best possible cost.

The current RTC network includes:

- A service covering the entire network. These routes guarantee links at all times between residential districts and activity centres via major streets and local arterial streets;
- An Express service that connects during peak periods the residential districts to downtown Quebec City and Sainte-Foy, mainly via expressways;
- A high-frequency Métrobus service operating mainly on reserved bus lanes, serves the major activity centres. Almost 40% of citizens and employers and 73% of post-secondary educational institutions stand within 800 m of a Métrobus route;
- A Couche-tard (late-night) service for some routes on Friday and Saturday nights;
- A Taxibus service accessible in certain outlying districts not served by the RTC.

### Policy Context

Problems resulting from the growing use of cars in Quebec City, as elsewhere, have tangible effects: greenhouse gases, smog, noise, clogged streets and parking lots, diminished quality of life, etc.

Public transit offers undeniable relief for many of these problems, and presents several other advantages:

- Public transit allows businesses to benefit from a broader labour pool, a significant economic factor in selecting a location.
- Access to public transit is essential to many people for work, school, or reaching health care, cultural and recreational locations. A 2001 survey revealed that 13% of Quebec City households don't own a car.
- Families, who use the bus instead of a car, or those who eliminate their second car, save over \$8000 per year. This money can then work its way into the local economy, bringing greater social benefits than car industry can offer.
- Less car usage would allow space to be reclaimed, notably by reducing oversized streets and diminishing the amount of space used by parking lots – an estimated 36 km<sup>2</sup> of Quebec City. Some of this space could become pedestrian infrastructures, parks, and public gardens.

Despite the unquestionable advantages of public transit, its users benefit from very little preferential treatment or incentives. In 1992, the government of Quebec stopped funding public transit, leaving municipalities and users with the entire bill for maintaining and developing their transit systems – yet their resources have proven insufficient.

### Rationale and Objectives

In 1992, the RTC was already implementing a plan to counteract the declining use of public transit. The organization targeted objectives such as improving transit speeds, consolidating major transit routes, and developing services adapted to the needs of target groups. At the core of this strategy was the introduction of the Métrobus, a high-frequency bus service on reserved lanes. The Métrobus was to serve three major transit routes in the region.

The establishment of a regional network of reserved bus lanes, as well as further prioritization of bus circulation, were expected to allow significant time savings (from 30% to 75% of travel time, depending on the route) as well as \$800 000 in operational savings thanks to the service's rapidity and regularity.

With a transport capability of 1000 cars per hour, the Métrobus was expected to become the backbone of the transit network.

All these forecasts proved well founded. The two Métrobus routes now outperform the traditional network. But while this recovery plan halted the decrease in public transit ridership, it hasn't stopped the rising use of cars. Moreover, the Métrobus is a victim of its own success, as it is frequently overloaded. Consequently, in its 2005-2014 strategic plan, the RTC intends to reinforce the current Métrobus system and add three new Métrobus lines.



*Current Métrobus routes (green) and planned additions of the same along major arteries (Plan stratégique de développement des services 2005-2014).*

This structuring network project benefiting the entire city will require significant investments at both the municipal and provincial levels.

The establishment of such a structuring network should increase ridership by 7 million passengers every year, an increase of 33%. The modal share on these routes will increase from 15% to 20%.

## Actions

From its inception and routinely thereafter, the RTC conducted a Métrobus mass media campaign to promote the new service among existing riders as well as explain the new reserved bus lanes to motorists.

On some routes, the Métrobus uses a lane accessible only to buses and taxis. Over 38 km long in each direction, it covers about half the Métrobus routes. Seventy-seven (77) regular low floor buses and two articulated buses use it.

Métrobus operates seven days a week from 5:30 a.m. (6 on Sundays) to 1 a.m., with a late service Fridays and Saturdays.

Its stops, called Métrobus stations, have distinctive signs and are spaced further apart than regular bus stops. Stops on regular routes are spaced about 250 m apart, while Métrobus stations are spaced 430 m apart on average. There are 163 stations in total, most with bus shelters.

The average frequency of the service varies by route, from 2 to 4 minutes during rush period, 5 to 10 minutes at off-peak times and 7 to 15 minutes on evenings and weekends.

To make it easier for buses to enter traffic flow, and to speed up circulation, 10 intersections use priority traffic lights (white lights). They give buses the exclusive ability to turn left from a right-hand lane or allow for no-wait departures.

The RTC has been trying a pre-emptive light system that allows a bus to trigger or extend green light times on certain arteries. This system increases service regularity even during rush hours.

In 1992, the RTC created the Parc-O-Bus - a network of 24 park-and-ride lots providing 900 parking spots, to encourage car drivers to use public transit. Seven of these lots are located along Métrobus routes and have a 82% user rate.



*About half the Métrobus routes run along reserved bus lanes like this one to Université Laval campus.*



*Reserved bus lane, De La Couronne Street.*



*The Métrobus system transports over 15 million passengers a year.*

## Results

The two Métrobus routes are used by 38% of RTC customers, who use the system 49 500 times on an average weekday. Annually, this represents more than 15 million passengers.

On the whole, the reliability rate of the Métrobus is 88% on weekdays. The service is considered reliable when the time interval between two departures equals its predicted time, with a two-minute margin of error. The Métrobus lines perform better than standard buses. They also have the largest ridership, with about 93 boarding per client-service hour, compared to 70 for the regular and 54 for the Express services.

Despite its reliability, speed and capacity, some problems persist, for the Métrobus is regularly overloaded. Its maximum load travelling in one direction varies from 1000 to 1100 users, while theoretically it should not exceed 800 people. The addition of more departures during rush hour

increases the number of bus trains (three or more buses travelling in a row) along the routes, slowing down the circuit. Finally, according to a survey taken in 2001, 62% of car drivers respected the reserved lanes, depending largely on the time of day and direction of travel.

## Participants

The RTC has been working to ensure Métrobus's success with the City of Quebec, the municipal police force, and the Ministère des Transports du Québec.

## Resources

- 79 buses
- 220 000 hours of operation every year, about 20% of overall resources for 38% of the system's ridership
- 4 700 000 km driven

## Timeline

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|------------|--|
| 1991       | Tabling of the 1991-1993 action plan « <i>Pour la relance du transport en commun dans la région de Québec</i> » (To revitalize public transit in the Quebec City region) |
| 1992       | Revival of the public transit network.<br>Implementation of the Métrobus service.<br>New reserved lanes over 30 km   |
| 1993 –1995 | Extension of Métrobus lines  |
| 2003       | Discussion paper on strategic goals for 2003-2013. Recommendation to reinforce public transit by increasing Métrobus ridership   |
| 2003       | Study on the feasibility and convenience of creating a Tramway in Quebec City  |
| 2004       | City of Quebec holds public hearings on the future of public transit<br><br>Commissioning of a feasibility study for two new Métrobus lines (to be tabled in March 2005) |
| 2005       | Tabling of the RTC strategic plan.<br>Recommendation to purchase articulated buses and to develop three new Métrobus lines.  |

## Lessons Learned

After more than a decade of operations, the RTC has learned a number of lessons regarding the operation of the Métrobus lines.

- Police need to patrol frequently to ensure that **reserved Métrobus lanes are respected.**
- Decreased crowding during rush hour requires the **use of greater capacity articulated buses.** The speed and reliability of the service depends in part on **a system that gives priority to buses** at traffic lights.
- The RTC has also learned much on strategy.
- Despite the existence and success of the Métrobus, **nothing is definitively guaranteed.** The RTC has to stay vigilant in the political arena to justify its reserved bus lanes.
- The Métrobus lines by themselves, while dependable and efficient, cannot be the only response to all the problems associated with motorized transportation. **Several complementary strategic actions will be needed** to increase public transit's share.
- The success of the Métrobus shows that there is a high demand for such a service. **The Métrobus could be seen as a first step towards implementation of the Tramway,** a significantly more expensive yet much more efficient mode of transportation thanks to higher capacities and greater speed – and more structuring in terms of urban planning.
- Thanks to the Métrobus's high speed and frequency, its routes serve clients from a much greater distance than regular services. People are willing to walk greater distances to get to the service. A transfer in the customer base has been observed, sometimes resulting in less ridership in more peripheral routes – an effect the RTC was not expecting.

## Next Steps

The RTC is awaiting approval and funding from the Ministère des Transports du Québec to buy articulated buses and build a garage, both necessary to consolidate the current Métrobus system. The organization intends to have these improvements in place for 2008, as well as the progressive implementation of the three new Métrobus lines by 2010.